
Building and Running an Open edX Course: Eucalyptus Release

Release

August 26, 2016

1	General Information	1
1.1	Read Me	1
1.2	Other edX Resources	1
1.3	edX Browser Support	7
1.4	Change Log	7
2	Getting Started	13
2.1	Exploring Your Dashboard, Settings, and Profile	13
2.2	Getting Started with Studio	20
3	Reaching As Many Learners As Possible	23
3.1	Designing Your Course For a Mobile Experience	23
4	Accessibility Best Practices Guidance for Content Providers	25
4.1	What Is The EdX Accessibility Best Practices Guidance Based On?	25
4.2	Supporting Learners with Diverse Needs	26
4.3	Accessibility Best Practices for Developing Course Content	27
5	Setting Up Your Course	41
5.1	Creating a Course	41
5.2	Licensing a Course	43
5.3	Setting Start and End Dates	46
5.4	Setting Course Pacing	50
5.5	Set Course Prerequisites	52
5.6	Course Search	55
5.7	Setting Details About Your Course	55
5.8	Staffing	62
5.9	Setting Up Course Certificates	64
5.10	Creating a Custom Course	68
6	Developing Your Course	73
6.1	Getting Started with Course Content Development	73
6.2	Developing Your Course Outline	76
6.3	Developing Course Sections	84
6.4	Developing Course Subsections	90
6.5	Developing Course Units	99
6.6	Developing Course Components	118
6.7	Controlling Content Visibility	128
6.8	Testing Your Course Content	131

7	Adding Course Components	139
7.1	Working with HTML Components	139
7.2	Working with Video Components	154
7.3	Working with Discussion Components	163
7.4	Working with Problem Components	167
7.5	Working with Content Libraries	186
8	Creating Exercises and Tools	195
8.1	Exercises and Tools	195
8.2	Enable Additional Exercises and Tools	200
8.3	Annotation Problem	200
8.4	Calculator Tool	203
8.5	Checkbox Problem	204
8.6	Chemical Equation Problem	218
8.7	Circuit Schematic Builder Problem	222
8.8	Completion Tool	225
8.9	Conditional Module	226
8.10	Custom JavaScript Problem	228
8.11	Drag and Drop Problem	233
8.12	Drag and Drop Problem (Deprecated)	244
8.13	Dropdown Problem	255
8.14	External Grader	263
8.15	Full Screen Image Tool	268
8.16	Gene Explorer Tool	272
8.17	Google Calendar Tool	273
8.18	Google Drive Files Tool	278
8.19	Google Instant Hangout Tool	284
8.20	Iframe Tool	289
8.21	Image Mapped Input Problem	292
8.22	LTI Component	299
8.23	Math Expression Input Problems	306
8.24	Molecule Editor Tool	311
8.25	Molecule Viewer Tool	315
8.26	Multiple Choice Problem	318
8.27	Multiple Choice and Numerical Input Problem	334
8.28	Notes Tool	335
8.29	Numerical Input Problem	337
8.30	Office Mix Tool	351
8.31	Open Response Assessments	355
8.32	Oppia Exploration Tool	393
8.33	Peer Instruction Tool	395
8.34	Periodic Table Tool	401
8.35	Poll Tool	402
8.36	Poll Tool for OLX	407
8.37	Problem with Adaptive Hint	411
8.38	Problem Written in LaTeX	414
8.39	Protex Protein Builder Tool	415
8.40	Qualtrics Survey Tool	416
8.41	Randomized Content Blocks	420
8.42	Recommender Tool	425
8.43	Survey Tool	427
8.44	Text Input Problem	432
8.45	Word Cloud Tool	443
8.46	Write-Your-Own-Grader Problem	445

8.47	Zooming Image Tool	453
8.48	A Brief Introduction to MathJax in Studio	455
9	Adding Course Assets	459
9.1	Adding Files to a Course	459
9.2	Adding Course Updates and Handouts	462
9.3	Adding Pages to a Course	463
9.4	Textbooks	469
9.5	Using the Course Wiki	470
10	Choosing Enhanced Capabilities For Your Course	477
10.1	Including Learner Cohorts	477
10.2	Including Teams	505
10.3	Creating Content Experiments	514
10.4	Timed Exams	529
10.5	Using Open edX as an LTI Tool Provider	534
11	Establishing a Grading Policy For Your Course	547
11.1	Set the Grade Range	547
11.2	Set the Grace Period	548
11.3	Configure the Assignment Types	548
11.4	Graded Subsections	550
11.5	The Learner View of Grades	550
12	Releasing Your Course	553
12.1	Beta Testing a Course	553
12.2	Course Launching Activities	557
13	Managing a Running Course	561
13.1	Course Data	561
13.2	Bulk Email	563
13.3	Enrollment	577
13.4	Manage Course Fees	580
13.5	Managing Course Discussions	589
13.6	Participating in Course Discussions	603
13.7	Guidance for Discussion Moderators	619
13.8	Staff Debug Info	621
14	Managing Learner Progress and Grades	623
14.1	Learner Data	623
14.2	Answer Data	628
14.3	Learner Grades and Grading	637
14.4	Obtaining Certificate Data	650
14.5	Assign Final Grades and Issue Certificates	651
15	Re-running Your Course	653
15.1	Re-running a Course	653
16	Glossary	657
16.1	A	657
16.2	C	658
16.3	D	660
16.4	E	660
16.5	F	661
16.6	G	661

16.7 H	661
16.8 I	662
16.9 K	662
16.10 L	662
16.11 M	663
16.12 N	663
16.13 O	663
16.14 P	664
16.15 Q	664
16.16 R	665
16.17 S	665
16.18 T	665
16.19 U	666
16.20 V	666
16.21 W	666
16.22 XYZ	667

General Information

1.1 Read Me

The edX *Building and Running an Open edX Course* guide is created using [RST](#) files and [Sphinx](#). You, the user community, can help update and revise this documentation project on GitHub:

https://github.com/edx/edx-documentation/tree/master/en_us/open_edx_course_authors/source

To suggest a revision, fork the project, make changes in your fork, and submit a pull request back to the original project: this is known as the [GitHub Flow](#).

All pull requests need approval from edX. For more information, contact edX at docs@edx.org.

1.2 Other edX Resources

Course teams, researchers, developers, learners: the edX community includes groups with a range of reasons for using the platform and objectives to accomplish. To help members of each group learn about what edX offers, reach goals, and solve problems, edX provides a variety of information resources.

To help you find what you need, browse the edX offerings in the following categories.

- *The edX Partner Portal*
- *The Open edX Portal*
- *System Status*
- *Resources for Course Teams*
- *Resources for Researchers*
- *Resources for Developers*
- *Resources for Open edX*
- *Resources for Learners*

All members of the edX community are encouraged to make use of the resources described in this preface. We welcome your feedback on these edX information resources. Contact the edX documentation team at docs@edx.org.

1.2.1 The edX Partner Portal

The [edX Partner Portal](#) is the destination for partners to learn, connect, and collaborate with one another. Partners can explore rich resources and share success stories and best practices while staying up-to-date with important news and updates.

To use the edX Partner Portal, you must register and request verification as an edX partner. If you are an edX partner and have not used the edX Partner Portal, follow these steps.

1. Visit partners.edx.org, and select **Create New Account**.
2. Select **Request Partner Access**, then fill in your personal details.
3. Select **Create New Account**. You will receive a confirmation email with your account access within 24 hours.

After you create an account, you can sign up to receive email updates about edX releases, news from the product team, and other announcements. For more information, see [Release Announcements by Email](#).

Course Team Support in the edX Partner Portal

EdX partner course teams can get technical support in the [edX Partner Portal](#). To access technical support, submit a support ticket, or review any support tickets you have created, go to partners.edx.org and select **Course Staff Support** at the top of the page. This option is available on every page in the Partner Portal.

1.2.2 The Open edX Portal

The [Open edX Portal](#) is the destination for all edX users to learn about the edX roadmap, as well as hosting, extending the edX platform, and contributing to Open edX. In addition, the Open edX Portal provides product announcements, the Open edX blog, and other rich community resources.

All users can view content on the Open edX Portal without creating an account and logging in.

To comment on blog posts or the edX roadmap, or subscribe to email updates, you must create an account and log in. If you do not have an account, follow these steps.

1. Visit open.edx.org/user/register.
2. Fill in your personal details.
3. Select **Create New Account**. You are then logged in to the [Open edX Portal](#).

Release Announcements by Email

To receive and share product and release announcements by email, you can subscribe to announcements on one of the edX portal sites.

1. Create an account on the [Open edX Portal](#) or the [edX Partner Portal](#) as described above.
2. Select **Community** and then **Announcements**.
3. Under **Subscriptions**, select the different types of announcements that you want to receive through email. You might need to scroll down to see these options.
4. Select **Save**.

You will now receive email messages when new announcements of the types you selected are posted.

1.2.3 System Status

For system-related notifications from the edX operations team, including outages and the status of error reports. On [Twitter](#), you can follow [@edxstatus](#).

Current system status and the uptime percentages for edX servers, along with the Twitter feed, are published on the [edX Status](#) web page.

1.2.4 Resources for Course Teams

Course teams include faculty, instructional designers, course staff, discussion moderators, and others who contribute to the creation and delivery of courses on [edx.org](#) or edX Edge.

The edX Learning Series

The courses in the edX Learning Series provide foundational knowledge about using the edX platform. These courses are available on [edx.org](#).

edX101: Overview of Creating a Course

The [edX101](#) course is designed to provide a high-level overview of the course creation and delivery process using Studio and the edX LMS. It also highlights the extensive capabilities of the edX platform.

StudioX: Creating a Course with edX Studio

After you complete edX101, [StudioX](#) provides more detail about using Studio to create a course, add different types of content, and configure your course to provide an optimal on-line learning experience.

VideoX: Creating Video for the edX Platform

[VideoX](#) presents strategies for creating videos for course content and course marketing. The course provides step-by-step instructions for every stage of video creation, and includes links to exemplary sample videos created by edX partner institutions.

Documentation

Documentation for course teams is available on the [docs.edx.org](#) web page.

- [Building and Running an edX Course](#) is a comprehensive guide with concepts and procedures to help you build a course in edX Studio, and then use the Learning Management System (LMS) to run a course.
When you are working in edX Studio, you can access relevant sections of this guide by selecting **Help** on any page.
- [Using edX Insights](#) describes the metrics, visualizations, and downloadable .csv files that course teams can use to gain information about student background and activity.
- The [edX Release Notes](#) summarize the changes in each new version of deployed software.

These guides open in your web browser. The left side of each page includes a **Search docs** field and links to the contents of that guide. To open or save a PDF version, select **v: latest** at the lower right of the page, then select **PDF**.

Note: If you use the Safari browser, be aware that it does not support the search feature for the HTML versions of the edX guides. This is a known limitation.

Email

To receive and share information by email, course team members can:

- Subscribe to announcements and other new topics in the edX Partner Portal or the Open edX Portal. For information about how to subscribe, see [Release Announcements through the Open edX Portal](#).
- Join the [openedx-studio](#) Google group to ask questions and participate in discussions with peers at other edX partner organizations and edX staffers.

Wikis and Web Sites

The edX product team maintains public product roadmaps on [the Open edX Portal](#) and [the edX Partner Portal](#).

The [edX Partner Support](#) site for edX partners hosts discussions that are monitored by edX staff.

1.2.5 Resources for Researchers

At each partner institution, the data czar is the primary point of contact for information about edX data. To set up a data czar for your institution, contact your edX partner manager.

Data for the courses on [edx.org](#) and edX Edge is available to the data czars at our partner institutions, and then used by database experts, statisticians, educational investigators, and others for educational research.

Resources are also available for members of the Open edX community who are collecting data about courses running on their sites and conducting research projects.

Documentation

The [edX Research Guide](#) is available on the [docs.edx.org](#) web page. Although it is written primarily for data czars and researchers at partner institutions, this guide can also be a useful reference for members of the Open edX community.

The [edX Research Guide](#) opens in your web browser, with a **Search docs** field and links to sections and topics on the left side of each page. To open or save a PDF version, select **v: latest** at the lower right of the page, and then select **PDF**.

Note: If you use the Safari browser, be aware that it does not support the search feature for the HTML versions of the edX guides. This is a known limitation.

Discussion Forums and Email

Researchers, edX data czars, and members of the global edX data and analytics community can post and discuss questions in our public research forum: the [openedx-analytics](#) Google group.

The edX partner portal also offers community [forums](#), including a Research and Analytics topic, for discussions among edX partners.

Important: Please do not post sensitive data to public forums.

Data czars who have questions that involve sensitive data, or that are institution specific, can send them by email to data.support@edx.org with a copy to your edX partner manager.

Wikis

The edX Analytics team maintains the [Open edX Analytics](#) wiki, which includes links to periodic release notes and other resources for researchers.

The [edx-tools](#) wiki lists publicly shared tools for working with the edX platform, including scripts for data analysis and reporting.

1.2.6 Resources for Developers

Software engineers, system administrators, and translators work on extending and localizing the code for the edX platform.

Documentation

Documentation for developers is available on the docs.edx.org web page.

- The [edX Platform Developer's Guide](#) includes guidelines for contributing to Open edX, options for extending the Open edX platform, using the edX public sandboxes, instrumenting analytics, and testing.
- [Installing, Configuring, and Running the Open edX Platform](#) provides procedures for getting an edX developer stack (devstack) and production stack (fullstack) operational.
- [Open edX XBlock Tutorial](#) guides developers through the process of creating an XBlock, and explains the concepts and anatomy of XBlocks.
- [Open edX XBlock API Guide](#) provides reference information about the XBlock API.
- [edX Open Learning XML Guide](#) provides guidelines for building edX courses with Open Learning XML (OLX). Note that this guide is currently an alpha version.
- [edX Data Analytics API](#) provides reference information for using the data analytics API to build applications to view and analyze learner activity in your course.
- [edX Platform APIs](#) provide reference information for building applications to view course information and videos and work with user and enrollment data.

Note: If you use the Safari browser, be aware that it does not support the search feature for the HTML versions of the edX guides. This is a known limitation.

GitHub

These are the main edX repositories on GitHub.

- The [edx/edx-platform](#) repo contains the code for the edX platform.
- The [edx/edx-analytics-dashboard](#) repo contains the code for edX Insights.
- The [edx/configuration](#) repo contains scripts to set up and operate the edX platform.

Additional repositories are used for other projects. Our contributor agreement, contributor guidelines and coding conventions, and other resources are available in these repositories.

Community Discussions

The [Community Discussions](#) page in the Open edX Portal lists different ways that you can ask, and answer, questions.

Wikis and Web Sites

The [Open edX Portal](#) is the entry point for new contributors.

The edX Engineering team maintains an [open Confluence wiki](#), which provides insights into the plans, projects, and questions that the edX Open Source team is working on with the community.

The [edx-tools](#) wiki lists publicly shared tools for working with the edX platform, including scripts and helper utilities.

1.2.7 Resources for Open edX

Hosting providers, platform extenders, core contributors, and course staff all use Open edX. EdX provides release-specific documentation, as well as the latest version of all guides, for Open edX users. The following documentation is available.

- [Open edX Release Notes](#) provides information on the contents of Open edX releases.
- [Building and Running an Open edX Course](#) is a comprehensive guide with concepts and procedures to help you build a course in Studio, and then use the Learning Management System (LMS) to run a course.

When you are working in Studio, you can access relevant sections of this guide by selecting **Help** on any page.

- [Open edX Learner's Guide](#) helps students use the Open edX LMS to take courses. This guide is available on the docs.edx.org web page. Because learners are currently only guided to this resource through the course, we encourage course teams to provide learners with links to this guide as needed in course updates or discussions.
- [Installing, Configuring, and Running the Open edX Platform](#) provides information about installing and using devstack and fullstack.
- The [edX Platform Developer's Guide](#) includes guidelines for contributing to Open edX, options for extending the Open edX platform, using the edX public sandboxes, instrumenting analytics, and testing.
- [Open edX XBlock Tutorial](#) guides developers through the process of creating an XBlock, and explains the concepts and anatomy of XBlocks.
- [Open edX XBlock API Guide](#) provides reference information on the XBlock API.
- [EdX Open Learning XML Guide](#) provides guidelines for building edX courses with Open Learning XML (OLX). Note that this guide is currently an alpha version.
- [EdX Data Analytics API](#) provides reference information for using the data analytics API to build applications to view and analyze learner activity in your course.
- [EdX Platform APIs](#) provide reference information for building applications to view course information and videos and work with user and enrollment data.

Note: If you use the Safari browser, be aware that it does not support the search feature for the HTML versions of the edX guides. This is a known limitation.

1.2.8 Resources for Learners

Documentation

The [EdX Learner's Guide](#) and the [Open edX Learner's Guide](#) are available on the docs.edx.org web page. Because learners are currently only guided to this resource through the course, we encourage course teams to provide learners with links to these guides as needed in course updates or discussions.

In a Course

All edX courses have a discussion forum where you can ask questions and interact with other students and with the course team: select **Discussion**. Many courses also offer a wiki for additional resources and materials: select **Wiki**.

Other resources might also be available, such as a course-specific Facebook page or Twitter feed, or opportunities for Google Hangouts. Be sure to check the **Home** page for your course as well as the **Discussion** and **Wiki** pages.

From time to time, the course team might send email messages to all students. While you can opt out of these messages, doing so means that you can miss important or time-sensitive information. To change your preferences for course email, select **edX** or **edX edge** at the top of any page. On your dashboard of current courses, locate the course and then select **Email Settings**.

From edX

To help you get started with the edX learning experience, edX offers a course (of course!). You can find the edX [Demo](#) course on the edX web site. EdX also maintains a list of [frequently asked questions](#) and answers.

If you still have questions or suggestions, you can get help from the edX support team: select **Contact** at the bottom of any edX web page or send an email message to info@edx.org.

For opportunities to meet others who are interested in edX courses, check the edX Global Community [meetup](#) group.

1.3 edX Browser Support

The edX platform runs on the following browsers.

- [Chrome](#)
- [Safari](#)
- [Firefox](#)
- [Microsoft Edge](#) and [Microsoft Internet Explorer 11](#)

The edX platform is routinely tested and verified on the current version and the previous version of each of these browsers. We generally encourage the use of, and fully support only, the latest version.

Note: If you use the Safari browser, be aware that it does not support the search feature for the guides on docs.edx.org. This is a known limitation.

1.4 Change Log

The edX documentation team no longer maintains a change log for each guide. For a weekly summary of platform changes, refer to the *EdX Release Notes* on the docs.edx.org website.

For information about changes made to the edX documentation set, the [edx-documentation](#) repository on GitHub provides a complete record.

1.4.1 December 2015

Date	Change
16 December 2015	Removed the “Use the Course Checklist” topic. This feature is no longer available in Studio.
1 December 2015	Added the <i>Office Mix Tool</i> topic.
	Added information about specifying additional file types for learners to upload to the <i>Allow Learners to Submit Files (optional)</i> topic.
	Topics within this guide have been reorganized. New top level sections include <i>Adding Course Assets</i> , <i>Choosing Enhanced Capabilities For Your Course</i> , <i>Establishing a Grading Policy For Your Course</i> , and <i>Managing Learner Progress and Grades</i> .

1.4.2 November 2015

Date	Change
9 November 2015	Updated the <i>Re-running a Course</i> topic to clarify that cohorts must be redefined in a course created by the re-run feature.
3 November 2015	Added the <i>Timed Exams</i> topic.
2 November 2015	Updated the format of course component location identifiers throughout this guide.

1.4.3 October 2015

Date	Change
26 October 2015	Added the <i>Obtaining Certificate Data</i> topic.
21 October 2015	Added the <i>Oppia Exploration Tool</i> topic.
	Added the section <i>Set a Course Number Override</i> .
14 October 2015	Added a note with support information to the beginning of each exercise or tool topic.
	Added <i>Calculator Tool</i> topic to <i>Exercises and Tools</i> .
	Added a note about the calculator tool to the <i>Chemical Equation Problem</i> , <i>Custom JavaScript Problem</i> , <i>Math Expression Input Problems</i> , <i>Multiple Choice and Numerical Input Problem</i> , and <i>Numerical Input Problem</i> topics.
8 October 2015	Added information about deleting textbooks and chapters to <i>Textbooks</i> .
	Added notes about viewing courseware as a learner in <i>Testing Your Course Content</i> .
1 October 2015	Added information about awarding partial credit for the following problems. <ul style="list-style-type: none"> • <i>Awarding Partial Credit for a Problem</i> • <i>Awarding Partial Credit in a Checkbox Problem</i> • <i>Awarding Partial Credit in a Multiple Choice Problem</i> • <i>Awarding Partial Credit in a Numerical Input Problem</i> • <i>Awarding Partial Credit in a Write Your Own Grader Problem</i>
	Added information about including text after the response field in <i>Numerical Input Problem</i> and <i>Text Input Problem</i> .

1.4.4 September 2015

Date	Change
25 September 2015	Updated the sample XML and added an accessibility note in <i>Drag and Drop Problem (Deprecated)</i> . Added a note about the Show Answer setting in <i>Drag and Drop Problem (Deprecated)</i> and <i>Custom JavaScript Problem</i> .
18 September 2015	Added the <i>Using Open edX as an LTI Tool Provider</i> section.
9 September 2015	Updated the <i>Learner Answer Submissions</i> section to include topics about the downloadable student state report and the submission history report.
2 September 2015	Added the <i>Setting Up Course Certificates</i> topic.

1.4.5 August 2015

Date	Change
26 August 2015	Updated the <i>Course Data</i> topic to include descriptions of newly added values.
17 August 2015	Updated the <i>Managing Course Discussions</i> section with information about discussion administration options that are not yet available in the edX mobile apps.
12 August 2015	Added the <i>Qualtrics Survey Tool</i> topic.

1.4.6 July 2015

Date	Change
30 July 2015	Updated the <i>Working with Problem Components</i> and <i>Numerical Input Problem</i> sections to clarify how the Randomization setting is used.
28 July 2015	Updated the <i>Answer Data</i> section to remove references to features on the Analytics page of the Instructor Dashboard.
17 July 2015	Added the <i>Best Practices for Open Response Assessments</i> and <i>How Scores for Open Response Assessments Are Calculated</i> sections.
	Updated this guide to use the course team “Admin” and “Staff” role names consistently. For more information, see the <i>Staffing</i> section.
8 July 2015	Added the <i>Poll Tool</i> and <i>Survey Tool</i> sections.
1 July	Several additions were made to provide information about using feedback and hints in common problems. <ul style="list-style-type: none"> • <i>Adding Feedback and Hints to a Problem</i> • <i>Using Feedback in a Checkbox Problem</i> • <i>Using Hints in a Checkbox Problem</i> • <i>Using Feedback in a Dropdown Problem</i> • <i>Using Hints in a Dropdown Problem</i> • <i>Using Feedback in a Multiple Choice Problem</i> • <i>Using Hints in a Multiple Choice Problem</i> • <i>Using Feedback in a Numerical Input Problems</i> • <i>Using Hints in a Numerical Input Problem</i> • <i>Use Feedback in a Text Input Problem</i> • <i>Use Hints in a Text Input Problem</i>

1.4.7 Apr-Jun 2015

Date	Change
22 Jun 2015	Updated the <i>Accessibility Best Practices for Developing Course Content</i> section.
16 Jun 2015	Added the <i>Creating a Custom Course</i> section.
10 Jun 2015	Added the <i>Report Learners Not Yet Enrolled</i> section.
8 Jun 2015	Updated the <i>Add a Course Update</i> section to include information about sending notifications to the edX mobile applications.
	Added the list of <i>Mobile-Ready Problem Types</i> .
	Added the <i>Setting Up Course Certificates</i> section.
	Added <i>Manage Course Fees</i> .
	Added <i>Notes Tool</i> topic.
28 May 2015	Updated this document to latest version.

1.4.8 Jan-Mar 2015

Date	Change
24 Feb 2015	Initial release of document for the Open edX Birch release.

Getting Started

2.1 Exploring Your Dashboard, Settings, and Profile

This topic describes your dashboard, account settings, and profile.

- *Overview*
- *Exploring the Dashboard*
- *Exploring the Profile Page*
- *Exploring the Account Settings Page*

2.1.1 Overview

After you create an edX account, you can view a list of your current courses, change your course or account settings, or create a profile. You can access course, account, or profile information from any edX page, whether you are in a course or browsing the course catalog.

- Your *dashboard* gives you access to course information, such as start and end dates, email settings, and certificates. To access your dashboard, select your username on any edX page.
- On your *profile page*, you can create a profile that includes an image and biographical information. To access your profile, select the arrow next to your username on any edX page, and then select **Profile**.
- The *Account Settings* page allows you to change settings such as your email address, education level, and country or region, and to link your edX account to a social media or organization account. You can also view a summary of any purchases you have made. To access the **Account Settings** page, select the arrow next to your username on any edX page, and then select **Account**.

2.1.2 Exploring the Dashboard

When you create an edX account or enroll in an edX course, you automatically go to your dashboard. You can also access your dashboard by selecting your username on any edX page. You can find information about your courses and change course settings on your dashboard. For more information, see *Find or Change Course Information*.

Find or Change Course Information

You can complete the following actions on your dashboard.

- Access your current and archived courses.

To access a current or archived course, select **View Course** or **View Archived Course** next to the name of the course. Note that archived courses do not always provide access to all content.

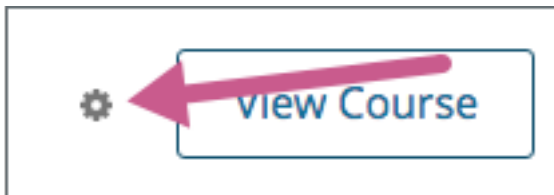
- See when courses start or end.

Course start and end dates appear below the name of the course.

- If a course has not yet started, you see the course start date.
- If a course has started but not ended, you see the course end date.
- If a course has ended, you see the course end date.

- Change your course email settings.

1. Select the Options icon for the course, and then select **Course emails**. The Options icon resembles a gear and appears next to **View Course** or **View Archived Course**.



2. Select or clear the **Receive course emails** check box, and then select **Save Settings**.

Note: If you clear this check box, you will not receive any of the email messages that course teams send to communicate with enrolled learners in the course.

- Unenroll from a course.

To unenroll, select the Options icon for the course, select **Unenroll**, and then select **Unenroll** in the confirmation dialog box. The Options icon resembles a gear and appears next to **View Course** or **View Archived Course**.

- View your grades in courses that you have completed.

Your final grade appears under the name of the course.

- Download a course certificate.

To download a course certificate, select **Download Your Certificate (PDF)** or **Download Your ID Verified Certificate (PDF)**. You can then print the PDF certificate.

2.1.3 Exploring the Profile Page

Your edX profile allows you to share information about yourself with the edX community. Course teams and other learners in your courses can view your profile. You can share either a limited profile or a full profile.

Your profile always includes your username. Optionally, and if you are over 13 years of age, you can also share a profile picture, your location, and other biographical information.

A limited profile shares only your username and an optional profile picture.

Note: If you are under 13 years of age, you can only share a limited profile and you cannot share a profile picture.



S [redacted]

This edX learner is currently sharing a limited profile.

A full profile includes biographical information in addition to your username and profile image.

edX learners can see my:



S [redacted]

United States

Spanish

About me

¡Hola! Me llamo S [redacted] y vivo en los Estados Unidos. He tomado 5 cursos de edX, incluyendo Justice (de Harvard) y Mejores Pensiones - Mejores Trabajos (de IBDx). Sueño con aprender más de las esfuerzos que efectuan el cambio en nuestro mundo.

Hi! I'm S [redacted], and I live in the US. I've taken 5 edX courses, including Justice (Harvard) and Mejores Pensiones - Mejores Trabajos (IBDx). I want to learn more about how to effect change in the world.

Create or Edit a Limited Profile

A limited profile includes only your username and, optionally, an image.

Note: If you are under 13 years of age, your limited profile only includes your username. You cannot add a profile picture.

To create or edit a limited profile, follow these steps.

1. On any edX page, select the arrow next to your username, and then select **Profile**.
2. On your profile page, locate **edX learners can see my**, and then select **Limited Profile**.
3. (optional) Add an image that you want to associate with your edX username. Your image must be a .gif, .jpg, or .png file. The image must be between 100 bytes and 1 MB in size. If you do not add an image, the placeholder image appears as your profile image.
 - (a) Move your cursor over the placeholder image, and then select **Upload Image**.
 - (b) In the dialog box, select the image file that you want, and then select **Open**.

To change or remove your profile image, move your cursor over your image, and then select either **Change Image** or **Remove**. When you remove your profile image, the placeholder image appears as your profile image.

EdX saves your changes automatically.

Create or Edit a Full Profile

Note: You must specify your year of birth on the **Account Settings** page before you share a full profile. If you are under 13 years of age, you can share only a *limited profile*.

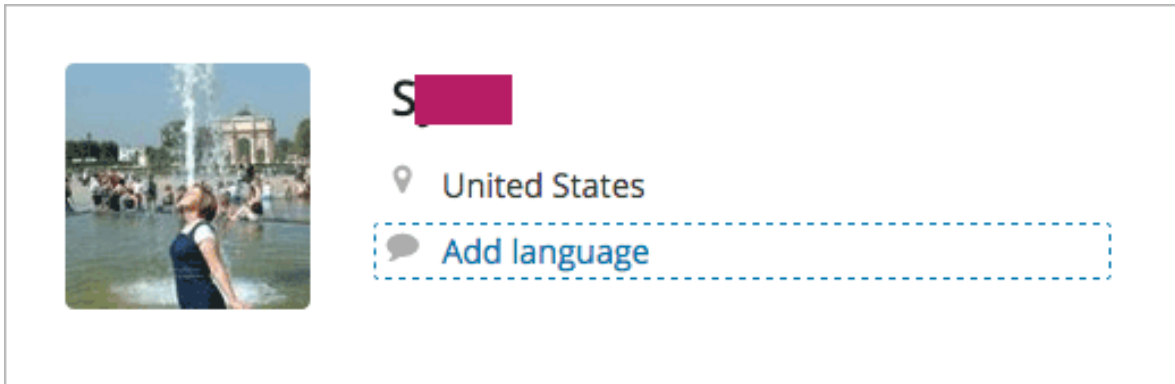
A full profile can include the following information. Your username and country or region are required.



- Your username.
- An image that you select to identify you on the edX site.
- Your country or region.
- Your preferred language.
- A paragraph about yourself. You might include your interests, goals, or other information that you want to share. This paragraph can contain up to 3000 characters.

To create or edit your profile, follow these steps.

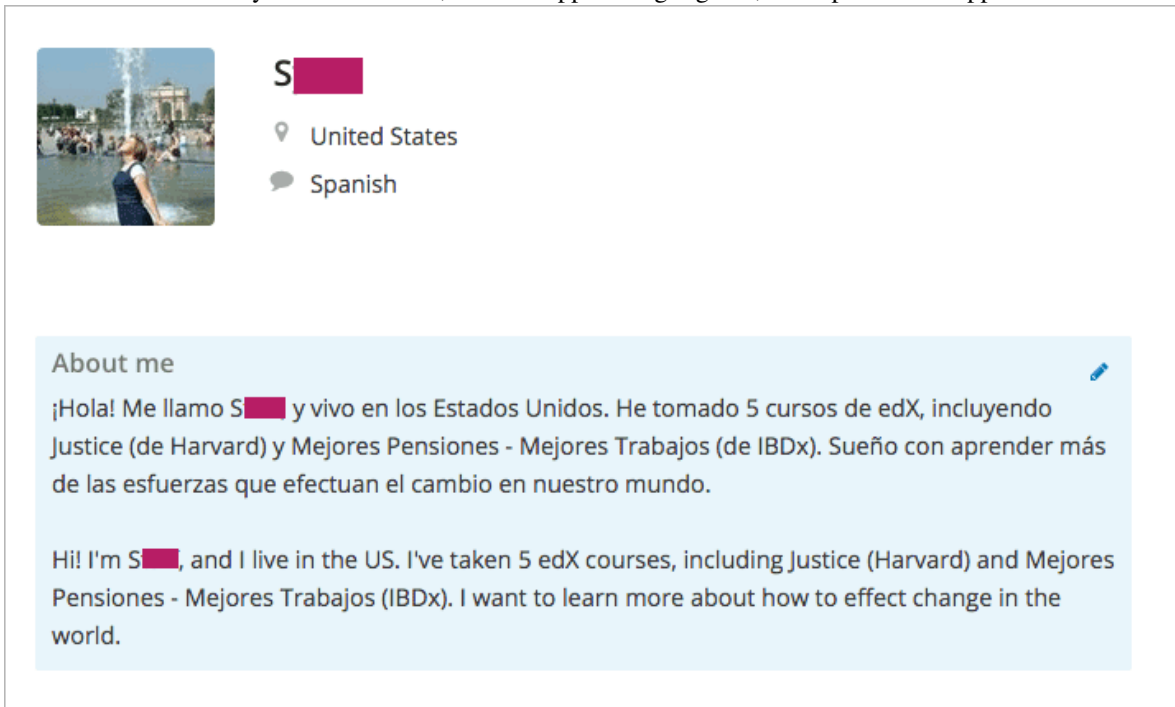
1. On any edX page, select the arrow next to your username, and then select **Profile**.
2. Locate **edX learners can see my**, and then select **Full Profile**.
3. On your profile page, move your cursor over the information that you want to add or change.



If you have not added information to the field, the field appears highlighted and surrounded by a dashed line.







 S 
 United States
 Add language

If the field already has information, the field appears highlighted, and a pencil icon appears.




 S 
 United States
 Spanish

About me 
 ¡Hola! Me llamo S  y vivo en los Estados Unidos. He tomado 5 cursos de edX, incluyendo Justice (de Harvard) y Mejores Pensiones - Mejores Trabajos (de IBDx). Sueño con aprender más de las esfuerzos que efectuan el cambio en nuestro mundo.
 Hi! I'm S , and I live in the US. I've taken 5 edX courses, including Justice (Harvard) and Mejores Pensiones - Mejores Trabajos (IBDx). I want to learn more about how to effect change in the world.

4. Move your cursor inside the field, and then either enter text in the field or select a different option from a list. EdX saves your changes automatically.

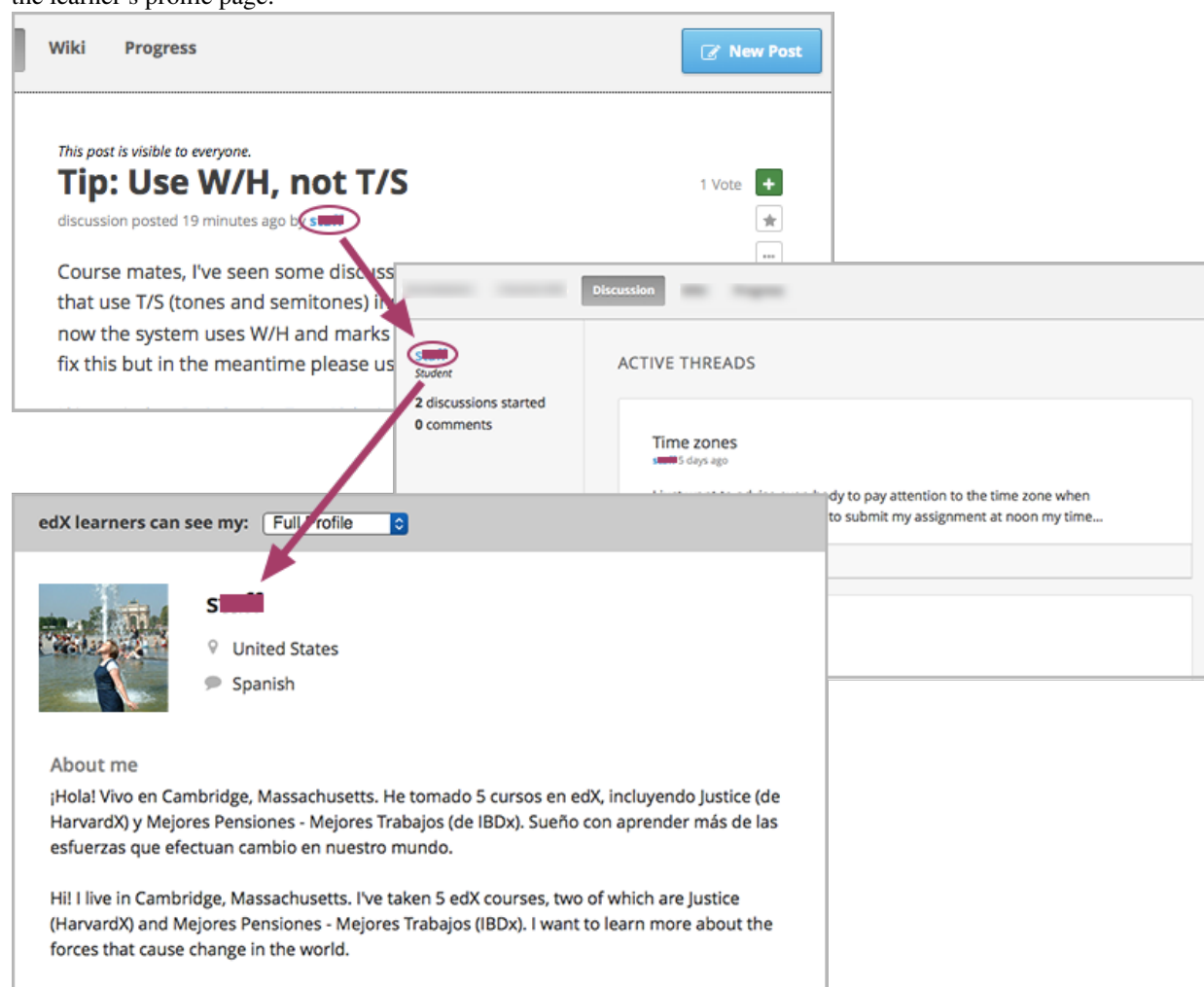
Note: If you change the profile type selection from **Full Profile** to **Limited Profile**, your location, language, and descriptive paragraph are not visible on your profile page. However, this information is saved. To make this information visible again, select **Full Profile**.

View Another Learner's Profile

You view other learners' profiles through the course discussions.

1. On the **Discussion** page, select the username of any learner in a post, a response, or a comment.
2. When the **Active Threads** page for that learner opens, select the learner's username.

The following image shows a learner's username in a post, the learner's username on the **Active Threads** page, and the learner's profile page.



2.1.4 Exploring the Account Settings Page

Your **Account Settings** page has three tabs.

- The **Account Settings** tab includes basic, required information, such as your username, as well as optional information, such as the level of education you have completed.
- The **Linked Accounts** tab lists social media and other accounts that you can connect to your edX account.
- The **Order History** tab lists information about payments you have made, such as the fee for a verified certificate.

You can view this information at any time. You can also add or change some of this information.

View or Change Basic Account Information

Basic account information includes the following information. This information is required for every account on edX.

- **Username:** The name that identifies you on edx.org. Note that you cannot change your edX username.
- **Full Name:** The name that appears on your edX certificates. Other learners cannot see your full name.

- **Email Address:** The email address you use to sign in to edX. You may receive communications from edX and your courses at this address.
- **Password:** Your password on edx.org. To reset your password, select **Reset Password**. EdX then sends a message to the email address in the **Email Address** field. You select the link in the message to finish resetting your password.
- **Language:** The language that the edX site uses during your visits. The edX site is currently available in a limited number of languages.
- **Country or Region:** The country or region that you live in.

To view or change this information, follow these steps.

Note: You cannot change your edX username.

1. On any edX page, select the arrow next to your username, and then select **Account**.
2. On the **Account Settings** page, select **Account Information**.
3. On the **Account Information** page, locate the **Basic Account Information** section, and then make your changes.

EdX saves your changes automatically.

Specify Additional Information

Additional account information is optional and includes the following information.

- **Education Completed:** The highest level of education that you have completed.
- **Gender:** The gender you identify as.
- **Year of Birth:** The year that you were born.
- **Preferred Language:** The language that you prefer to communicate in.

To view or change this information, follow these steps.

1. On any edX page, select the arrow next to your username, and then select **Account**.
2. On the **Account Settings** page, select **Account Information**.
3. On the **Account Information** page, locate the **Additional Information** section, and then make your changes.

EdX saves your changes automatically.

Link or Unlink a Social Media Account

You can link your edX account to social media and other accounts, including Facebook, Google, school, and company accounts. When your accounts are linked, you can sign in to edX automatically by signing in to your other account.

To link your edX account with another account, follow these steps.

1. On any edX page, select the arrow next to your username, and then select **Account**.
2. On the **Account Settings** page, select the **Linked Accounts** tab.
3. Under **Linked Accounts**, select **Link Your Account** under the name of the account that you want to link to your edX account.

If you want to unlink your edX account from another social media account, select **Unlink This Account** under that account name.

View Your Order History

The **Order History** tab contains information about any purchases you have made on edX. This information includes the following details.

- The name of your course.
- The date you placed your order.
- The total charge for your order, in US dollars (USD).
- The edX order number.
- A link to a receipt for each order.

To view information about your edX purchases, follow these steps.

1. On any edX page, select the arrow next to your username, and then select **Account**.
2. On the **Account Settings** page, select **Order History**.

To view information about a specific purchase, locate the transaction that you want, and then select **Order Details**.

2.2 Getting Started with Studio

This topic describes the tools you use to build an Open edX course, and how to create your first course.

- *What is Studio?*
- *Create Your First Course*

If you are creating a course to run on [edx.org](#) or [edX Edge](#), see [Getting Started with Studio](#) in the *Building and Running an edX Course* guide.

2.2.1 What is Studio?

Studio is the edX tool you use to build your courses.

You use Studio to create a course structure, and then add problems, videos, and other resources for learners.

With Studio, you can also manage the course schedule, identify members of the course team, set the grading policy, publish your course, and more.

You use Studio directly through your browser. You do not need any additional software.

2.2.2 Create Your First Course

When you log in to Studio, you see the following page, which is your **My Courses** dashboard.

My Courses + New Course

Welcome, [redacted]!
You currently aren't associated with any Studio Courses.

Are you staff on an existing Studio course?
You will need to be added to the course in Studio by the course creator. Please get in touch with the course creator or administrator for the specific course you are helping to author.

Create Your First Course
Your new course is just a click away! + Create Your First Course

Need help?
If you are new to Studio and having trouble getting started, there are a few things that may be of help:
[Get started by reading Studio's Documentation](#)
[Request help with Studio](#)

1. Select **Create Your First Course**.
2. Enter course information as needed, and then select **Create**.

Create a New Course

Course Name *
e.g. Introduction to Computer Science
The public display name for your course. This cannot be changed, but you can set a different display name in Advanced Settings later.

Organization *
e.g. UniversityX or OrganizationX
The name of the organization sponsoring the course. **Note: This is part of your course URL, so no spaces or special characters are allowed.** This cannot be changed, but you can set a different display name in Advanced Settings later.

Course Number *
e.g. CS101
The unique number that identifies your course within your organization. **Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.**

Course Run *
e.g. 2014_T1
The term in which your course will run. **Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.**

CREATE CANCEL

Note: Enter new course information carefully. This information becomes part of the URL for your course. Because this information becomes part of your course URL, the total number of characters in the following three fields must be 65 or fewer.

- For **Course Name**, enter the title of your course. For example, the name may be “Sets, Maps and Symmetry Groups”. Use title capitalization for the course title.
- For **Organization**, enter the name of your institution. Do not include whitespace or special characters.
- For **Course Number**, enter both a subject abbreviation and a number. For example, for public health course number 207, enter **PH207**. For math course 101x, enter **Math101x**. Do not include

whitespace or special characters in the course number.

1. Select **Save**.

Your new course opens to the **Course Outline** page. Because no content has been added, this page is empty.

In your browser's address bar, notice that the URL of your course includes the course organization, number, and course run.

The other sections of this guide describe how you now build and run your course.

Reaching As Many Learners As Possible

The core mission of edX is to expand access to education for everyone. Keep in mind that the courses and course content that you create should be accessible to everyone, regardless of any physical limitation that they might have, and regardless whether they are accessing your course using a Web browser or using mobile apps.

For information about accessibility best practices, see *Accessibility Best Practices Guidance for Content Providers*.

3.1 Designing Your Course For a Mobile Experience

The percentage of learners who access MOOCs using smartphones is increasing every day. Most courses on edX.org can be viewed on smartphones using the edX Android and iPhone apps, although we still recommend that learners complete graded assignments on a desktop computer, depending on the type of assessments that their courses include. For information on which exercises and tools are mobile-ready, see the table in the *Introduction to Exercises and Tools* section.

To make the course experience for mobile learners as rewarding as it is for learners using desktop computers, keep the following best practices in mind as you design, test, and run your course.

- Course updates that you make might take longer to appear in the edX mobile apps than on the edX site. In particular, newly published content can take up to an hour to update on the Android app.
- Display names are critical for navigating through courses on smartphones. As you create course content, make sure you replace the default display names for every component with useful course component names.
- Keep display names and labels concise. Long display names and labels might wrap on smaller screens, or might not be easily viewable. For example, if several components have names that all start with the first five words and differ only after that, learners using smartphones to access your course might have difficulty distinguishing between components.
- Do not use Flash, which is not supported on mobile platforms, to create course content.
- Only use iFrames in course content where necessary, because iFrame content might not be responsive and cannot be optimized for viewing on a range of devices.
- If you develop course components in HTML, including course announcements, make sure you set relative rather than explicit sizes for objects such as images, tables, text, and so on, so that they will scale appropriately when viewed on displays of different sizes.
- Learners might be viewing your course materials on screens as large as a high-resolution Mac Thunderbolt display, or as small as a 5 inch smartphone screen, so it is difficult to size an image so that it displays well at all resolutions. In general, edX recommends keeping most images under 0.5MB in size so that learners who have low Internet bandwidth will not have trouble downloading the images. If you have a large image that requires

zooming to view the full detail, in addition to providing an image that can be easily downloaded, link to a full resolution copy that can be opened separately from the course.

- When you make choices about the problem types to use for graded and ungraded assignments in your course, or which problem types to present in a single unit, keep the mobile experience in mind. Whenever possible, use mobile- ready assessment types. If you use assessment types that are not supported on smartphones, notify learners in the body of your course that they will not be able to complete assignments that contain unsupported assessment types using the edX iPhone and Android mobile apps.
- When learners access your course using the edX Android and iPhone apps, they progress from component to component by swiping through them. It might seem useful to include an HTML component in a unit for the purpose of providing a demarcation point or guiding learners to the next unit, but having to swipe through too many “markers” with no real course content is not a good experience for mobile users.
- Make sure your JavaScript and CSS are compliant. You should verify that all components render correctly in the edX Android and iPhone apps as well as directly in the LMS.

3.1.1 Testing Your Course For Mobile Devices

If you have included some of the more complex problem types, or have highly customized the way course content displays, edX recommends that you test your course for multiple devices and displays.

To test the mobile experience of your course, sign in to your course using the edX Android or iPhone app, and view each course unit to make sure that it renders as you expect it to.

Note: Keep in mind that course updates that you make might not be immediately reflected in the edX mobile apps. In particular, newly published content can take up to an hour to update on the Android app.

Accessibility Best Practices Guidance for Content Providers

The core mission of edX is to expand access to education for everyone. We expect courses and course content developed on the Open edX platform to be accessible to everyone, regardless of any physical limitation that they might have.

In furtherance of our mission, edX has entered into an agreement with the United States, under which we have agreed to incorporate accessibility into our website (<http://www.edx.org>), mobile applications, and platform to meet a wide variety of requirements of learners with disabilities and to enable content providers to develop accessible course content.

The topics in this section are intended to help course teams understand how to develop courses that can serve the widest possible audience.

Note: Course teams should familiarize themselves with this best practices guidance and distribute it to any members of their teams who are responsible for creating course content.

4.1 What Is The EdX Accessibility Best Practices Guidance Based On?

EdX measures and evaluates accessibility using the World Wide Web Consortium's [Web Content Accessibility Guidelines \(WCAG\) 2.0](#) (Dec. 11, 2008). All features that are merged into edX repositories are expected to [conform to Level AA](#) of this specification and satisfy the requirements outlined in the edX [Website Accessibility Policy](#).

In addition, our guidance is based on principles of universal design (usable by all, to the greatest extent possible, without the need for adaptation or specialized design). Course teams who build courses based on these principles create an inclusive experience that considers the diverse set of learning styles and needs of all learners, including learners with disabilities, learners whose native language is not English, learners with technical issues such as low bandwidth internet or no access to audio.

For the purposes of this guidance, we assume that end users are equipped with the appropriate adaptive technology and compatible software. To supplement the accessibility you can achieve within the Open edX platform, we recommend that you engage the resources available at your institution to support learners with disabilities. Most institutions offer disability support services and information technology resources that provide accessibility advice and support. These professionals are trained in making disability accommodation decisions and can advise you on what accommodations may be appropriate in light of the goals of the course and the instructional methodologies employed.

For more information, see the following topics.

- *Supporting Learners with Diverse Needs*

- *Accessibility Best Practices for Developing Course Content*

4.2 Supporting Learners with Diverse Needs

Almost one fifth of the world's population has some kind of disability. Online courses can reduce many barriers to education for these learners by providing access to courses from any location, at any time, and through the use of assistive technologies.

EdX is dedicated to creating a platform that is not only itself accessible, but also enables course content creators to create accessible content. If you encounter platform issues that you believe might affect your ability to provide accessible course content, please contact us at accessibility@edx.org. We welcome any comments and questions.

Note: Use of authoring tools other than those provided by edX might result in inaccessible course content. However, for clarity, use of edX authoring tools does not ensure that your course content will be accessible.

4.2.1 Who Are Our Learners?

In the following sections, we provide guidance on creating and delivering course content that allows students to use built-in accessibility functionality (such as text-to-speech and magnification features), assistive technologies, and alternative formats. These practices consider learners with diverse needs, such as those in the following list.

- Blind learners who use a screen reader, which reads page text aloud, or a Braille display device, which renders page text in refreshable Braille.
- Low-vision learners who use screen magnification software to enlarge or modify the contrast of text and other onscreen content.
- Learners with vision impairments, such as difficulty seeing in low-light conditions, who modify their browser or operating system to change background colors and text settings to make text easier to read.
- Learners with learning disabilities, such as dyslexia, who use text-to-speech technology that reads page content aloud.
- Physically disabled learners who control their computers using switching devices, voice recognition software, or eye gaze-activated technology instead of mouse devices or keyboards.
- Learners who modify their operating system settings to make the mouse or keyboard easier to use.
- Learners with hearing impairments who cannot access audio content and need the equivalent information in an alternative format, such as captions.

4.2.2 Removing Barriers to Learning

EdX highly recommends that you implement the best practices in this document and in other resources. If you cannot easily address any of these barriers to providing accessible course content, edX recommends that you consult with resources at your organization such as Disability Services, or assistive technology and accessibility specialists.

The following resources might also assist you in producing accessible course content.

- [User Agent Accessibility Guidelines \(UAAG\) 1.0](#)
- [Authoring Tool Accessibility Guidelines \(ATAG\) 2.0](#)
- [WAI-ARIA \(Accessible Rich Internet Applications\)](#)
- [WCAT2ICT](#)

- [EPUB 3.0](#)
- [DAISY Consortium](#)
- [MathJax](#)
- [MathML](#)

While your ability to support students in the MOOC context might be different from supporting on-campus students, we encourage you to develop a plan to respond to students who inform you of accessibility barriers to learning. However, given the large numbers of learners enrolling in many of the courses, you will quickly see how important it is to address accessibility concerns when creating a course.

4.3 Accessibility Best Practices for Developing Course Content

EdX is dedicated to creating a platform that is not only itself accessible, but also enables course content creators to create accessible content. If you encounter platform issues that you believe might affect your ability to provide accessible course content, please contact us at accessibility@edx.org. We welcome any comments and questions.

Note: Use of authoring tools other than those provided by edX might result in inaccessible course content. However, for clarity, use of edX authoring tools does not ensure that your course content will be accessible.

- *Make Sure Your Course Content is Perceivable*
- *Make Sure Your Course Content is Understandable*
- *Use Best Practices for Describing Images*
- *Create Accessible Course Materials*
- *Use Best Practices for Mathematical Content*
- *Use Best Practices for Custom Content Types*
- *Create Accessible Media*
- *Use Best Practices for HTML Markup*
- *Apply Universal Design for Learning*

4.3.1 Make Sure Your Course Content is Perceivable

The [WCAG 2.0](#) guidelines are organized around several principles, one of which is that web content must be perceivable. That is, information and user interface components must be presentable to users in ways they can perceive; it cannot be invisible to all of their senses. In almost all cases, this means that the information should be available as text, which can be rendered or transformed into a format that can be perceived.

To produce content that is perceivable by all learners, follow these guidelines.

Include Text Alternatives for Non-Text Content

For any non-text content, provide text alternatives so that the content can be changed into other forms that people need, such as large print, braille, speech, symbols, or simpler language.

For non-text tests or exercises that would be invalid if presented in text, provide text alternatives that at least provide descriptions of the non-text content. Make sure that all images have useful alternative text that screen readers and other assistive technologies can read. For more information, see *Use Best Practices for Describing Images*.

Provide Alternatives for Time-Based Media

For time-based media, including pre-recorded audio or video content, provide alternative equivalent information, such as captions, audio description or pre-recorded sign language interpretation. For more information, see [Create Accessible Media](#).

Make Sure Your Content is Adaptable

Design your course content so that it can be presented in different ways without losing information or structure. If your content includes specific information, structure, and relationships (such as sequence) that is conveyed through presentation, make sure the same information, structure, and relationships can be programmatically determined or are available in text. HTML is an ideal format in which to publish course content, because it provides semantic elements with implied roles, states, and properties. Users of assistive technologies rely on such semantic elements to effectively and efficiently consume and navigate content. Publish your content in HTML whenever possible.

Make sure your course content does not rely solely on sensory characteristics such as shape, size, visual location, orientation, or sound to be understood by learners.

Make It Easier for Learners to See and Hear Content

Make the default presentation as easy to perceive as possible, especially by making it easier for learners to distinguish foreground information from the background, in both visual and audio elements.

For visual elements, techniques include making sure the fonts you use are readable, and that there is sufficient contrast between the foreground and background. Do not use color as the sole means of visually distinguishing an element or conveying critical information. If you must create images that contain text, make sure that the text has a font size of at least 14 points and has good contrast with the background. Images of text cannot be scaled or color corrected as effectively as HTML text. Whenever possible, use the default font and color defined in the edX platform, which was designed to be easy to read. If you choose to override default font colors, make sure that the foreground and background colors have [sufficient contrast](#).

For audio elements, make sure that foreground sounds are sufficiently louder than background sounds.

4.3.2 Make Sure Your Course Content is Understandable

Make sure your course content is readable and understandable. EdX courses have a global and diverse audience, including learners whose native language is not the language in which you created your course, as well as learners who have a disability that affects reading, such as dyslexia or a visual impairment.

Learners will be better positioned to access concepts in your content if you write in clear, straightforward language and the content is well structured.

Write Simply and Clearly

Avoid jargon. If unfamiliar words or phrases are relevant to the subject, explain them when they are first used, and include a glossary with your course materials. When you use an abbreviation or acronym, provide the full phrase the first time it appears. For example, “World Health Organization (WHO).”

The Center for Plain Language provides [detailed resources on writing clearly and concisely](#), in language appropriate for your content and target audience.

Make Your Course Easy to Navigate

One aspect of making your course understandable is making sure that learners can easily grasp its structure, find content, and determine where they are within the course.

Name your course sections, subsections, units, components, and discussion topics in a consistent way, and make sure the names are useful and easy to skim. Make an element's name descriptive of its content, and put important keyword information first in the name. These names are used in navigation menus, page headings, and section headings; they are signposts that help learners to navigate your course and read course content.

When you create written learning resources, break text into sections using HTML elements such as headings, paragraphs, and lists. Long blocks of unbroken text are a barrier to most readers. Segmented content is more inviting and is easier to navigate and search. See [Use Best Practices for HTML Markup](#) for guidance on creating accessible HTML.

When you provide links to external materials, use link text that clearly explains the link destination (for example, "Review the Course Syllabus"). Avoid using constructs such as "Review the Course Syllabus here", with only the word "here" serving as link text. For links that point to documents rather than web pages, include the document type in the link. For example, "Supplemental Reading for Week 1 (EPUB)". Screen reader users frequently browse lists of links, or navigate web pages by moving from one link to the next. Ensuring that link text is understandable without surrounding context is important.

4.3.3 Use Best Practices for Describing Images

When you use images (including diagrams, maps, charts, or icons) in your course content, you must provide text alternatives that provide information equivalent to the visual content, or that identify the purpose of such non-text content.

The text alternative for an image depends on the image's context and purpose, and might not be a simple description of the image's visual characteristics. In general, for every image, edX recommends that you provide a text alternative that provides the equivalent information that a sighted learner would obtain from viewing the image. If the image contains words that are important for understanding the content, include the words in the text alternative. If the image itself is being used as a link, the text alternative should describe the destination or action that will be performed when the link is activated.

The primary mechanism for providing a text alternative for an image in HTML is the `alt` attribute. The text value of this attribute is what screen reader users hear when they encounter the image in your content.

Note: All images *must* include an `alt` attribute. There are some cases, noted below, when an empty `alt` attribute (`alt=""`) is desirable. However, the `alt` attribute must never be omitted.

Create useful and meaningful text alternatives for images in your course by following these guidelines for particular situations.

- *Images That Are Links or Controls*
- *Images That Contain Text*
- *Images That Contribute Meaning or Additional Context to the Page*
- *Graphs or Complex Visual Representations of Information*
- *Images With Unknown Descriptions at The Time of Publication*
- *Non-Informative Images*
- *Information Graphics (Charts, Diagrams, Illustrations)*
- *Accessible Images Resources*

Images That Are Links or Controls

If your image serves as a link to additional content or is an interactive form control such as a button, the value of the `alt` attribute should describe the destination of the link or the action that will be performed when the user clicks the image. For example, if a linked image of an envelope opens an email program to send an email, a useful text alternative is “Send message”, rather than “Envelope.”

Images That Contain Text

If your image contains text, the `alt` attribute would typically consist of exactly the same text as is contained in the image. However, there are a couple of conditions when having an empty `alt` attribute (`alt=""`) is the preferred solution.

If the text contained in the image is also available in nearby HTML, or otherwise accessible text, including it in the `alt` attribute would be redundant. In this case, setting an empty `alt` attribute (`alt=""`) is acceptable. Doing so effectively “hides” the image from screen reader users.

Note: All images *must* include an `alt` attribute so do not omit the `alt` attribute entirely. If the `alt` attribute is omitted entirely, screen readers will read the value of the `src` attribute (the path to the image on a web server) as a fallback. This is rarely helpful to the user and often results in a poor user experience.

If the text contained in the image is for decorative purposes only and adds no value to the content of the page, an empty `alt` attribute is also acceptable.

Images That Contribute Meaning or Additional Context to the Page

If the image is a simple graphic or photograph that provides additional context to the surrounding content, the `alt` attribute should briefly describe the image in a way that conveys that context.

Consider the following examples of meaningful `alt` attributes for a photo of the famous stone bridge, Ponte Vecchio in Florence, Italy.

- For a representative image of the bridge included on a page about Florence, a meaningful `alt` attribute would be “Photo of Ponte Vecchio, a famous bridge and shopping center in Florence, Italy.”
- If the context of the page is about the bridge itself a meaningful `alt` attribute would be more specific: “Photo of Ponte Vecchio showing its three stone arches which span the Arno River.”
- For a technical diagram, or illustration, on a page about the construction of the bridge the `alt` attribute would include the details conveyed visually, such as dimensions and materials used: “The Ponte Vecchio is a stone bridge with three arches and a span-to-rise ratio of 5 to 1.”
- For a map intended to provide directions to the bridge, the `alt` attribute would provide directions as text.

Graphs or Complex Visual Representations of Information

If the image is a graph or represents a complex piece of information, include the information contained in the image as accessible text adjacent to the image, or provide a link to the information. The `alt` attribute should convey a summary of what the complex image conveys visually. For example, a line graph that represents the price of a stock over time might be “The price of the stock rises from \$45 in January of 2015 to over \$76 in June of 2015 with a significant drop of 30% during the month of March.”

Consider using a caption to display long descriptions so that the information is available to all learners. In the following example, the image element includes the short description as the `alt` attribute and the paragraph element includes the long description.

```
 <p>Photo of Ponte Vecchio showing its three stone arches and the Arno river</p>
```

Alternatively, provide long descriptions by creating an additional unit or downloadable file that contains the descriptive text and providing a link to the unit or file below the image.

```

<p><a href="description.html">Description of Ponte Vecchio
Illustration</a></p>
```

Images With Unknown Descriptions at The Time of Publication

If a suitable text alternative is unknown at the time of publication (for example, a webcam image that updates every 10 minutes) provide an `alt` attribute that includes as much useful information as possible. For example, “Traffic on Interstate 90 at 5:45 PM June 26, 2015.”

Non-Informative Images

Images that do not provide information, including purely decorative images, do not need text descriptions. For example, an icon that is followed by link text that reads “Course Syllabus (EPUB)” does not need alternative text.

For non-informative images that should be skipped by screen reading software, include an `alt` attribute but leave it with an empty value (also known as a NULL `alt` attribute).

```

```

Note: While it is appropriate to have an empty `alt` attribute, it is never acceptable to omit the `alt` attribute entirely. If image elements do not include an `alt` attribute at all, a screen reader will read the path to the image, or, in the case of a linked image, announce the linked URL. This is rarely helpful to the user and often results in a poor user experience.

Information Graphics (Charts, Diagrams, Illustrations)

Graphics are helpful for communicating concepts and information, but they can present challenges for people with visual impairments. For example, a chart that requires color perception or a diagram with tiny labels and annotations will likely be difficult to comprehend for learners with color blindness or low vision. All images present a barrier to learners who are blind.

EdX recommends that you follow these best practices for making information graphics accessible to visually impaired learners.

- Avoid using only color to distinguish important features of an image. For example, on a line graph, use a different symbol or line style as well as color to distinguish the data elements.
- Whenever possible, use an image format that supports scaling, such as .svg, so that learners can employ zooming or view the image larger. Consider providing a high-resolution version of complex graphics that have small but essential details.
- For every graphic, provide a text alternative that provides the equivalent information that a sighted learner would obtain from viewing the graphic. For charts and graphs, a text alternative could be a table displaying the same

data. See *Use Best Practices for Describing Images* for details about providing useful text alternatives for images.

Accessible Images Resources

- [W3C Resources on Alternative Text for Images](#)
- [W3C WAI Images Tutorial](#)
- [HTML5 - Requirements for providing text to act as an alternative for images](#)
- [WebAim](#) provides general guidance on the appropriate use of alternative text for images.
- [The DIAGRAM Center](#), established by the US Department of Education (Office of Special Education Programs), provides guidance on ways to make it easier, faster, and more cost effective to create and use accessible images.

4.3.4 Create Accessible Course Materials

The source teaching materials for your course might exist in a variety of formats. For example, your syllabus might be in MS Word, your presentation slides in MS PowerPoint, and your textbooks in publisher-supplied PDF. It is important to consider how accessible these supplemental materials are before making them available through your course.

Carefully consider the document format you choose for publishing your course materials, because some formats support accessibility better than others. Whenever possible, create course materials in HTML format, using the tools available to you in edX Studio. When you make digital textbooks (ebooks) available within your course, ask digital book publishers for books in either [DAISY](#) or [EPUB 3](#) format, or both. Both of these digital book formats include unparalleled support for accessibility. However, simply supporting accessibility does not always mean a document will be accessible. When you source ebooks from third parties, it helps to ask the right questions about accessibility.

- Can screen readers read the document text?
- Do images in the document include alternative text descriptions?
- Are all tables, charts, and math provided in an accessible format?
- Does all media include text equivalents?
- Does the document have navigational aids, such as a table of contents, index, headings, and bookmarks?

Natively accessible formats like those mentioned above might not always be available options. Other popular document formats included in edX courses include PDF, Microsoft Word, Excel, or PowerPoint. Many of the same accessibility techniques and principles that apply to authoring web content apply to these document formats as well.

- Images must have descriptive text associated with them.
- Documents should be well structured.
- Information should be presented in a logical order.
- Hyperlinks should be meaningful and describe the destination.
- Tables should include properly defined column and row headers.
- Color combinations should be high contrast.

The information that follows provides some practical guidance to publishing accessible course materials in popular formats.

- [Accessible Course Materials Resources](#)
- [Creating Accessible PDF Documents](#)
- [Creating Accessible Word Documents](#)
- [Creating Accessible Excel Documents](#)
- [Creating Accessible PowerPoint Documents](#)

Accessible Course Materials Resources

- The [DAISY Consortium](#) is a global partnership of organizations that supports and helps to develop inclusive publishing standards.
- The [EPUB 3 format](#) is widely adopted as the format for digital books.

Creating Accessible PDF Documents

Not all ebooks are available in DAISY or EPUB 3 format. Portable Document Format (PDF) is another common format for course materials, including textbooks supplied by publishers. However, converting materials to PDF documents can create accessibility barriers, particularly for learners with visual impairments. Such learners rely on the semantic document structure inherently available in HTML, DAISY, or EPUB 3 to understand and effectively navigate PDF documents. For more information, see [HTML Markup Resources](#)).

Accessibility issues are very common in PDF files that were scanned from printed sources or exported from a non-PDF document format. Scanned documents are simply images of text. To make scanned documents accessible, you must perform Optical Character Recognition (OCR) on these documents, and proofread the resulting text for accuracy before embedding it within the PDF file. You must also add semantic structure and other metadata (headings, links, alternative content for images, and so on) to the embedded text.

When you export documents to PDF from other formats, it is important to ensure that the source document contains all the required semantic structure and metadata before exporting. Unfortunately, some applications do not include this information when exporting and require the author to add or “tag” the document manually using PDF editing software. You should carefully consider whether exporting to PDF is necessary at all.

Note: [OpenOffice](#) and [LibreOffice](#) will produce the best results when you export documents to PDF.

Best Practices for Authoring Accessible PDF Documents

- Explicitly define the language of the document so that screen readers know what language they should use to parse the document.
- Explicitly set the document title. When you export a file to PDF format, the document title usually defaults to the file name, not a human readable title.
- Verify that all images have alternative content defined or are marked as decorative only.
- Verify that the PDF file is “tagged”. Make sure the semantic structure from the source document has been correctly imported to the PDF file.
- Verify that a logical reading order is defined. This is especially important for documents that have atypical page layouts or structure.
- If your document includes tables, verify that table headers for rows and columns are properly defined.

Note: When you export Microsoft Office documents as PDF, use the **Save as PDF** option. Make sure the **Document Structure Tags for Accessibility** option is selected (consult your software documentation for more details). PDFs generated from Windows versions of MS Office might be more accessible than those generated from Mac OS versions of MS Office. If you are using Mac OS, we highly recommend exporting from OpenOffice or LibreOffice.

Note: When you export from OpenOffice or LibreOffice, use the **Export as PDF** option. Make sure the **Tagged PDF** option is selected.

Evaluating PDF Files for Accessibility

EdX highly recommends using the tools available in Adobe Acrobat Pro (for example, “Accessibility Checker”) to evaluate your PDF files for accessibility. Adobe Acrobat Pro also includes tools (for example, “Make Accessible”) for fixing most common accessibility issues.

Accessible PDF Resources

- Microsoft provides detailed [guidance on generating accessible PDFs from Microsoft Office applications](#), including Word, Excel, and PowerPoint.
- Adobe provides documentation on how to [create and verify PDF accessibility](#).
- [Adobe Accessibility](#) (Adobe) is a comprehensive collection of resources on PDF authoring and repair, using Adobe’s products.
- [PDF Accessibility](#) (WebAIM) provides a detailed and illustrated guide on creating accessible PDFs .
- The National Center of Disability and Access to Education has a collection of one-page “[cheat sheets](#)” on [accessible document authoring](#).
- The Accessible Digital Office Document (ADOD) Project provides guidance on [creating accessible Office documents](#).

Creating Accessible Word Documents

Many of the same accessibility techniques and principles that apply to authoring web content also apply to creating Word documents.

- Images must have [descriptive text](#) associated with them.
- Documents should be [well structured](#).
- [Hyperlinks should be meaningful](#) and describe the destination.
- Tables should include [properly defined column and row headers](#).
- Color combinations should be high contrast.
- Verify the accessibility of your document using [Microsoft’s Accessibility Checker](#).

In addition, follow these guidelines when you format Word documents.

- Keep formatting simple. Use headings, paragraphs, lists, images, and captions. Use tables for tabular data. Do not add unnecessary indents, rules, columns, blank lines, or typographic variation.

- Use standardized styles for formatting your text, such as Normal, Heading 1, and Heading 2, rather than manually formatting text using text styles and indents. Formatting text for its semantic meaning and not for its visual appearance allows users of assistive technology to consume and navigate documents effectively and efficiently.

Accessible Microsoft Word Resources

- Microsoft guide to [creating accessible Word documents](#).
- Microsoft tool that allows you to [check Word documents for accessibility issues](#).

Creating Accessible Excel Documents

Many of the same accessibility techniques and principles that apply to authoring data tables in HTML also apply to creating Excel spreadsheets.

- Images must have descriptive text associated with them. For more information, see [Add alternative text to images and objects in Excel documents](#).
- Column and row headings should be programmatically identified.
- [Hyperlinks in spreadsheets](#) should be meaningful and describe the destination.
- Use a unique and informative title for each worksheet tab.
- Do not use blank cells for formatting.
- Color combinations should be high contrast.
- Verify the accessibility of your workbook using [Microsoft's Accessibility Checker](#).

Accessible Microsoft Excel Resources

- Microsoft guide to [creating accessible Excel workbooks](#).
- Microsoft tool that allows you to [check Excel workbooks for accessibility issues](#).

Creating Accessible PowerPoint Documents

Many of the same accessibility techniques and principles that apply to authoring web content also apply to creating PowerPoint presentations.

- Images must have descriptive text associated with them. For more information, see [Add alternative text to images and objects in PowerPoint documents](#).
- Column and row headings should be programmatically identified. For more information, see [Specify column header information in tables in PowerPoint documents](#).
- [Hyperlinks in presentations](#) should be meaningful and describe the destination.
- Use a unique and informative title for each slide.
- Ensure that information is [presented in a logical order](#)
- Color combinations should be high contrast.
- Verify the accessibility of your presentation using [Microsoft's Accessibility Checker](#).

To make your content accessible and comprehensible to learners who use screen reading software, start in Outline view and include all of your content as text. After completing the outline, add design elements and images, and use the picture formatting options in MS PowerPoint to include detailed text descriptions of images that convey useful information to learners who cannot view the images. Use the **Home > Drawing > Arrange > Selection Pane** option to view the reading order of objects on each slide. If the reading order is not logical, change the order of the objects.

Accessible PowerPoint Resources

- Microsoft guide to [creating accessible PowerPoint presentations](#).
- WebAIM's [PowerPoint Accessibility](#).
- Microsoft tool that allows you to [check Powerpoint documents for accessibility issues](#).

4.3.5 Use Best Practices for Mathematical Content

Math in online courses can be challenging to deliver in a way that is accessible to people with vision impairments. Non-scalable images of mathematical content cannot be sufficiently enlarged or navigated by low-vision users and are not accessible to blind users at all.

EdX uses [MathJax](#) to render math content in a format that is clear, readable, and accessible to people who use screen readers. MathJax works together with math notation such as LaTeX and MathML to render mathematical equations as text instead of images. EdX recommends that you use MathJax to author your math content. MathJax renders math in a variety of formats on the client side, offering the end user the ability to consume math content in their preferred format. EdX Studio supports authoring math directly in LaTeX using the [LaTeX Source Compiler](#) to transform LaTeX into MathJax.

Accessible Mathematical Content Resources

- The [MathJax website](#) provides guidance on creating accessible pages using their display engine.
- The [DO-IT project](#) from the University of Washington provides guidance on creating accessible math content.
- The [AccessSTEM website](#) provides guidance on creating accessible science, technology, engineering and math educational content.
- The [Design Science News blog](#) shares information about making math accessible.

4.3.6 Use Best Practices for Custom Content Types

Using different content types in your courses can significantly add to the learning experience for your learners. This section covers how to design several custom content types so that your course content is accessible to all learners.

- *Simulations and Interactive Modules*
- *Online Exercises and Assessments*
- *Third-Party Content*
- *Accessible Custom Content Resources*

Simulations and Interactive Modules

Simulations, including animated or gamified content, can enhance the learning experience. In particular, they benefit learners who might have difficulty acquiring knowledge from reading and processing textual content alone. However, simulations can also present some groups of learners with difficulties. To minimize barriers to learning, consider the intended learning outcome of the simulation. Is your goal to reinforce understanding that can also come from textual content or a video lecture, or is it to convey new knowledge that other course resources cannot cover? Providing alternative resources will help mitigate the impact of any barriers.

Although you can design simulations to avoid many accessibility barriers, some barriers, particularly in simulations supplied by third parties, might be difficult or impossible to address for technical or pedagogic reasons. Understanding the nature of these barriers can help you provide workarounds for learners who are affected. Keep in mind that attempted workarounds for simulations supplied by third parties might require the supplier's consent if copyrighted material is involved. If you consider third party solutions, we encourage you to evaluate them for accessibility. The easiest way to do this is to contact the vendor and ask them about the accessibility of their product.

Consider the following questions when creating simulations, keeping in mind that as the course creator, you enjoy considerable freedom in selecting course objectives and outcomes. Additionally, if the visual components of a simulation are so central to your course design, providing alternative text description and other accommodations might not be practical or feasible.

- Does the simulation require vision to understand? If so, provide text describing the concepts that the simulation conveys.
- Is a computer mouse necessary to operate the simulation? If so, provide text describing the concepts that the simulation conveys.
- Does the simulation include flashing or flickering content that could trigger seizures?

If so, and if this content is critical to the nature of the simulation, take these steps.

- Do not make using the simulation a requirement for a graded assessment activity.
- Provide a warning that the simulation contains flickering or flashing content.

Online Exercises and Assessments

For each activity or assessment that you design, consider any difficulties that learners with disabilities might have in completing it, and consider using multiple assessment options. Focus on activities that can be completed and submitted by all learners.

Some learners take longer to read information and input responses, such as learners with visual or mobility impairments and learners who need time to comprehend the information. If an exercise has a time limit, consider whether the allowed time is enough for all learners to respond. Advance planning might help to reduce the number of learners requesting time extensions.

Some online exercise question types, such as the following examples, might be difficult for learners who have vision or mobility impairments.

- Exercises requiring fine hand-eye coordination, such as image mapped input or drag and drop exercises, might present difficulties to learners who have limited mobility. Consider alternatives that do not require fine motor skills, unless, of course, such skills are necessary for effective participation in the course. For example, instead of a drag and drop exercise for mapping atoms to compounds, provide a checkbox or multiple choice exercise.
- Highly visual stimuli, such as word clouds, might not be accessible to learners who have visual impairments. Provide a text alternative that conveys the same information, such as an ordered list of words in the word cloud.

Third-Party Content

If you include links to third-party content in your course, be mindful of the accessibility of such resources. EdX recommends that you evaluate third-party content prior to sharing it with learners.

You can use the eReader tool or [Adding Files to a Course](#) to incorporate third-party textbooks and other publications in PDF format into your course. You can also incorporate such materials into your course in HTML format. See [Creating Accessible PDF Documents](#) for guidance on working with third-party supplied PDFs, and [Use Best Practices for HTML Markup](#) for guidance on creating accessible HTML.

Accessible Custom Content Resources

- [Effective Practices for Description of Science Content within Digital Talking Books](#), from the National Center for Accessible Media, provides best practices for describing graphs, charts, diagrams, and illustrations.
- [AccessSTEM](#) provides guidance on creating accessible science, technology, engineering and math educational content.
- The National Center on Educational Outcomes (NCEO) provides [Principles and Characteristics of Inclusive Assessment and Accountability Systems](#).

4.3.7 Create Accessible Media

Media-based course materials help to convey concepts and can bring course information to life. We require all videos in edX courses to include text captions in [SubRip \(SRT\) format](#). The edX media player displays caption files in an interactive sidebar that benefits a variety of learners, including learners who are hard of hearing or whose native language differs from the primary language of the media. This built-in universal design mechanism enhances your course's accessibility. When you create your course, you need to factor in time and resources for creating text captions.

Audio Captions

Audio captions are essential for presenting the readable equivalent of audio content to learners who cannot hear. They can also be helpful for learners whose native languages are languages other than the primary language of the media. Synchronized text captions allow learners who cannot hear to follow along with the video. The edX media player displays text captions as links in an interactive area adjacent to the video, which allows all learners to navigate to a specific section of the video by selecting some location within the caption text.

Text caption files start with the text version of a video's spoken content and any non-spoken audio that is important to understanding the context of the video, such as [BUZZER], [LAUGHTER], or [THUNDER]. If you created your video using a script, you have a great start on creating the text caption file. Simply review the recorded video and update the script as needed. Text captions can be uploaded to YouTube along with the video to create a timed text file in [SubRip \(SRT\) format](#). Otherwise, you will need to transcribe the video yourself or engage someone to do it. There are many companies that will create timed text captions (captions that synchronize the text with the video using time codes) for a fee. SRT files should be associated with video components in Studio. See [Working with Video Components](#) for details on how to associate text captions with videos.

Descriptions in Video

When you create video segments, consider how you will convey information to learners who cannot see what is happening in a video. Actions that are only visible on screen without any audible equivalent are not accessible to learners who have visual impairments.

For many topics, you can fully cover concepts in the spoken presentation. If it is practical to do so, you should audibly describe visual events as they happen in the video. For example, if you are illustrating dropping a coin and a feather

together from a height, you should consider narrating your actions as you perform them. Ask yourself if your video would make sense if the learner were only listening to the audio content, for example while they were driving a car.

Downloadable Transcripts

For both audio and video transcripts, consider including a text file that learners can download and review using tools such as word processing, screen reader, or literacy software. All learners can use transcripts of media-based learning materials for study and review.

Accessible Media Resources

[Accessible Digital Media Guidelines](#) provides detailed advice on creating online video and audio with accessibility in mind.

4.3.8 Use Best Practices for HTML Markup

HTML is the best format for creating accessible content. It is well supported and adaptable across browsers and devices. Also, the information in HTML markup helps assistive technologies, such as screen reader software, to provide information and functionality to people with vision impairments.

Most of the problem type templates in edX Studio conform to our recommended best practices in terms of good HTML markup. You can manually add appropriate HTML tagging even if it does not exist in the component template. Depending on the type of component you are adding to your course in edX Studio, the raw HTML data is available either automatically or by selecting the “Advanced Editor” or “HTML” views.

Keep the following guidelines in mind when you create HTML content.

- Use HTML tags to describe the meaning of content, rather than changing its appearance. For example, you should tag a section title with the appropriate heading level (such as `<h3>`) rather than making the text appear like a heading by applying visual elements such as bold text and a larger font size. Format list items into a list rather than using images of bullets or indents. Using HTML to describe your content’s meaning is valuable for learners who use screen readers, which, for example, can read through all headings of a specific level or announce the number of items in a list.
- Use HTML heading levels in sequential order to represent the structure of a document. Well-structured headings help learners and screen reader users to navigate a page and efficiently find what they are looking for.

In your *HTML* and *problem* components, be sure to apply only heading levels 3 through 6 to your content. Because the components that you add are part of a complete page, and heading levels 1 and 2 are already in use by other elements on the page, any text with a heading 1 or 2 style within an HTML or problem component can interfere with the functionality of tools such as screen readers.

- Use HTML list elements to group related items and make content easier to skim and read. HTML offers three kinds of lists.
 - Unordered lists, where the order of items is not important. Each item is marked with a bullet.
 - Ordered lists, where the order of items is important. Each item is listed with a number.
 - Definition lists, where each item is represented using term and description pairs (like a dictionary).
- Use table elements to format information that works best in a grid format, and include descriptive row and column headings. Tag row and column headers with the `<th>` element so screen readers can effectively describe the content in the table.

HTML Markup Resources

- [Creating Semantic Structure](#) provides guidance on reflecting the semantic structure of a web page in the underlying markup (WebAIM).
- [Creating Accessible Tables](#) provides specific guidance on creating data tables with the appropriate semantic structure so that screen readers can correctly present the information (WebAIM).

4.3.9 Apply Universal Design for Learning

Universal Design for Learning focuses on delivering courses in a format so that as many of your learners as possible can successfully interact with the learning resources and activities you provide them, without compromising on pedagogic rigor and quality.

The principles of Universal Design for Learning can be summarized by the following points.

1. Present information and content in various ways.
2. Provide more than one way for learners to express what they know.
3. Stimulate interest and motivation for learning.

Course teams can apply these principles in course design by following several guidelines.

- Design resources and activities that can be accessed by learners in a variety of ways. For example, if there is a text component, provide the ability to enlarge the font size or change the text color. For images and diagrams, always provide an equivalent text description. For video, include text captions.
- Provide multiple ways for learners to engage with information and demonstrate their knowledge. This is particularly important to keep in mind as you design activities and assessments.
- Identify activities that require specific sensory or physical capability and for which it might be difficult or impossible to accommodate the accessibility needs of learners. For example, an activity that requires learners to identify objects by color might cause difficulties for learners with visual impairments. In these cases, consider whether there is a pedagogical justification for the activity being designed in that way. If there is a justification, communicate these requirements to prospective learners in the course description and establish a plan for responding to learners who encounter barriers. If there is no justification for the requirements, edX recommends that you redesign the learning activities to be more flexible and broadly accessible.

Universal Design for Learning Resources

- [Delivering Accessible Digital Learning \(JISC Techdis\)](#) provides a useful overview of an inclusive approach to course design.
- [The National Center on Universal Design for Learning](#) provides a helpful overview on Universal Design for Learning.

Setting Up Your Course

Use the topics in this section to create and build your course.

For information on how to develop your course content in the Studio Outline, see *Developing Your Course*.

5.1 Creating a Course

This topic describes how to use Studio to create and set up a course.

- *Identifying the Course*
- *Create a Course*
- *Edit a Course*

Another way to create a course is for a system administrator to re-run an existing course. For more information, see *Re-running a Course*.

You can also **export** and **import** courses as XML files. You can do this when you need to back up a course or edit the course in XML.

5.1.1 Identifying the Course

Before you create a course, consider the identifying information that you will provide for it carefully.

- For **Course Name**, you enter the title of your course. For example, the name might be “Sets, Maps, and Symmetry Groups”. Use title capitalization for the course title, and normal spacing and punctuation.
- For **Organization**, you enter the identifier for your organization. Do not include spaces or special characters.
- For **Course Number**, you enter both a subject abbreviation and a number. For example, for public health course number 207, enter `PH207`. For math course 101x, enter `Math101x`. Do not include spaces or special characters in the course number.

Note: If your course will be public, be sure to include the “x”. If it is exclusively an on campus offering, do not include the “x”.

- For **Course Run**, you enter the term in which your course will run. For example, enter 2014SOND or T2_2014. Do not include spaces or special characters.

The value that you enter for the run does not affect the course start date that you define for the course. For more information, see [Setting Start and End Dates](#).

The organization, course number, and course run values that you enter are used to create the URL for your course. Because URLs do not have an unlimited length, the total number of characters that you enter for these values must be 65 or fewer.

Important: The values that you enter for the organization, course number, and course run cannot be edited after you create your course.

5.1.2 Create a Course

To create a course, follow these steps.

1. Sign in to Studio.
2. Select **New Course**.
3. Enter the *identifying course information*, and then select **Create**.

Create a New Course

Course Name *

The public display name for your course. This cannot be changed, but you can set a different display name in Advanced Settings later.

Organization *

The name of the organization sponsoring the course. **Note: This is part of your course URL, so no spaces or special characters are allowed.** This cannot be changed, but you can set a different display name in Advanced Settings later.

Course Number *

The unique number that identifies your course within your organization. **Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.**

Course Run *

The term in which your course will run. **Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.**

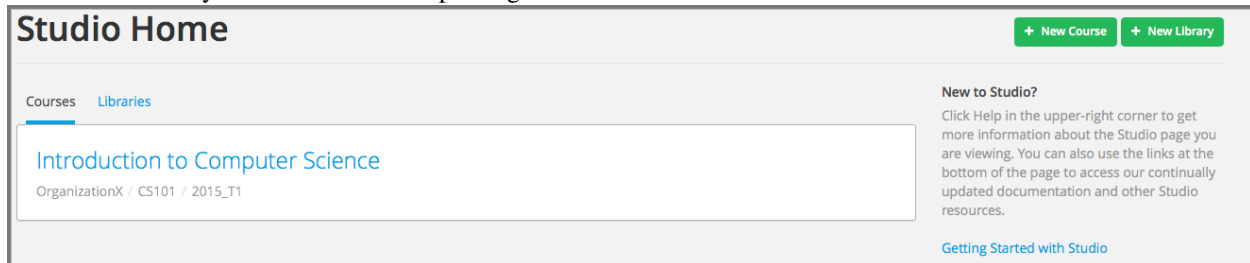
CREATE **CANCEL**

The *Course Outline* page opens. You can start developing course content. For more information, see [Getting Started with Course Content Development](#).

5.1.3 Edit a Course

After you create a course, the course opens in Studio automatically and you can begin editing. Your next steps might include adding other *course team members*, setting the course *start and end dates*, or developing the *course outline*.

When you return to Studio later, your **My Courses** dashboard page lists the courses that you created as well as any courses for which you have course team privileges.



To edit a course, select the course name. The Studio **Course Outline** page appears.

5.2 Licensing a Course

You can specify licensing options for your course content as well as for each video in your course.

By specifying the license, you communicate to learners whether and how they can reuse your course content.

- *License Options*
- *Set Course Content Licensing*
- *Set Video Licensing*
- *Learners' View of Licenses*

5.2.1 License Options

For your course content and for each video in your course, you can select one of the following license options.

- All Rights Reserved
- Creative Commons

All Rights Reserved

All Rights Reserved indicates to learners that you own the copyright but reserve all rights for sharing copies of course content or videos. Learners cannot reuse or republish course content or videos that have All Rights Reserved licenses.

Creative Commons License

The Creative Commons license indicates to learners that you own the copyright but are granting certain permissions for reuse, depending on the license options that you select.

When you create a new course, the default terms are set to All Rights Reserved. You can change the terms for your course in the **Schedule & Details** page in Studio.

License Option	Description
Attribution	This option allows others to copy, distribute, display, and perform your copyrighted work but only if they give credit to you in the way that you request. This option is enabled for all Creative Commons licenses on edX course content. You cannot clear this option.
Noncommercial	This option allows others to distribute, display, and perform your work – and derivative works based upon it – but for non-commercial purposes only.
No Derivatives	This option allows others to distribute, display, and perform only verbatim copies of your work, not derivative works based upon it. You cannot use this option with the Share Alike option.
Share Alike	This option allows others to distribute derivative works only under a license identical to the license that governs your work. You cannot use this option with the No Derivatives option.

For more information, see the [Creative Commons website](#).

5.2.2 Set Course Content Licensing

When you create a new course, the license is set to **All Rights Reserved**. You can change the license for your course in the **Schedule & Details** page in Studio.

The license options that you select apply to all course content, including videos, unless you explicitly specify different licensing options for your videos. Learners see the license at the bottom of all pages in the course.

1. From the **Settings** menu, select **Schedule & Details**.
2. Scroll to the bottom of the page to view the **Course Content License** section.

Course Content License

Select the default license for course content

License Type

All Rights Reserved

Creative Commons

[Learn more about Creative Commons](#)

License Display

The following message will be displayed at the bottom of the courseware pages within your course.

© All Rights Reserved

3. Select the license option for your course.
 - To grant learners to right to share and use course content, select **Creative Commons**. The Creative Commons options are displayed.

Course Content License

Select the default license for course content

License Type

All Rights Reserved

Creative Commons

[Learn more about Creative Commons](#)


Options for Creative Commons

The following options are available for the Creative Commons license.

<input checked="" type="checkbox"/>	Attribution	Allow others to copy, distribute, display and perform your copyrighted work but only if they give credit the way you request. Currently, this option is required.
<input type="checkbox"/>	Noncommercial	Allow others to copy, distribute, display and perform your work - and derivative works based upon it - but for noncommercial purposes only.
<input type="checkbox"/>	No Derivatives	Allow others to copy, distribute, display and perform only verbatim copies of your work, not derivative works based upon it. This option is incompatible with "Share Alike".
<input type="checkbox"/>	Share Alike	Allow others to distribute derivative works only under a license identical to the license that governs your work. This option is incompatible with "No Derivatives".

License Display

The following message will be displayed at the bottom of the courseware pages within your course.

 Some Rights Reserved

Select the *Creative Commons license options* to apply.

- To reserve all course content rights, select **All Rights Reserved**.

4. Select **Save** at the bottom of the page to save your changes.

5.2.3 Set Video Licensing

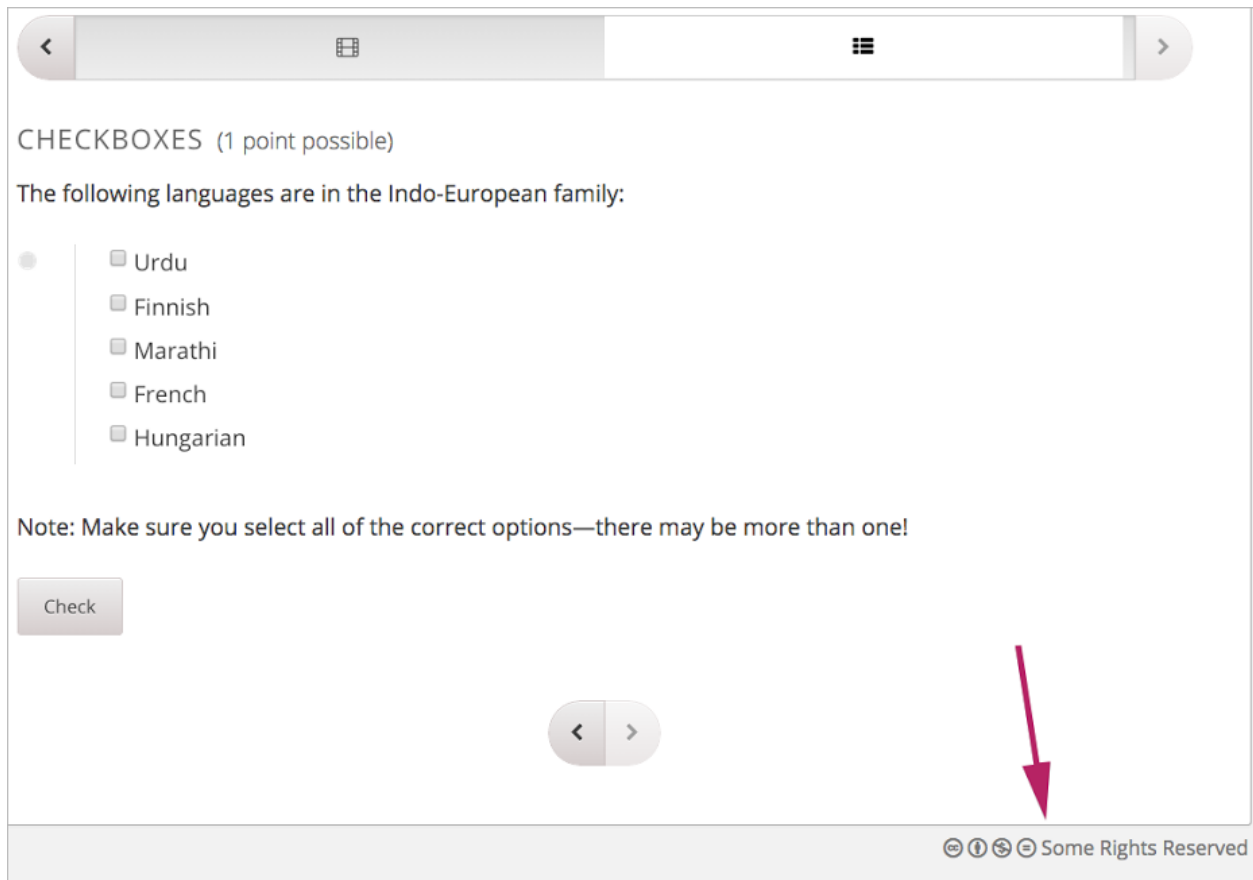
If you intend for a specific video to have a different license than the course as a whole, you must set the license in the *Setting Advanced Options*.

For example, you might license for your course under Creative Commons, but use a video from another party that is copyrighted. In this case, you can set the license for that particular video to **All Rights Reserved**.

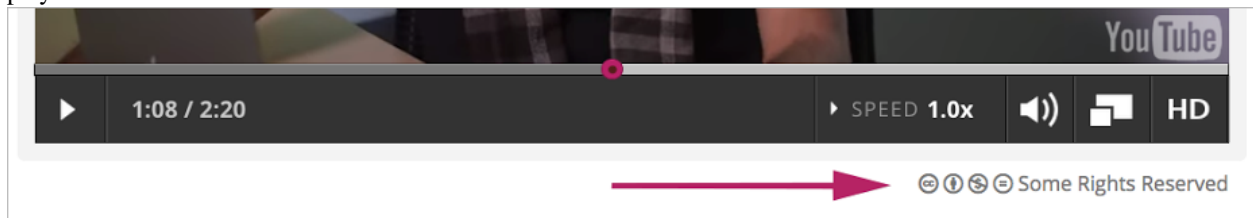
If a video is to have the same license as the course as a whole, you do not need to set the license for the video.

5.2.4 Learners' View of Licenses

When they view content in the **Course** tab, learners see the license that you set for the course at the bottom of the page.



If the video has a different license than the course as a whole, learners see the license at the bottom right of the video player.



For the course and for videos, if you choose **All Rights Reserved**, learners see **All Rights Reserved**; if you choose **Creative Commons** and select any allowed combination of options, learners see **Some Rights Reserved** and can select the link to see details.

5.3 Setting Start and End Dates

This section describes how to schedule your course in Studio.

- [Overview](#)
- [Determining Start and End Dates](#)
- [Set Course and Enrollment Dates and Times](#)
- [View Start and End Dates as a Learner](#)

For information about providing other information for your course, see [Setting Details About Your Course](#).

5.3.1 Overview

The start and end dates you set for your course and for course enrollment are important for prospective and current learners. As soon as enrollment starts, prospective learners can see your course in the course catalog, view the course **About** page, and enroll in the course. Current learners see your course start or end date on their dashboards.

5.3.2 Determining Start and End Dates

EdX recommends that you consider your course start and end dates, and its enrollment start and end dates, carefully. After you determine the dates for your course, you set these dates and times on the **Schedule & Details** page in Studio. EdX recommends that you verify all important dates in Studio one week before you plan to start the course.

- *Course Start Date and Time*
- *Course End Date and Time*
- *Enrollment Start Date and Time*
- *Enrollment End Date and Time*

Course Start Date and Time

The course start date and time specify when learners can access published course content. By default, the course start date and time are set to **01/01/2030 at 00:00 UTC** to ensure that your course does not start before you intend it to. You must change this setting to the correct date and time for your course.

EdX recommends that you set the start time of your course early in the day, generally 00:00 UTC or earlier. Learners often expect the course to be available on the start date in their own time zones and try to access course content during the day. If you do not specify a start time for your course, learners see the default start time, 00:00 Coordinated Universal Time (UTC).

Learners can see some parts of the course before the course start date. For example, they can see your **Home** page and course-wide discussion topics as soon as they enroll in your course. For more information, see [Create Course-Wide Discussion Topics](#).

Note: You can set a different advertised start date for your course. You might do this if the exact start date is uncertain. For example, you could advertise the start date as “Coming Soon”. For more information, see [Advertise a Different Start Date](#).

Course End Date and Time

The course end date and time specify when learners can no longer earn credit toward certificates. Learners can continue to complete coursework, but cannot earn credit after the course ends. Learners who have earned certificates can view the certificates soon after the course end date.

Important: If you do not set a course end date, learners cannot access earned certificates.

Enrollment Start Date and Time

The enrollment start date and time specify when learners can start to enroll in the course. Ensure that the enrollment start date is early enough to allow learners to both enroll in and prepare for the course.

Enrollment End Date and Time

The enrollment end date and time specify when learners can no longer enroll in the course. Ensure that the enrollment end date is late enough to allow learners adequate time to enroll. The enrollment end date cannot be later than the course end date.

5.3.3 Set Course and Enrollment Dates and Times

To set dates and times for the course and for course enrollment in Studio, follow these steps.

1. From the **Settings** menu, select **Schedule & Details**.
2. In the **Course Schedule** section, replace the placeholder dates and times with your own information.
When you make changes on this page, a panel with options to save or cancel your work appears.
3. Select **Save Changes**.

Note: The times that you set, and the times that learners see, are in Coordinated Universal Time (UTC). You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#).

EdX recommends that you verify that all important dates are correct one week before you plan to start the course.

Advertise a Different Start Date

You can advertise a start date for your course that is different from the course start date you set in the **Schedule & Details** page. You might want to do this if the exact start date is uncertain.

You can enter a specific date or a description. For example, you could advertise the start date as either “15 Oct 2016” or “Anytime, self-paced”.

To set an advertised start date in Studio, follow these steps.

1. From the **Settings** menu, select **Advanced Settings**.
2. Locate the **Course Advertised Start Date** field. The default value is `null`.
3. Enter the start date that you want learners to see for your course in MM/DD/YYYY format.

A date value entered in MM/DD/YYYY format appears to learners in DD Mon YYYY format. For example, 10/15/2016 appears as 15 Oct 2016.

4. Add quotation marks (" ") before and after the start date value. An example follows.

`"Anytime, self-paced"`

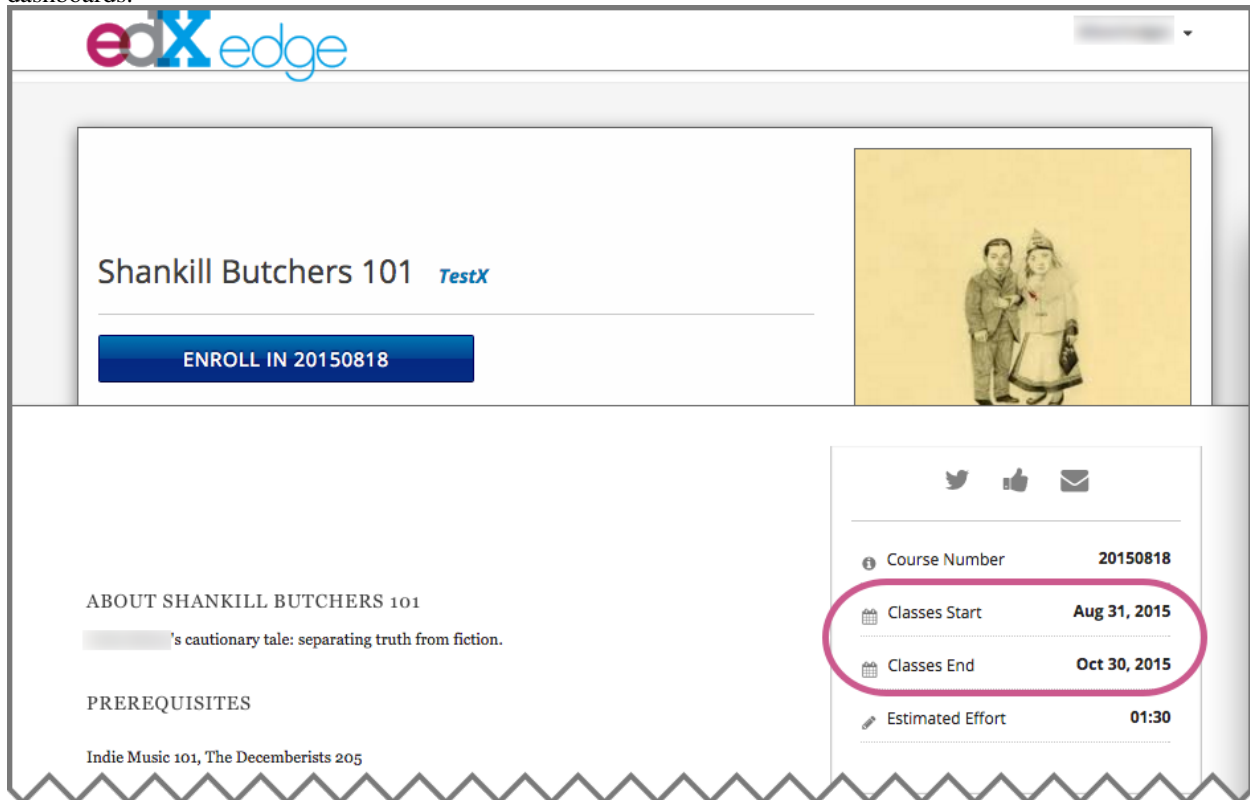
5. Select **Save Changes**.

A message lets you know whether your changes were saved successfully.

Note: If you do not change the default course start date (01/01/2030), and the **Course Advertised Start Date** policy value is `null`, then no start date appears for the course. Learners just see that the course has not yet started.

5.3.4 View Start and End Dates as a Learner

Learners can view the start date for a course on the course **About** page, and, after they enroll in the course, on their dashboards.



edX edge

Shankill Butchers 101 *TestX*

ENROLL IN 20150818

ABOUT SHANKILL BUTCHERS 101

's cautionary tale: separating truth from fiction.

PREREQUISITES

Indie Music 101, The Decemberists 205

Course Number	20150818
Classes Start	Aug 31, 2015
Classes End	Oct 30, 2015
Estimated Effort	01:30

To find the URL of your course's **About** page in Studio, select **Settings** and then **Schedule & Details**.

After learners enroll in your course, the course appears on their course dashboards. To access the dashboard, learners select their usernames and then **Dashboard**.

For a course that is in progress or has not yet started, the start date is shown. For a course that has ended, the course end date is shown.

5.4 Setting Course Pacing

This topic describes how to set your course to follow a typical schedule or to be a self-paced course.

- *Overview of Course Pacing*
- *Instructor-Paced and Self-Paced Courses*
- *Set Pacing for Your Course*

5.4.1 Overview of Course Pacing

When you create an edX course, you can set the schedule of the course, including due dates for assignments or exams, or you can allow learners to work at their own pace. Courses that follow a schedule that you set are known as instructor-paced courses. Courses that allow learners to submit assignments at any time before the course ends, without internal due dates, are known as self-paced courses.

An indicator for the pacing for your course appears on the **Course Outline** page. By default, courses are instructor-paced.

Content

Course Outline

Course Start Date: Oct 10, 2015 at 00:00 UTC **Course Pacing: Instructor-Paced**

Modes

Released: Dec 31, 2013 at 00:00 UTC

▶ Ionian, Dorian, and Phrygian

Creating your course organization

You add sections, subsections, and units directly in the outline.

Create a section, then add subsections and units. Open a unit to add course components.

Note: You cannot change the course pacing after the course start date has passed.

5.4.2 Instructor-Paced and Self-Paced Courses

Instructor-paced courses progress at the pace that the course author sets. You set release dates for content and due dates for assignments, and assignment due dates are visible in the LMS. Learners cannot access course content before its release date, and learners must complete assignments by their due dates.

In self-paced courses, learners can access all course materials when the course begins, and assignments do not have due dates. You do not have the option to set release dates for course content or due dates for assignments. Due dates do not appear in the LMS.

Instructor-Paced

Ionian, Dorian, and Phrygian Settings

Change the settings for Ionian, Dorian, and Phrygian

Release Date and Time

Release Date: 10/15/2015 Release Time in UTC: 00:00 ↺

Grading

Grade as: Homework ↕

Due Date: 11/1/2015 **Due Time in UTC:** 00:00 ↺

Student Visibility

☐ Hide from students

Save Cancel

Self-Paced

Ionian, Dorian, and Phrygian Settings

Change the settings for Ionian, Dorian, and Phrygian

Grading

Grade as: Homework ↕

Student Visibility

☐ Hide from students

Save Cancel

Note: If you set due dates for assignments or exams and later change the course to be self-paced, Studio stores the due dates that you have set. If you change the course back to instructor-paced later, Studio restores the due dates.

For more information about the way learners experience instructor-paced and self-paced courses, see [Taking a Self-Paced Course](#).

5.4.3 Set Pacing for Your Course

Note: You cannot change the course pacing after the course start date has passed.

To set the pacing for your course, follow these steps.

1. On the **Settings** menu, select **Schedule & Details**.
2. Scroll down to the **Course Pacing** section.
3. Under **Course Pacing**, select either **Instructor-Paced** or **Self-Paced**.

5.5 Set Course Prerequisites

You might want to make sure that your learners have a specific set of skills and knowledge before they take your course.

- *Specify Prerequisite Courses*
 - *Require an Entrance Exam*

5.5.1 Specify Prerequisite Courses

You can require that your learners pass a particular edX course before they enroll in your course. Learners see information about course prerequisites on the course **About** page.



Overview of Creating an edX Course

A quick course designed to help you explore all of the different steps that go into planning and building an edX course. Perfect for instructors or institutional leadership interested in building a MOOC on edX.

About this Course

This course is designed to show faculty, instructors and organizational leadership how to create a course on edX. The course will cover the strategy behind getting the word out about a course, creating course content that is interactive, engaging, and accessible, and delivering a finished course.

WAYS TO TAKE THIS EDX COURSE:

Watch the Course Intro Video



Course Number **edX101**

Classes Start **Dec 01, 2014**

Prerequisites **edX DemoX.1**

You must successfully complete edX DemoX.1 before you begin this course.

[Access Courseware](#)







113

If learners have not completed the prerequisite course, they can enroll in your course and then see your course on their learner dashboards. However, unlike with other courses, the dashboard does not provide a link to the course content. The dashboard includes a link to the **About** page for the prerequisite course. Learners can enroll in the prerequisite course from the **About** page.

CURRENT COURSES




edX

edX101 Overview of Creating an edX Course

Course Started - Dec 01, 2014 at 00:00 UTC

[Unenroll](#)

You must successfully complete **edX DemoX.1** before you begin this course.



edX

CA.204 La Tierra Centroamericana

Course Started - Jan 01, 2015 at 00:00 UTC

[View Course](#)

[Unenroll](#)

To define one course as the prerequisite for another, you must be the course creator in both the current course and in the prerequisite course.

To specify a prerequisite course, follow these steps.

1. In Studio, open your course.
2. On the **Settings** menu, select **Schedule & Details**.
3. On the **Schedule & Details** page, locate the **Requirements** section.
4. Under **Prerequisite Course**, select a course from the list.
5. Select **Save Changes**.

Note: Currently, you can specify only one prerequisite course.

5.5.2 Require an Entrance Exam

You can require your learners to pass an entrance exam before they access your course materials. If you include an entrance exam, learners who enroll in your course can only access the **Entrance Exam** page until they pass the exam. After learners pass the exam, they can access all released materials in your course.

To require an entrance exam, follow these steps.

1. In Studio, open your course.
2. On the **Settings** menu, select **Schedule & Details**.
3. On the **Schedule & Details** page, locate the **Requirements** section.
4. Select the **Require students to pass an exam before accessing course materials** check box.
5. Select **Save Changes**.

After you save your changes, Studio automatically creates an **Entrance Exam** section in your course outline. To add content to your entrance exam, go to the course outline.

Best Practices for Entrance Exams

We strongly recommend that you follow several guidelines to help you and your learners have a positive experience with entrance exams.

- Make sure that your beta testers include the entrance exam when they test your other course content.
- Make sure that you mention the entrance exam in the course description on your course **About** page. Otherwise, learners will not know about the entrance exam before they enroll in your course and try to access course content.
- Add an announcement to the **Course Updates & News** page that contains information and instructions for learners who need to take the exam. When learners first try to access content in a course that has an entrance exam, they see the **Course Updates & News** page. We suggest that you include the following information.
 - To begin the course entrance exam, learners select **Entrance Exam**.
 - After learners complete the entrance exam, they must select **Entrance Exam** again or refresh the page in their browsers. When the page refreshes, learners can see all currently available course content.

Create an Entrance Exam from the Course Outline

You create your course entrance exam from the course outline in Studio. Creating entrance exam content is just like creating other course content. For more information, see [Adding Course Components](#).

Adjust Scores in the Entrance Exam

If you find an error in the exam after learners have taken it, and corrections to the exam are unavoidable, you have several options to rescore the exam for individual learners. These options are available on the Instructor Dashboard.

On the Instructor Dashboard, select **Student Admin**, and then locate the **Entrance Exam Grade Adjustment** section. The following options are available.

- **Reset Student Attempts:** Reset the value for one particular learner's attempts back to zero so that the learner can begin work over again. For more information, see [Reset Learner Attempts for a Problem](#).
- **Rescore Student Submission:** Rescore the responses that a learner has submitted. For more information, see [Rescore Learner Submissions for a Problem](#).
- **Delete Student State for Problem:** Delete a learner's entire history for the exam from the database. For more information, see [Delete a Learner's State for a Problem](#).

Another option on the Instructor Dashboard is **Show Background Task History for Student**. If you reset learner attempts, rescore learner submissions, or delete learner state, the operation runs in the background. If you want to see a record of all the operations that have run for the entrance exam, select **Show Background Task History for Student**.

5.6 Course Search

Learners can search much of the content of your edX course, including the course title, description, text, and video transcripts. Learners can search inside individual courses, or they can search all the courses that they are enrolled in at one time. When learners search all their courses at one time, they can filter search results based on course subject, type, and language.

Before learners can search your course, Studio must index your course content. Studio indexes your course content automatically every time you make a change to the content. You can also manually begin an indexing operation in Studio. To do this, select **Reindex** in the upper right corner of the **Course Outline** page.

The search engine returns not only exact matches for search terms, but also matches that contain the search term. These matches must contain the entire search term. For example, a search for “grade” returns results for “grades” and “graded”, but a search for “graded” would not return “grade” or “grades”.

When the search engine returns results, either for an individual course or across all courses, learners can select any search result to view that result in the course body.

For more information about the student experience, see [Searching the Course](#).

Note: Studio indexes most content that learners see on the **Course** page. However, Studio does not index course exercises and problems, including homework and exam problems. Studio also does not index course handouts or discussions. However, learners can search course discussions by using the **Search all posts** field on the **Discussions** page.

5.7 Setting Details About Your Course

This topic describes how to set details about your course in Studio. The details you set determine the information that learners see about the course on their dashboards and on the course **About** page. For more information, see [Exploring Your Dashboard, Settings, and Profile](#).

You configure these course details in Studio.

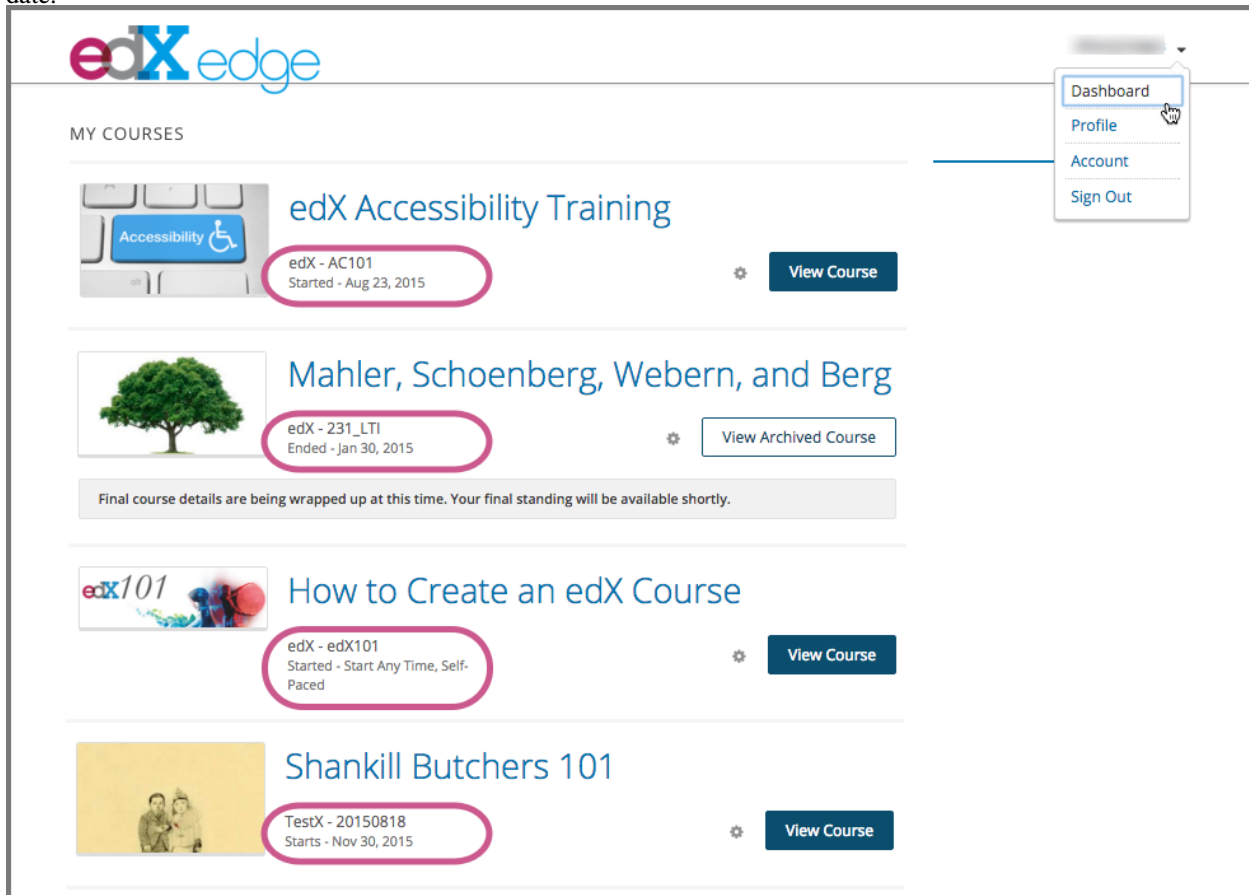
- *The Learner Dashboard*
- *The Course About Page*

For information about setting important dates for the course, see *Setting Start and End Dates*.

For information about setting the licensing for the course, see *Licensing a Course*.

5.7.1 The Learner Dashboard

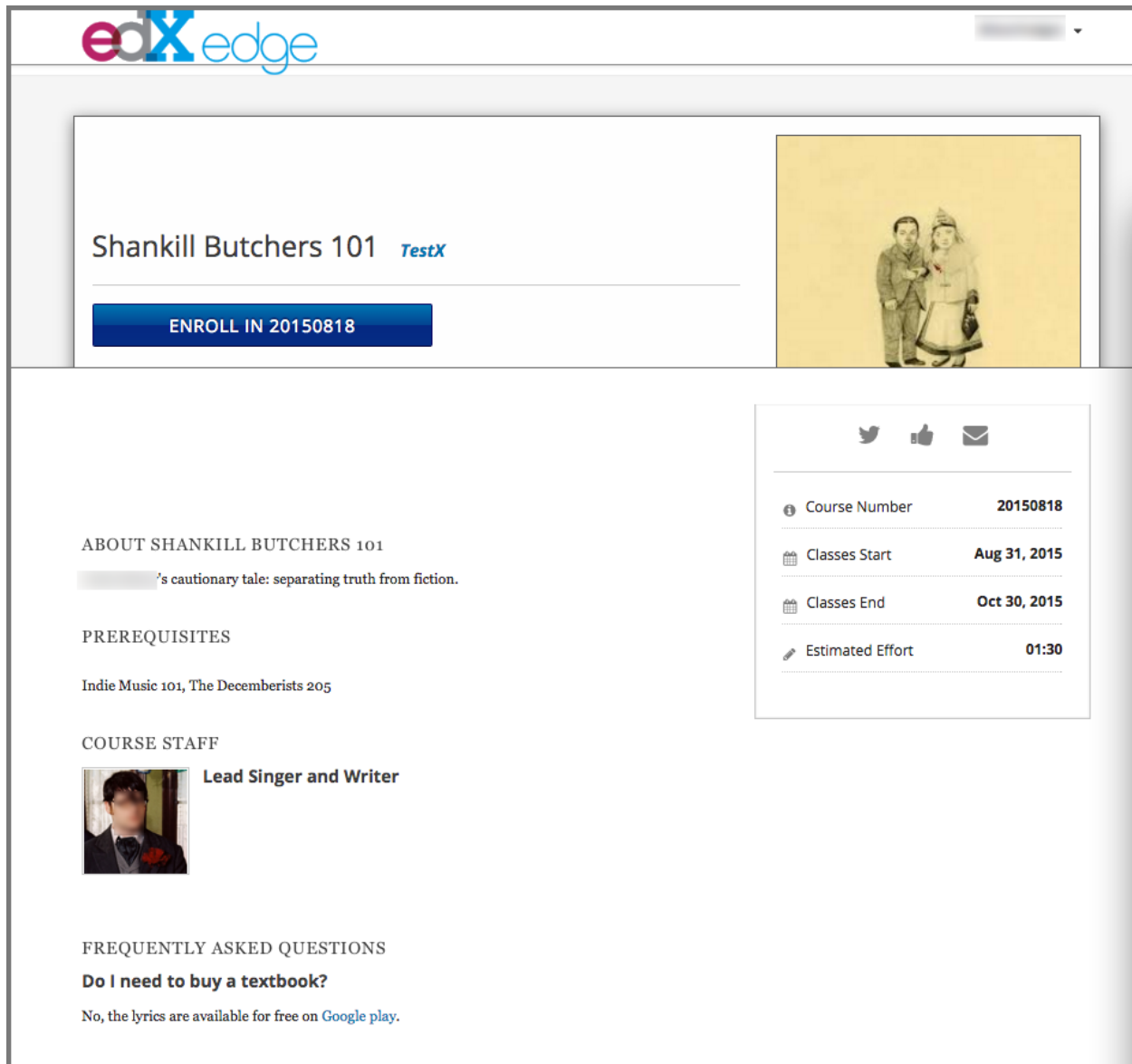
After a learner enrolls in a course, the course is listed on that learner's dashboard. From the dashboard, a learner can open a course that has started. If the course has not started, or has already ended, the dashboard shows the start or end date.



For more information, see *View Start and End Dates as a Learner*.

5.7.2 The Course About Page

The course **About** page, sometimes called the course summary page, provides information about your course to learners. In addition to the course *start and end dates* and an overview of course objectives, the **About** page can include information such as a course description with course prerequisites, requirements, and team biographies. Learners can see the **About** page before they enroll in the course, and might decide to enroll based on the content of the page.



The screenshot shows the edX course page for 'Shankill Butchers 101'. The page features the edX logo at the top left. The course title 'Shankill Butchers 101' is displayed with a 'TestX' label. Below the title is a blue button that says 'ENROLL IN 20150818'. To the right of the title is a placeholder image showing two people. Below the title, there is a section 'ABOUT SHANKILL BUTCHERS 101' with a description: 's cautionary tale: separating truth from fiction.' Below this is a 'PREREQUISITES' section listing 'Indie Music 101, The Decemberists 205'. The 'COURSE STAFF' section features a photo of a man and the text 'Lead Singer and Writer'. Below this is a 'FREQUENTLY ASKED QUESTIONS' section with the question 'Do I need to buy a textbook?' and the answer 'No, the lyrics are available for free on Google play.' On the right side of the page, there is a sidebar with social media icons (Twitter, Facebook, Email) and a table of course details:

Course Number	20150818
Classes Start	Aug 31, 2015
Classes End	Oct 30, 2015
Estimated Effort	01:30

If the CourseTalk widget is enabled for your instance of the Open edX platform, the **About** page for every course also includes the CourseTalk widget. Learners who have enrolled in your course use this widget to write reviews of your course on the **Home** page in the LMS. These reviews are then visible on the course **About** page. For more information, see [Adding the CourseTalk Widget](#).


Adding Information to the Course About Page

You configure the contents of this page in Studio.

- *Describe Your Course*
- *Add a Course Image*
- *Adding a Course About Video*
- *Set Course Effort Expectations*
- *Course Overview Template*

Describe Your Course

Learners see the description of your course on the course **About** page. For example, the course description is circled in the following course **About** page.



Introduction to Programming with Java - Part 1: Starting to Program in Java

Learn to program in an easy and interactive way!

Starts April 28, 2015

Enroll Now

☒ I would like to receive email from Universidad Carlos III de Madrid and learn about its other programs.

About this course

This is an introductory course to learn programming with Java. This course is designed taking into account the subset and recommendations of the College Board in order to prepare learners for the Advanced Placement (AP) Computer Science A exam. It is comprised of three 5-week parts.


Part 1 introduces programming on the basis of familiar concepts, like calculators and games. In a gentle way, it introduces to powerful concepts like functional abstraction and object encapsulation.

Part 2 will focus on how to write "good" programs, where "good" is to be understood from several perspectives: correctness, efficiency, software engineering techniques, and ethics.

Part 3 will deal with fundamental data structures, such as sequences, and algorithms on them, such as searching and sorting.

Emphasis is put on immediate feedback and on having a fun experience. Programming knowledge is not only useful to be able to program today's devices such as computers and smartphones. It also opens the door to computational thinking, i.e. the application of computing techniques to every-day processes.

Please [click here](#) to see the course syllabus.

 Hide

Level: Introductory

Effort: 5 - 7 hours per week

Subject: [Computer Science](#)

Institution: [UC3Mx](#)

Languages: English

Video Transcripts: English, Español, Português, 中文

Price: FREE
Add a Verified Certificate for \$25

Share this course with a friend

[f](#) [t](#) [in](#) [g+](#) [e](#)

Prerequisites
None.

Given the diversity of online learners, be sure to review your course description to ensure that it clearly communicates the target audience, level, and prerequisites for your course. Use concrete, unambiguous phrasing, such as a prerequisite of "understand eigenvalue decomposition" rather than "intermediate linear algebra".

To provide a description for your course, follow these steps.

1. From the **Settings** menu, select **Schedule & Details**.
2. Scroll down to the **Introducing Your Course** section, then locate the **Course Overview** field.

Introducing Your Course

Information for prospective students

Course Overview

```

1 <section class="about">
2   <h2>About This Course</h2>
3   <p>Include your long course description here. The long course description should contain 150-400 words.
4   </p>
5   <p>This is paragraph 2 of the long course description. Add more paragraphs as needed. Make sure to
6   enclose them in paragraph tags.</p>
7 </section>
8 <section class="prerequisites">
9   <h2>Prerequisites</h2>
10  <p>Add information about course prerequisites here.</p>
11 </section>
12
13 <section class="course-staff">
14   <h2>Course Staff</h2>
15   <article class="teacher">
16     <div class="teacher-image">
17       
19     </div>
20     <h3>Staff Member #1</h3>

```

Introductions, prerequisites, FAQs that are used on [your course summary page](#) (formatted in HTML)

3. Overwrite the content as needed for your course, following the directions in the boilerplate text. Do not edit HTML tags. For a template that includes these placeholders, see the [Course Overview Template](#).
4. To test how the description will appear to learners, from the text that follows the **Course Overview** field select **your course summary page**.
5. Select **Save Changes**.

Add a Course Image

The course image that you add in Studio appears on the **About** page for the course and on the learner dashboard. It must be a minimum of 378 pixels in width by 225 pixels in height, and in .jpg or .png format. Make sure the image that you upload maintains the aspect ratio of those dimensions so that the image appears correctly on the dashboard.

An example of a course on the dashboard with a course image follows.

MY COURSES

Shankill Butchers 101

TestX - 20150818
Starts - Nov 30, 2015

View Course

To add a course image, follow these steps.

1. From the **Settings** menu, select **Schedule & Details**.
2. In the **Course Image** section, select **Upload Course Image**, and then follow the prompts to find and upload your image. To specify an image that has already been *added to the course*, select **files & uploads**.
When you make changes on this page, a panel with options to save or cancel your work appears.
3. Select **Save Changes**.
4. View your dashboard to test how the image will appear to learners.

Adding a Course About Video

The course “about” video should excite and entice potential learners to enroll, and reveal some of the personality that the course team brings to the course.

This video should answer these key questions.

- Who is teaching the course?
- What university or institution is the course affiliated with?
- What topics and concepts are covered in your course?
- Why should a learner enroll in your course?

This video should deliver your message as concisely as possible and have a run time of less than 2 minutes.

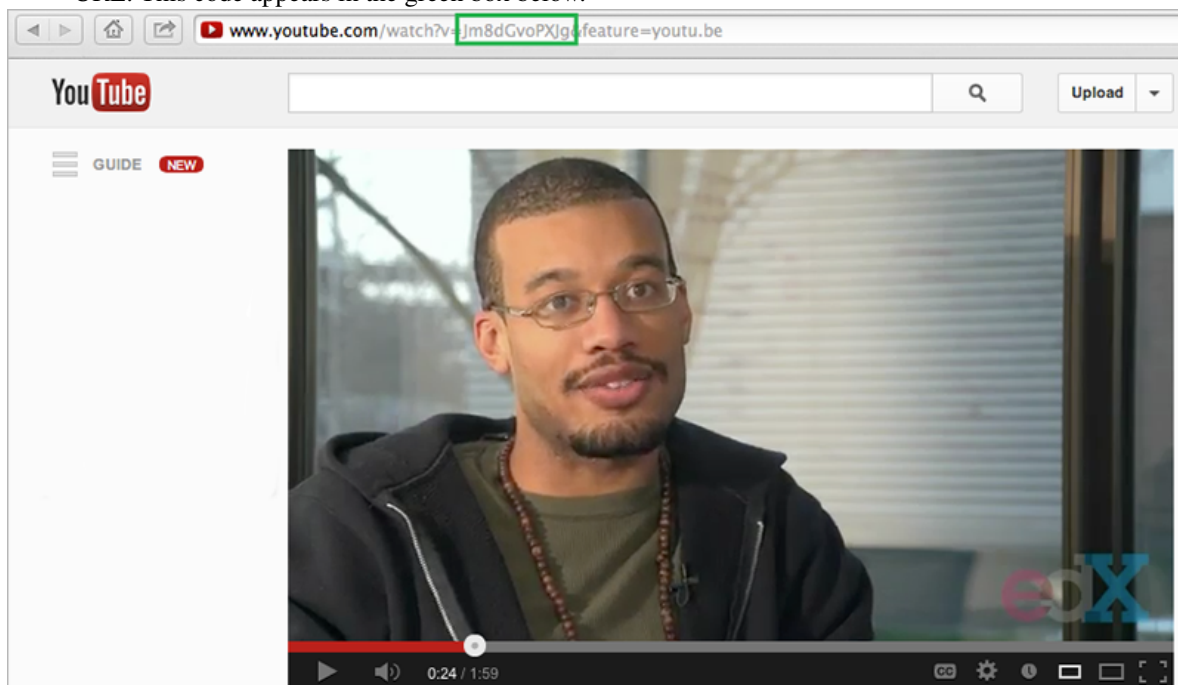
Before you upload a course about video, make sure that it follows the same [Recommended Compression Specifications](#) and [Supported Video Formats](#) guidelines as your course content videos.

Note:

- If you upload both a course image and a course about video, the course image appears on learner dashboards with a **play** icon superimposed on it. If you upload only a course video, the first frame of the the video file appears with the **play** icon.
 - The process for adding a course about video is different than the process for including videos as part of the content of your course. For more information about including video content, see [Working with Video Components](#).
-

To upload a course about video, follow these steps.

1. Upload the video file to YouTube. Make note of the code that appears between **watch?v=** and **&feature** in the URL. This code appears in the green box below.



2. From the **Settings** menu, select **Schedule & Details**.
3. Scroll down to the **Course Introduction Video** section.

4. In the field below the video box, enter the YouTube video ID (the code you copied in step 1). When you add the code, the video automatically loads in the video box.
5. When you make changes, a **Save Changes** option appears at the bottom right of the page. Select **Save Changes** after you add the course video.
6. View your course **About** page to test how the video will appear to learners.

Set Course Effort Expectations

The estimated effort that the course requires appears in the course **About** page.

To set the hours and minutes a week estimate in Studio, follow these steps.

1. From the **Settings** menu, select **Schedule & Details**.
2. In the **Requirements** section, locate the **Hours of Effort per Week** field.
3. Enter the number of hours you expect learners to work on this course each week.

When you make changes on this page, a panel with options to save or cancel your work appears.

4. Select **Save Changes**.
5. View your course **About** page to test how the requirements will appear to learners.

Course Overview Template

Replace the placeholders in the following template with information for your course.

```
<section class="about">
  <h2>About This Course</h2>
  <p>Include your long course description here. The long course description
  should contain 150-400 words.</p>
  <p>This is paragraph 2 of the long course description. Add more paragraphs
  as needed. Make sure to enclose them in paragraph tags.</p>
</section>
<section class="prerequisites">
  <h2>Requirements</h2>
  <p>Add information about the skills and knowledge students need to take
  this course.</p>
</section>
<section class="course-staff">
  <h2>Course Team</h2>
  <article class="teacher">
    <div class="teacher-image">
      
    </div>
    <h3>Team Member #1</h3>
    <p>Biography of course team member #1</p>
  </article>
  <article class="teacher">
    <div class="teacher-image">
      
    </div>
    <h3>Team Member #2</h3>
    <p>Biography of course team member #2</p>
  </article>
</section>
```

```
</article>
</section>
<section class="faq">
  <section class="responses">
    <h2>Frequently Asked Questions</h2>
    <article class="response">
      <h3>Do I need to buy a textbook?</h3>
      <p>No, a free online version of Chemistry: Principles, Patterns, and
      Applications, First Edition by Bruce Averill and Patricia Eldredge
      will be available, though you can purchase a printed version (
      published by FlatWorld Knowledge) if you'd like.</p>
    </article>
    <article class="response">
      <h3>Question #2</h3>
      <p>Your answer would be displayed here.</p>
    </article>
  </section>
</section>
```

5.8 Staffing

You can designate a team of people to help you run your course.

- [About the Course Team Roles](#)
- [Administrative Team Roles](#)
- [Assign Course Team Roles](#)
- [Add Course Team Members](#)

5.8.1 About the Course Team Roles

To give team members access to Studio, the Instructor Dashboard in the LMS, and Insights, you assign one of these course team roles to them.

- Staff
- Admin

You can assign these privileged roles when you work in either the LMS or Studio. The people who have these roles can work on your course in Studio, the LMS, and Insights. For more information about assigning roles to team members in Studio, see [Add Course Team Members](#).

You can also designate teams of people to beta test your course or to moderate and manage its discussions by assigning other roles in the LMS. Beta testers and discussion team members must be enrolled in your course, but they do not need to have the Staff or Admin role. For more information, see [Beta Testing a Course](#) and [Assign Discussion Administration Roles](#).

5.8.2 Administrative Team Roles

To provide access to features on the LMS Instructor Dashboard, you assign the Staff role or the Admin role.

Team members with the **Staff** role can complete these tasks.

- View the course before the Course Start Date.

- Enroll and unenroll learners.
- Access learner grades.
- See course HTML errors.
- Send email messages to course participants.

Team members with the **Admin** role have access to all of the same options for running the course as team members with the Staff role. They can also complete these tasks.

- Reset learner attempts to answer a question correctly.
- Add and remove Staff.
- Add and remove other Admins.
- Add and remove Beta Testers.
- Add and remove Discussion Admins, Discussion Moderators, and Discussion Community TAs.

Note: To moderate course discussions, team members must have one of these discussion roles assigned to them *in addition to* the Staff or Admin role. For more information, see [Assign Discussion Administration Roles](#).

5.8.3 Assign Course Team Roles

Before you can assign the Staff or Admin role to a team member, you must meet these prerequisites.

- You must have the Admin role.
- You need the email address or username of each team member you want to add.
- Each of those team members must register a user account for that email address or username, activate the account, and enroll in your course.

To assign a privileged role to a course team member, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Membership**.
3. In the **Course Team Management** section, select **Staff** or **Admin**.
4. Under the list of users who currently have that role, enter an email address or username, and then select **Add** for the role type.

To remove an assigned role, view the list of users and then select **Revoke access**.

5.8.4 Add Course Team Members

Course team members are users who help you build your course. Before you can assign Staff or Admin access to a team member, you must meet these prerequisites.

- You must be an Admin.
- The team member that you want to add must register a user account and activate the account.
- You need the same, registered email address for the team member you want to add.

Other course team members can edit the course and perform all tasks except adding and removing other team members and granting Admin access.

Note: Any course team member can delete content created by other team members.

To add a course team member:

1. Ensure you have Admin access.
2. Ensure that the new team member has registered and activated an account.
3. In Studio, from the **Settings** menu, select **Course Team**.
4. Select **Add a New Team Member**.
5. Enter the new team member's email address, then select **ADD USER**.

The new team member can now work on the course in Studio.

- To preview the course in the LMS, the team member must enroll in the course.
- To moderate course discussions, the team member must also have one of the discussion roles. For more information, see [Assign Discussion Administration Roles](#).

You can also assign privileged roles to users when you work in the LMS.

Regardless of where the role is assigned, these administrative team members can work on your course in Studio immediately, and use the LMS and Insights after enrollment. For more information about assigning roles while you run your course, see [Staffing](#).

You can also designate teams of people to beta test your course and to moderate and manage its discussions by assigning other LMS roles. The beta testers and discussion administrators must be enrolled in your course, but they do not need to have Staff or Admin access. For more information, see [Beta Testing a Course](#) and [Assign Discussion Administration Roles](#).

5.9 Setting Up Course Certificates

This section describes how to configure certificates for your course in Studio.

- [Overview](#)
- [Certificate Design](#)
- [Enable Certificates](#)
- [Create a Certificate](#)
- [Edit a Certificate](#)
- [Set a Course Number Override](#)
- [Delete a Certificate](#)
- [Preview Certificates](#)
- [Activate a Certificate](#)
- [Deactivate a Certificate](#)
- [Manage Certificate Images](#)

For more information about certificates, see these additional topics.

- [Obtaining Certificate Data](#)
- [Assign Final Grades and Issue Certificates](#)

For information about awarding badges for your course, see [Enable or Disable Badges for Your Course](#).

5.9.1 Overview

Using Studio, you create certificates that learners can earn in your course.

5.9.2 Certificates and Course Start Dates

If your course is configured to issue certificates, you cannot start the course until the required certificates are *activated*.

For information about starting the course, see [Determining Start and End Dates](#).

5.9.3 Certificate Design

The design of certificates for your course, including your institution's logo, are configured on your instance of Open edX. For more information, see [Enabling Certificates](#) in *Installing, Configuring, and Running the Open edX Platform*.

5.9.4 Enable Certificates

Before you can create certificates, you must enable certificates for your course.

1. From the **Settings** menu, select **Advanced Settings**.
2. In the **Certificate Web/HTML View Enabled** field, enter `true`.
3. At the bottom of the page, select **Save Changes**.

5.9.5 Create a Certificate

You create one certificate for each course mode, or track. For example, if your course has an “honor code” track and a “verified track”, you must create two certificates.

To create a certificate for your course, follow these steps.

1. In Studio, from the **Settings** menu, select **Certificates**.
2. On the Certificates page, select **Add your first certificate** or **Add a new certificate**.
3. Optionally, specify an alternative course title to use on the certificate in the **Course Title Override** field.

You might want to use a different title on your course certificates if, for example, the official course name is too long to fit on the certificate.

To specify an alternative course number, see [Set a Course Number Override](#).
4. Add a signatory for each person associated with the course or organization whose name and title you want to appear on the certificate. You must specify at least one signatory. You can add as many signatories as needed.
5. Optionally, upload an image file showing the signature of each signatory.

The image file must be a transparent .PNG file, 450px by 150px.
6. When you have finished creating your certificate, select **Create**.

You can [preview the certificate](#) to see how it will appear to a learner taking the course in the selected mode.

Your course certificate is not available for issuing to learners until it is *activated*.

5.9.6 Edit a Certificate

You can edit a certificate before it is activated.

After a certificate is activated, only a course team member with the Admin role can edit the certificate. As a best practice, the administrator should deactivate the certificate before making edits.

Caution: As a best practice, do not make changes to certificates in a running course if it is possible that certificates have already been issued to learners, because different learners might be awarded certificates with different details for the same course.

To edit a certificate, follow these steps.

1. In Studio, from the **Settings** menu, select **Certificates**.
2. On the Certificates page, at the top right corner of the certificate form, select the **Edit** icon.
3. When you have finished editing the certificate, select **Save**.

After you save your changes, you can *preview the certificate* to make sure it appears as you want it to. You then need to *activate the certificate configuration* before certificates can be issued.

5.9.7 Set a Course Number Override

Optionally, you can specify an alternative course number to use on the certificate.

You might want to use a different number on your course certificates if, for example, the official course number is meaningful only within your institution.

1. In Studio, select **Settings**, and then **Advanced Settings**.
2. Locate the **Course Number Display String** field. This field contains the course number you set to override the official course number on certificates.
3. Between quotation marks (" "), enter the course number you want displayed on certificates.
4. Select **Save Changes**.

A message lets you know whether your changes were saved successfully.

5.9.8 Delete a Certificate

You can delete a certificate that is not activated.

Caution: Do not delete a certificate after the course has started. A learner who has already earned a certificate will no longer be able to access it.

To delete a certificate, follow these steps.

1. In Studio, from the **Settings** menu, select **Certificates**.
2. On the Certificates page, at the top right corner of the certificate form, select the “Delete” icon.
3. In the confirmation dialog, confirm that you want to delete the certificate.

Certificate Details



5.9.9 Preview Certificates

After you have finished editing your certificate, you can preview a certificate for verification purposes. You select from the available course modes (such as “honor code” or “verified”) to see how a certificate will appear to a learner taking the course in the selected mode.

1. In Studio, from the **Settings** menu, select **Certificates**.
2. On the Certificates page, select the course mode of the certificate you want to preview, then click **Preview Certificate**.

You see the web view for the certificate, as a learner in the selected course mode would see it.



After previewing the certificate, you can *edit the certificate* further or *activate your certificate configuration*.

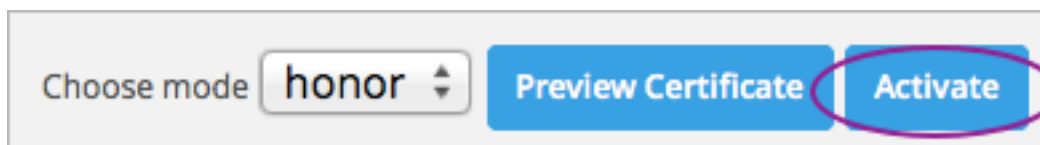
5.9.10 Activate a Certificate

When you have verified your certificate, a course team member with the Admin role must activate the certificate.

Note: Course team members without the Admin role cannot activate a certificate.

The course team administrator must complete the following steps.

1. In Studio, from the **Settings** menu, select **Certificates**.
2. On the Certificates page, select **Activate**.



After certificates are activated, learners in your course who attain a passing grade or otherwise qualify receive certificates.

5.9.11 Deactivate a Certificate

In some situations, after having made a certificate active, you might need to deactivate the certificate to make changes.

As a best practice, do not make changes to certificates in a running course if it is possible that certificates have already been issued to learners.

A course team member with the Admin role must deactivate the certificate.

Note: Course team members without the Admin role cannot deactivate a certificate.

The course team administrator must complete the following steps.

1. In Studio, from the **Settings** menu, select **Certificates**.

2. On the Certificates page, select **Deactivate**.

The certificate is no longer active and the course team can edit it. No new certificates can be issued to learners while it is deactivated. Learners who have already been issued certificates can continue to access them.

5.9.12 Manage Certificate Images

When you add signatory image files to a certificate, the uploaded files are listed in Studio on the **Files & Uploads** page.

When you delete a certificate, images that you uploaded for use with that certificate are also deleted. However, if you edit a certificate and replace images, the unused image files remain on the **Files & Uploads** page. You can manually remove unused images. For information, see [Delete a File](#).

5.9.13 Enable or Disable Badges for Your Course

Badges provide a way for learners to share their course achievements. For courses that have course completion badges enabled, learners receive a badge at the same time as they receive a course certificate, and have the option of sharing their badges to a badging site such as Mozilla Backpack.

The Open edX platform supports Open Badges, an open standard developed by the Mozilla Foundation. For more information about Open Badges, see the [Open Badges web site](#).

If badging is enabled for your platform, course completion badges are enabled by default for your course. If you are unsure whether badging is enabled for your platform, or if you need help with configuring your course badges, contact your platform administrator.

To stop issuing badges in your course, follow these steps.

1. In Studio, from the **Settings** menu, select **Advanced Settings**.
2. Locate the **Issue Open Badges** policy key. The default value is `True`.
3. Change the setting to `False` and save your changes.

To enable badging for your course if it was previously disabled, change the value of the key to `True`.

5.10 Creating a Custom Course

This topic describes custom courses on the edX platform (CCX).

Section Contents

- [Overview](#)
- [Custom Courses and Roles](#)
- [Enable Custom Courses for an Existing Course](#)
- [Add a CCX Coach](#)
- [Create the Custom Course](#)
- [The CCX Coach Dashboard](#)

5.10.1 Overview

You can create a custom course in the edX platform (CCX) to reuse course content. By using a CCX, you can run some or all of an existing course for a group of students on a new schedule.

A CCX can contain only content from an existing course; you cannot author new content in a CCX.

5.10.2 Custom Courses and Roles

There are three roles involved in creating and running a CCX.

- **Admins** create the existing course and have privileges to create CCX coaches for their course.
- **CCX Coaches** select content from the existing course for the CCX. CCX coaches also enroll learners, set start and due dates for their scheduled content, and manage the grading policy for the CCX.
- **Learners** take the CCX and view the selected content on the specified schedule.

5.10.3 Enable Custom Courses for an Existing Course

CCX for a course is disabled by default.

You enable CCX in Studio. Ensure you have access to the course in Studio, then complete the following steps.

1. In Studio, from the **Settings** menu, select **Advanced Settings**.
2. Find the `Enable CCX` key and change the value to `true`.
3. Click **Save Changes**.

You can now add a CCX coach.

5.10.4 Add a CCX Coach

The first step to create a CCX is to create a CCX coach in an existing course. A CCX can have only one CCX coach.

You add a CCX coach through the Instructor Dashboard in the LMS. Ensure you have the Admin role in the course.

In addition, ensure that the user whom you would like to add as a CCX coach has registered in the LMS.

1. In the LMS, select **Instructor**, and then select **Membership**.
2. In the **Course Team Management** section, from **Select a course team role**, select **CCX Coaches**.
3. Enter the CCX coach's username or email address and select **Add CCX Coach**.

The user is added as a coach and enrolled in the course if she is not already enrolled.

If she's enrolled when she's added as a CCX coach, the coach will get an email to let her know.

When the CCX coach next logs into the LMS, the **CCX Coach** tab will be visible. The CCX coach dashboard is not accessible by course team members with other roles.

5.10.5 Create the Custom Course

When you have been made the CCX coach for a course, you can then access the course and create a CCX.

1. In the LMS, select the **CCX Coach** tab.

2. From the CCX coach Dashboard, enter the name for your CCX, then select **Coach a new Custom Course for edX**.
3. When the CCX is created, you are re-directed to the full CCX coach Dashboard.

Note: When entering a CCX name, consider that the name should distinguish your CCX from other CCXs based on the same course.

You can revisit your CCX by opening the original course and selecting the CCX **Coach** tab.

5.10.6 The CCX Coach Dashboard

The CCX coach Dashboard provides the tools for you to manage the CCX. The CCX coach Dashboard contains four tabs, described in the following sections.

Note: CCX coaches do not have the same level of access and control over content that team members with the Admin or Staff roles do, and do not have access to the Instructor Dashboard.

Schedule Tab

On the **Schedule** tab, you select the course content from the original course that is to be included in the CCX.

Use the drop-down lists to drill down through the course content and select an items from the content hierarchy. You then add those items in the order needed.

Select **add all units** to include all of the source course's content.

You can configure each unit to have its own start and due dates. You can select these before or after you add the unit to the CCX . After units are added, you can edit their start and due dates by hovering over or selecting that space on the CCX content hierarchy.

Select **Save changes** to save the content you configured.

Enrollment Tab

The **Enrollment** tab contains controls to invite and manage learners. Select **Student List Management** to add individual students who are already registered on the platform.

To have students added in through Batch Enrollment receive an email invitation to the CCX, select **Notify users by email**. Students are automatically enrolled in the CCX when they access the invitation.

Student Admin Tab

You use the **Student Admin** tab to view the gradebook and download student grades.

Grading Policy Tab

Use the **Grading Policy** tab to modify the grading policy for the CCX.

A CCX coach can modify the grading policy of the underlying course for their CCX.

Note: As a CCX coach, you can modify the grading policy of the original course on which the CCX was based. Only attempt this if you are confident that you understand how your changes will affect grading. Modifying the grading policy can make your CCX unusable.

The grading policy is in JSON format. Verify that it is well-formed before selecting **Save Grading Policy**.

Developing Your Course

Use the topics in this section to understand how to develop your course content in the Studio Outline page.

For information on building specific course component types, see *Adding Course Components*.

For information on creating exercises and tools, see *Creating Exercises and Tools*.

For information on creating content libraries from which you can randomly draw content for randomized assignments, see *Working with Content Libraries*.

6.1 Getting Started with Course Content Development

When you have finished *setting up your course*, you are ready to build your course content.

This section provides an outline of the steps involved in developing your course content, with links to more details.

- *Understanding Course Building Blocks*
- *Creating New Course Content*
- *Making Course Content Visible to Students*
- *Making Course Content Searchable*
- *Revising Content*

6.1.1 Understanding Course Building Blocks

Before you begin, you should understand the building blocks of an edX course.

- *The course outline* is the container for all of your course content. The outline contains one or more sections.
- *Course sections* are at the top level of your course and typically represent a time period. A section contains one or more subsections.
- *Course subsections* are parts of a section, and usually represent a topic or other organizing principle. A subsection contains one or more units.
- *Course units* are lessons in a subsection that students view as single pages. A unit contains one or more components.
- *Course components* are objects within units that contain your actual course content.

6.1.2 Creating New Course Content

Once you understand the way edX courses are structured, you can start organizing your content and entering it into Studio.

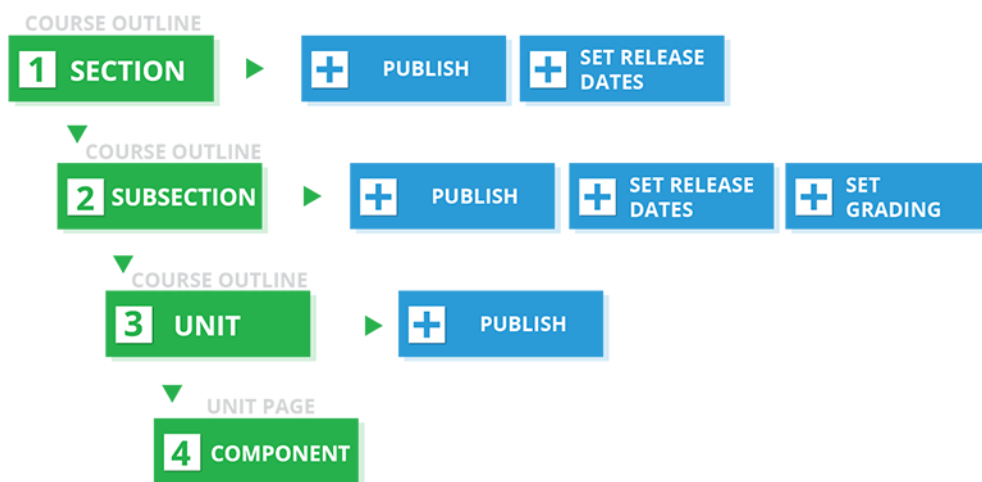
You create *sections*, *subsections*, and *units* in the *course outline*.

For graded subsections, you also *set the assignment type and due date*.

You *create components* in the unit page.

In addition, you *control content visibility* by setting release dates on the outline and publishing units.

The following diagram summarizes the content creation workflow:



It is recommended that you *test course content* throughout the creation process, including making sure that the content is available for learners who access courses using the edX mobile apps. For more information, see *Designing Your Course For a Mobile Experience*.

Note: Keep in mind that course updates that you make might take longer to appear in the edX mobile apps than on the edX site. In particular, newly published content can take up to an hour to update on the Android app.

6.1.3 Making Course Content Visible to Students

When you create your content, you'll also specify if and when students will be able to see it. Content visibility depends on several factors:

- The *course start date*
- The release dates of the *section* and *subsection*
- The *prerequisite subsections* that you configure
- The *publishing status* of the unit
- The *Hide content from students* setting
- The use of *Content Groups*

For more information, see *Controlling Content Visibility*.

6.1.4 Making Course Content Searchable

Learners can search course text in *HTML components* and video transcripts by using the **Search** box in the upper-left corner of the **Course** tab.

Before learners can search your course, Studio must index the content. Studio indexes all new course content automatically when you *publish* the content.

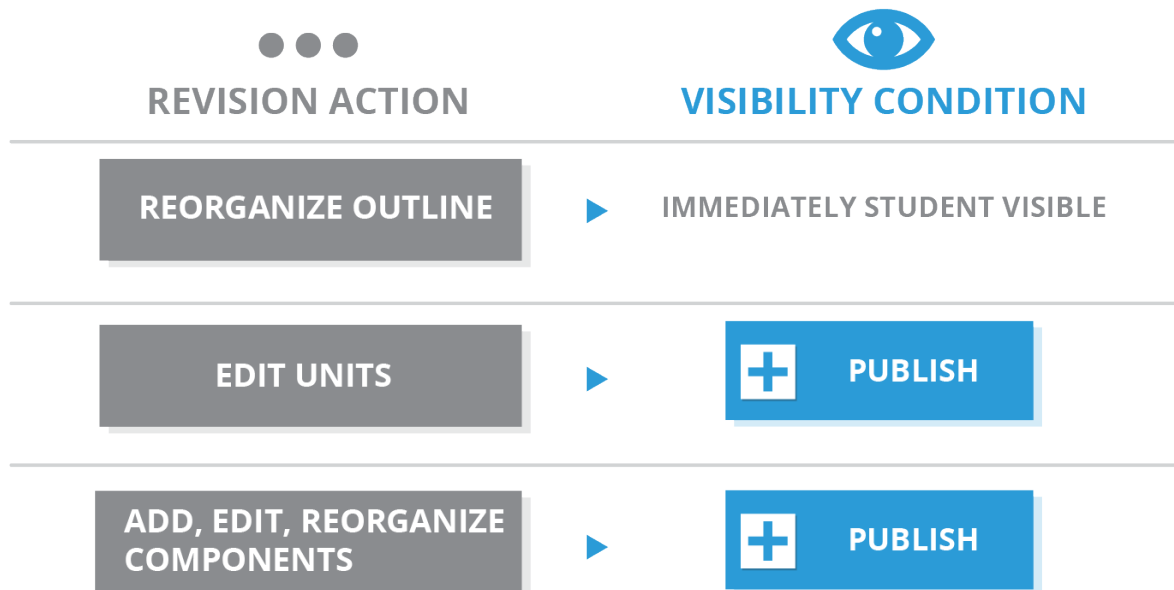
If necessary, you can manually reindex all of the content in your course at any time. Typically, you would only manually reindex your course content if learners see unexpected search results. To reindex your course content, select **Reindex Content** in the upper-right corner of the **Course Outline** page. Reindexing usually takes less than 30 seconds.

6.1.5 Revising Content

You can revise your course content at any time.

- When you *reorganize sections, subsections, and units* in the outline, the new order is immediately visible to students if the section and subsection are released.
- When you *edit a unit*, or *components* within a unit, you must *publish* those changes to make them visible to students.

The following diagram summarizes the content revision workflow and content visibility:



It is recommended that you *test course content* during the revision process, including making sure that the content is available for learners who access courses using the edX mobile apps. For more information, see *Designing Your Course For a Mobile Experience*.

Note: Keep in mind that course updates that you make might take longer to appear in the edX mobile apps than on the edX site. In particular, newly published content can take up to an hour to update on the Android app.

6.2 Developing Your Course Outline

As you develop your course, you work primarily in the edX Studio course outline. This section includes the following information about working with the course outline.

- *Open the Course Outline*
- *Understanding a Course Outline in Studio*
- *View the Course Organization as a Learner*
- *Navigate the Course Outline*
- *Add Content in the Course Outline*
- *Modify Settings for Objects in the Course Outline*
- *Publish Content from the Course Outline*
- *Reorganize the Course Outline*
- *Delete Content in the Course Outline*

See the following sections for information about working with the course building blocks in the course outline.

- *Developing Course Sections*
- *Developing Course Subsections*
- *Developing Course Units*
- *Developing Course Components*

6.2.1 Open the Course Outline

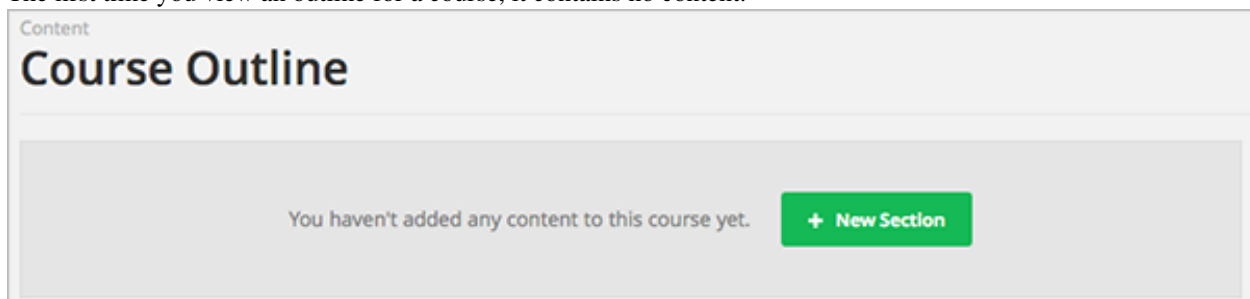
To view the course outline, follow these steps.

1. Log in to edX Studio.
2. In the **My Courses** page, select the course you want to develop.

The course outline opens by default when you open a course.

When working in a course, to open the outline, from the **Content** menu, select **Outline**.

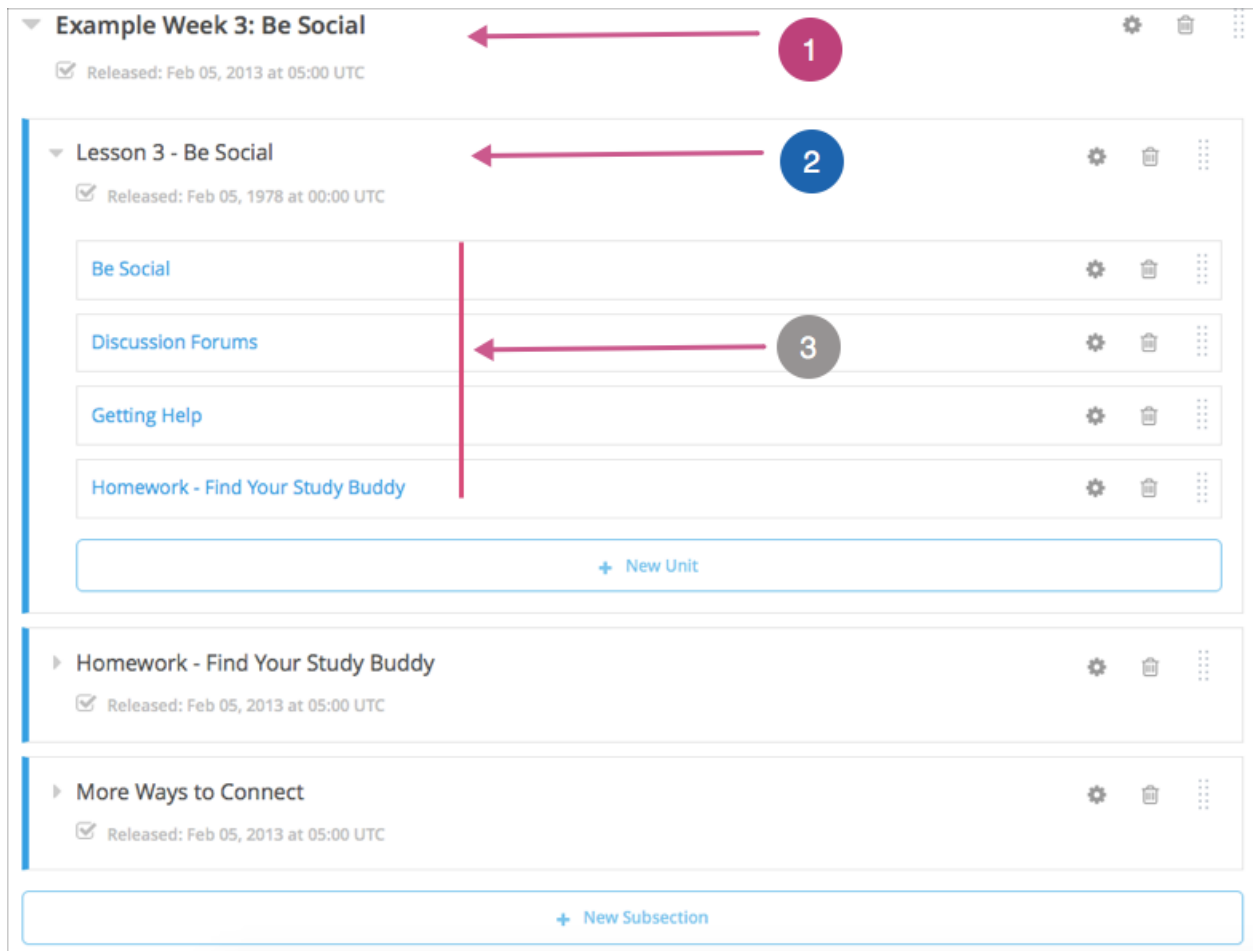
The first time you view an outline for a course, it contains no content.



You must *create the first section*.

6.2.2 Understanding a Course Outline in Studio

The following example shows a partial course outline in Studio, with indications for sections, subsections, and units. As you develop your course, it will begin to look like this example.



As this example shows, the course is organized into the following levels.

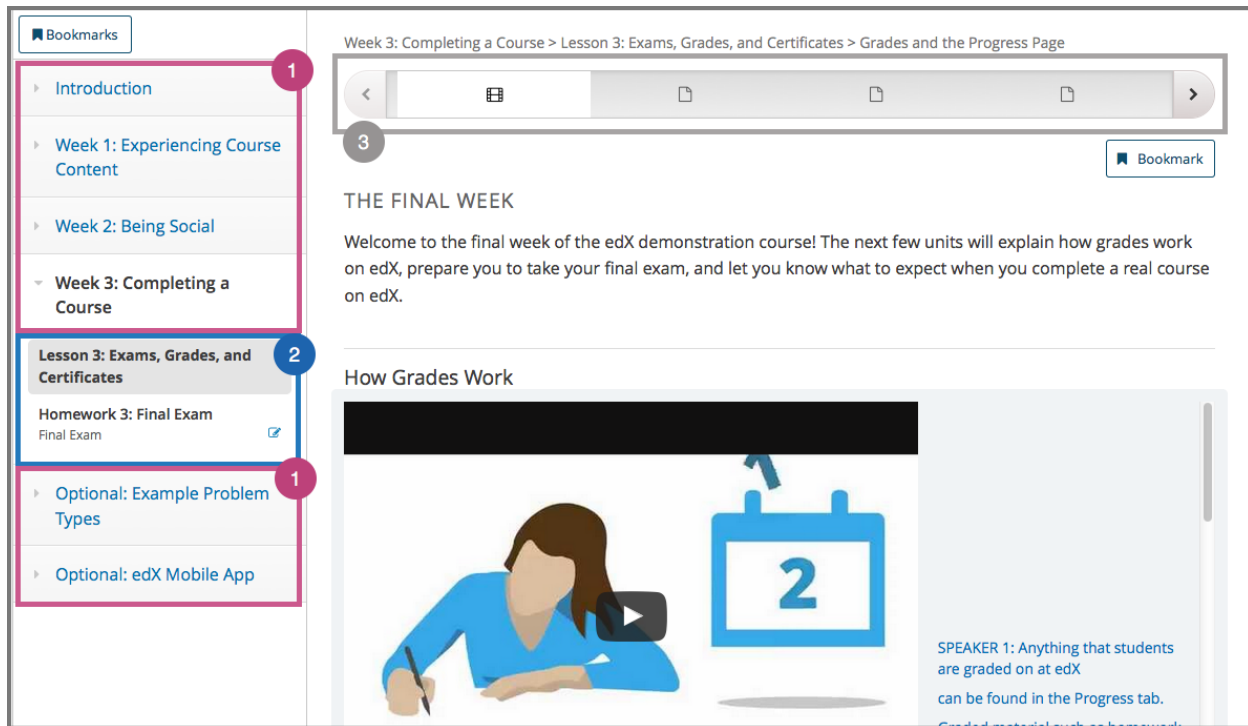
1. *Sections*
2. *Subsections*
3. *Units*

Components are not shown in the outline. You add or access components by selecting the units that contain them.

Use the links above for more information and instructions on working with each type of object in the course. The topics in the rest of this section provides more detail about the course outline.

6.2.3 View the Course Organization as a Learner

The content you see in the outline in Studio is displayed to learners in the **Course** page in the LMS. The following image shows how a learner sees your course content.



1. Sections are listed in the course navigation pane. Learners select a section to see the subsections that it contains.
2. Subsections are listed in the course navigation pane after a learner expands a section.
3. Units appear in the unit navigation bar, represented by icons, after learners select a subsection. A tooltip with the unit's name appears when learners move the pointer onto an icon.

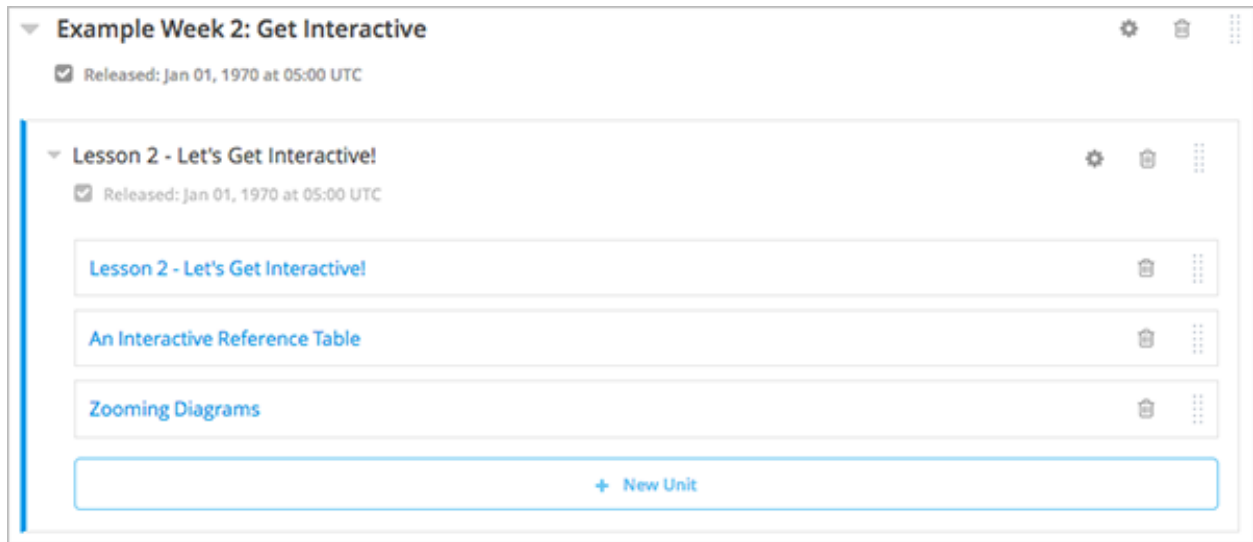
Learners select icons in the unit navigation bar to access course units. They can also use the **Previous** and **Next** options at either end of the unit navigation bar to move back to the previous unit or forward to the next unit.

6.2.4 Navigate the Course Outline

In Studio, you navigate the course outline by expanding and collapsing sections and subsections. Use the “drop-down” icon next to a section or subsection name to expand or collapse its contents.



When you expand a subsection, all units in the subsection are visible.

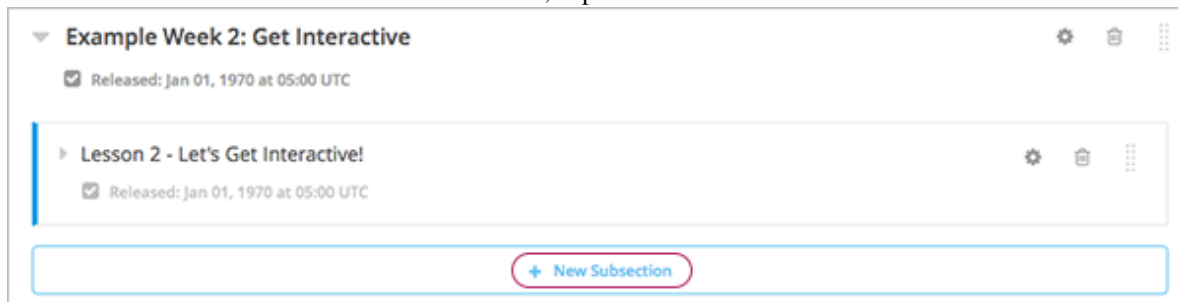


Select the name of a unit to open the *unit page*.

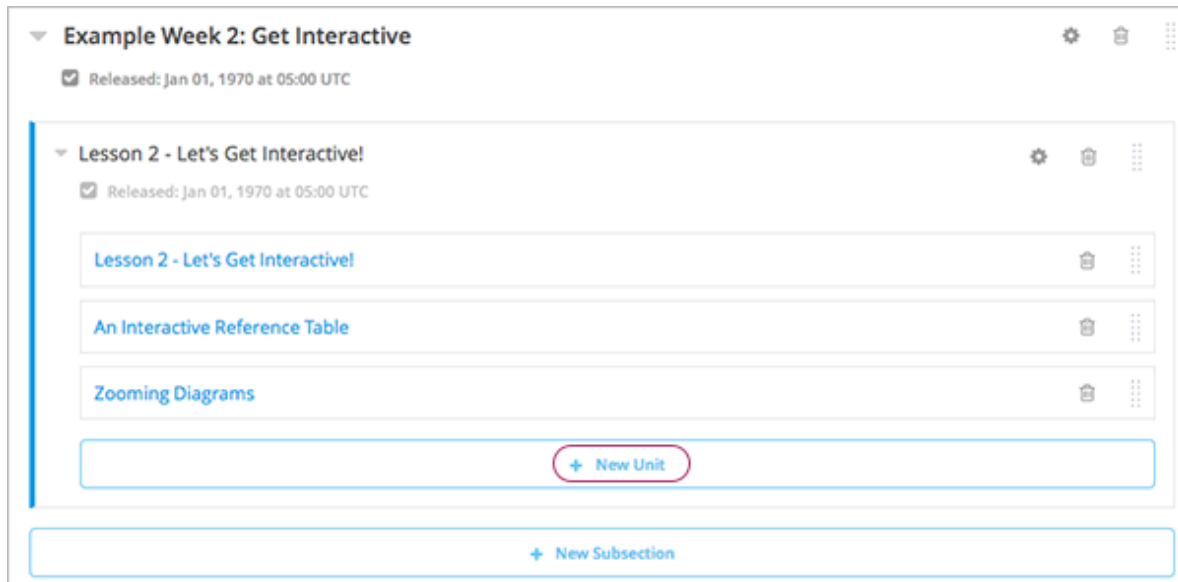
6.2.5 Add Content in the Course Outline

You add sections, subsections, and units directly in the outline.

- To add a section to the outline, select **New Section**. This option appears at both the top of the page and below the current sections in the outline. For more information, see [Create a Section](#).
- To add a subsection to the end of the section, expand the section and select **New Subsection**.



- To add a unit to the end of a subsection, expand the subsection and select **New Unit**.



The *unit* page opens.

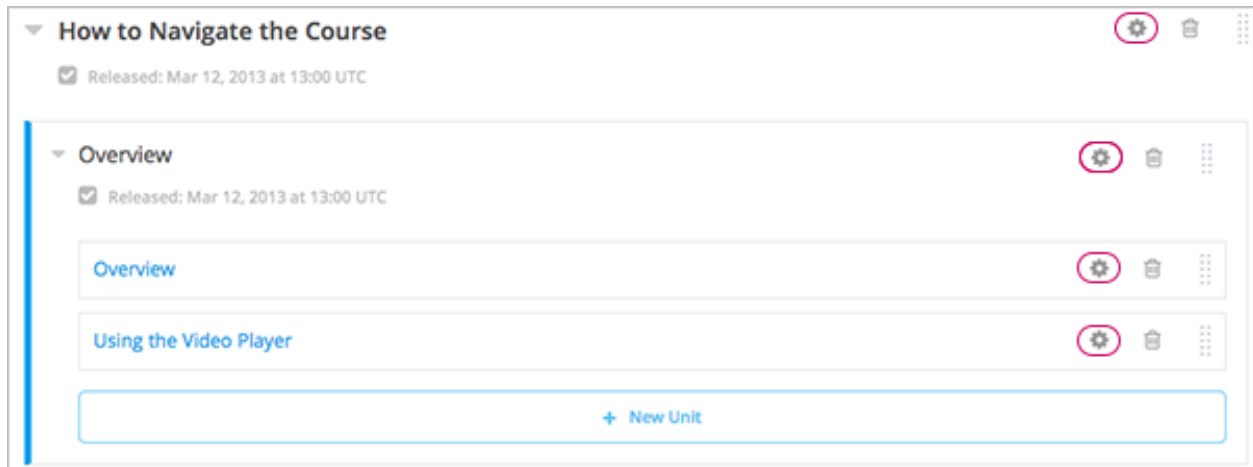
Note: If you want to require an entrance exam for your course, you also create the exam in the course outline. Before you can create an exam, you must set your course to require an entrance exam in Studio. For more information, see *Require an Entrance Exam*.

6.2.6 Modify Settings for Objects in the Course Outline

You modify settings for sections, subsections, and units in the course outline. Specifically, you can complete the following tasks.

- *Set a Section Release Date*
- *Hide a Section from Learners*
- *Set a Subsection Release Date*
- *Set the Assignment Type and Due Date for a Subsection*
- *Hide a Subsection from Learners*
- *Hide a Unit from Learners*

To modify settings for a section, subsection, or unit, select the **Configure** icon for that object. In the following example, the **Configure** icon is circled for a section, a subsection, and two units.

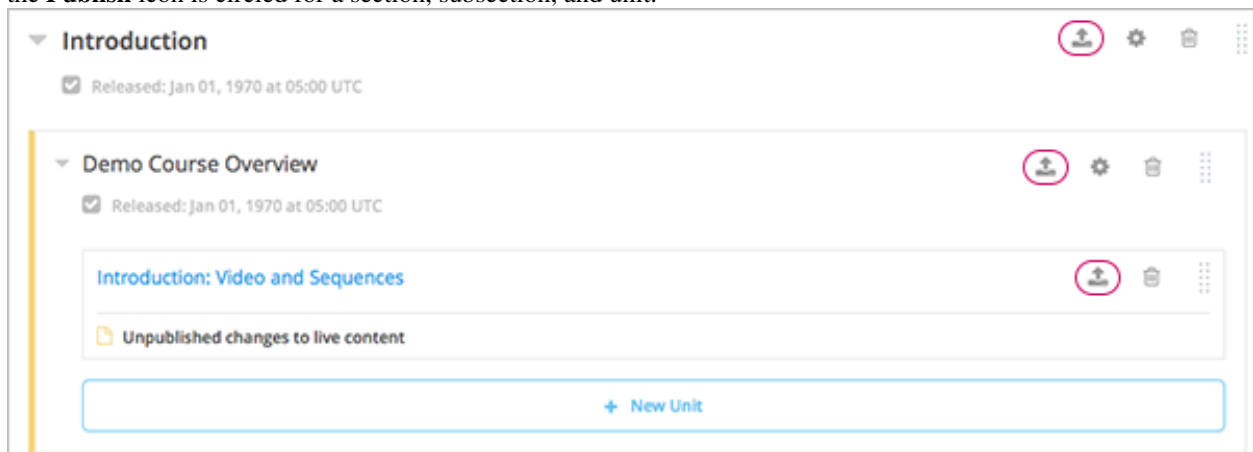


For more information, see the links above.

6.2.7 Publish Content from the Course Outline

You can publish new and changed units for an entire section or subsection. You can also publish individual units.

To publish new and changed units, select the **Publish** icon for a section, subsection, or unit. In the following example, the **Publish** icon is circled for a section, subsection, and unit.



Note: The **Publish** icon only appears when there is new or changed content within the object.

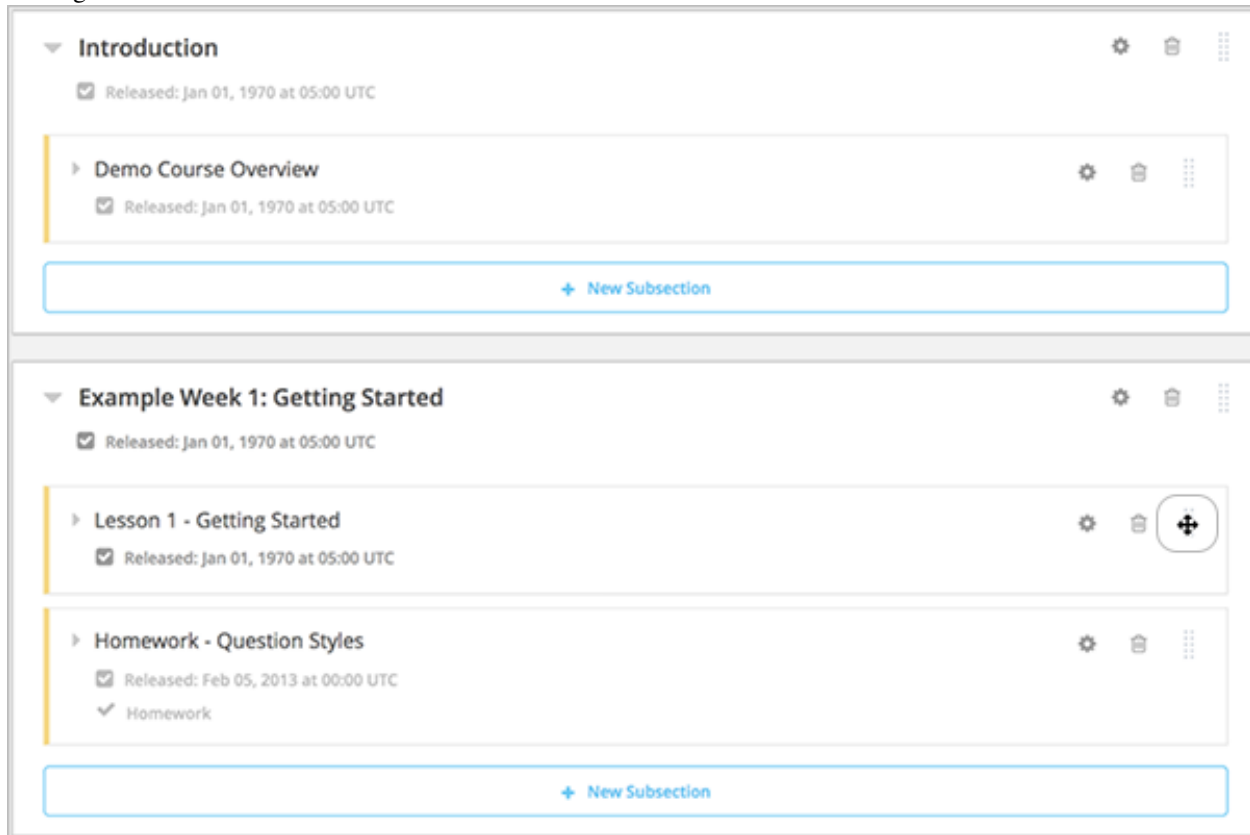
For more information, see the following topics.

- *Unit Publishing Statuses*
- *Publish all Units in a Section*
- *Publish All Units in a Subsection*
- *Publish a Unit*

6.2.8 Reorganize the Course Outline

You can reorganize your course content by dragging and dropping sections, subsections, and units to new locations in the outline.

To move a section, subsection, or unit, move your cursor over the handle on the right of the object's box until the cursor changes to a four-headed arrow. For example, in the image below, the handle for the subsection Lesson 1 - Getting Started is selected.



Then, click and drag the object to the location that you want.

If you expanded the section or subsection you are moving the object to, when you move the object, a blue line indicates where the object will land when you release the mouse button. For example, in the image below, the subsection Lesson 1 - Getting Started is being moved to the end of the section Introduction.

The screenshot shows the course outline editor with two main sections: 'Introduction' and 'Example Week 1: Getting Started'. The 'Introduction' section is expanded, showing its subsections: 'Demo Course Overview' and 'Lesson 1 - Getting Started'. The 'Lesson 1 - Getting Started' subsection is highlighted with a blue outline, indicating it is being moved. The 'Example Week 1: Getting Started' section is collapsed. A blue outline also highlights the 'Lesson 1 - Getting Started' subsection within the 'Introduction' section, indicating the target location for the move.

If you did not expand the section or subsection you are moving the object to, the outline of that section or subsection turns blue when you have moved the object to a valid location. You can then release the mouse button. For example, in the image below, the subsection Lesson 1 - Getting Started is being moved to the collapsed section Introduction.

The screenshot shows the course outline editor with the 'Introduction' section collapsed and the 'Example Week 1: Getting Started' section expanded. The 'Lesson 1 - Getting Started' subsection is highlighted with a blue outline, indicating it is being moved. The 'Example Week 1: Getting Started' section is expanded, showing its subsections: 'Homework - Question Styles' and 'Homework'. A blue outline also highlights the 'Lesson 1 - Getting Started' subsection within the 'Introduction' section, indicating the target location for the move.

Note: When you move a subsection to a different section, the release date and time for that subsection does not

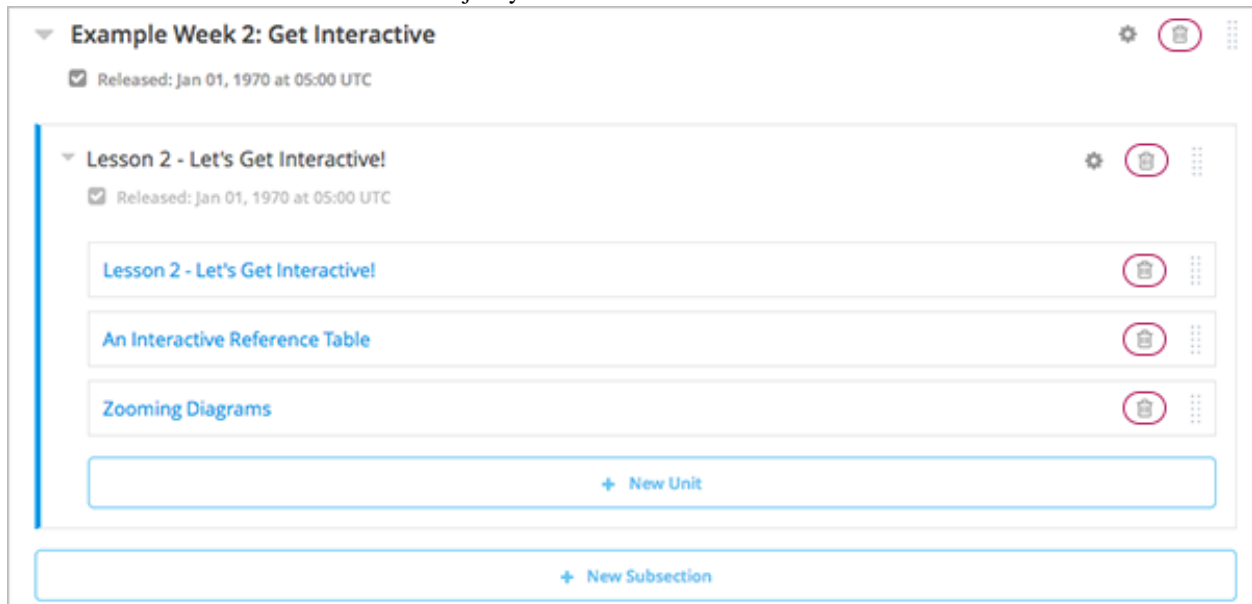
change.

6.2.9 Delete Content in the Course Outline

You delete sections, subsections, and units from the course outline.

Warning: You cannot restore course content after you delete it. To ensure you do not delete content you may need later, you can move any unused content to a section in your course that you set to never release.

Select the **Delete** icon in the box for the object you want to delete.



You are prompted to confirm the deletion.

Note: When you delete an object, all objects that it contains are deleted. For example, when you delete a subsection, all units in that subsection are deleted.

6.3 Developing Course Sections

To develop sections in your course, you must first understand the following topics.

- *What Is a Section?*
- *Viewing Sections in the Outline*
- *The Learner View of a Section*
- *Sections and Visibility to Learners*
- *Release Statuses of Sections*
 - *Unscheduled*
 - *Scheduled*
 - *Released*
 - *Released with Unpublished Changes*
 - *Staff Only Content*
- *Create a Section*
- *Change a Section Name*
- *Set a Section Release Date*
- *Publish all Units in a Section*
- *Hide a Section from Learners*
- *Delete a Section*

6.3.1 What Is a Section?

A section is the topmost category in your course. A section can represent a time period in your course, a chapter, or another organizing principle. A section contains one or more subsections.

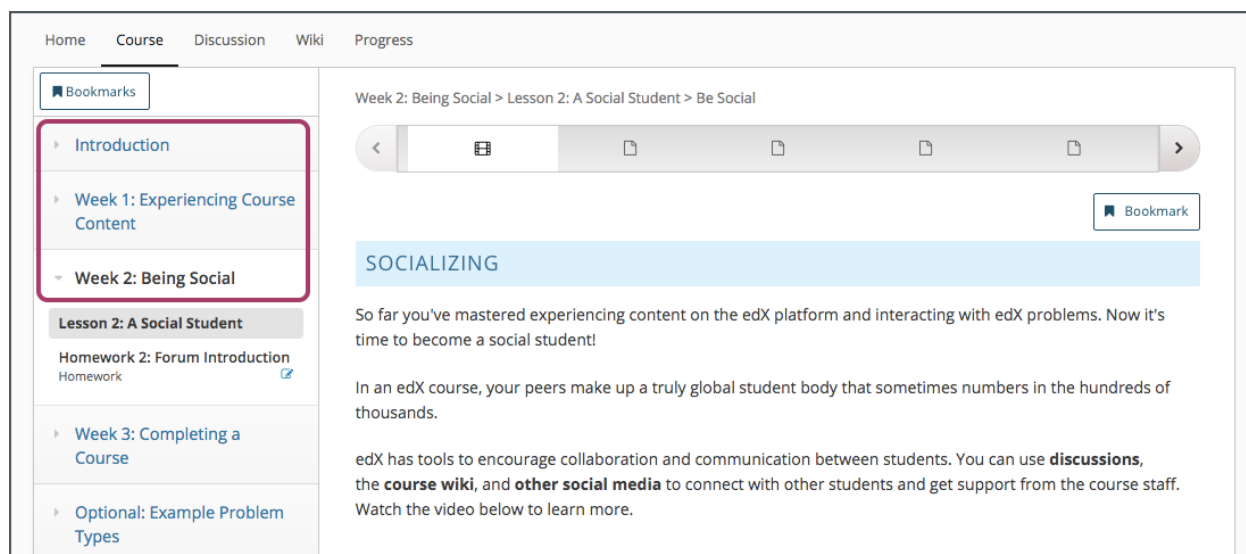
6.3.2 Viewing Sections in the Outline

The following example shows four sections, all collapsed, in the course outline.

The screenshot displays the 'Course Outline' interface. At the top, there are three buttons: '+ New Section' (green), 'Collapse All Sections' (blue), and 'View Live' (blue). Below these, four sections are listed, each with a right-facing arrow indicating it is collapsed. Each section entry includes a checkbox, the section name, and a release date. The sections are: 'Introduction', 'Example Week 1: Getting Started', 'Example Week 2: Get Interactive', and 'About Exams and Certificates'. To the right of the sections, a text box titled 'What can I do on this page?' provides instructions on how to manage the course outline, including creating new sections, setting release dates, and reorganizing the course by dragging and dropping sections.

6.3.3 The Learner View of a Section

Learners see sections in the **Course** page. Learners can expand one section at a time to see its contents. In the following example, three sections are circled, and the third one is expanded to show its subsections.



6.3.4 Sections and Visibility to Learners

Learners cannot see any content in the section if the section's release date is unscheduled or has not passed.

If a section's release date has passed, learners can see content in the section if:

- The release date for the subsection that contains that content has passed.
- The unit has been published.
- The unit is not hidden from learners.

6.3.5 Release Statuses of Sections

As an course author, you control the release status of sections. For the content of a section to be visible to learners, the section must be released. See the following topics for more information about the possible release statuses of sections.

- *Unscheduled*
- *Scheduled*
- *Released*
- *Released with Unpublished Changes*
- *Staff Only Content*

Unscheduled

If you do not change the *course start date* default value, 1/1/2030 00:00:00 UTC, when you create a new section, its release date will appear as *Unscheduled*. When the section release date is unscheduled, learners cannot see any content in that section, regardless of the publishing status of that content.

If you have modified the course start date, when you create a new section, the default release date is the course start date.

The following example shows how an unscheduled section displays in the outline, summarized with a gray bar.



To make the content available to learners, you must schedule the release date.

Scheduled

A section that is scheduled for release on a future date will not be visible to learners until after the release date. Regardless of the publishing status of content within the section, the entire section will not be visible to learners.

The following example shows how a section that is scheduled for release displays in the outline, summarized with a green bar.



The scheduled date must pass for the section to be visible to learners.

Released

A section that is released is visible to learners; however, learners see only subsections within the section that are also released, and units that are published.

The following example shows how a released section displays in the outline, summarized with a blue bar.



Released with Unpublished Changes

If you change a unit in a released section but do not publish the changes, learners see the last published version of the modified unit.

The following example shows how a released section with unpublished changes displays in the outline, with a yellow bar. The section is expanded to show the unit with unpublished changes.

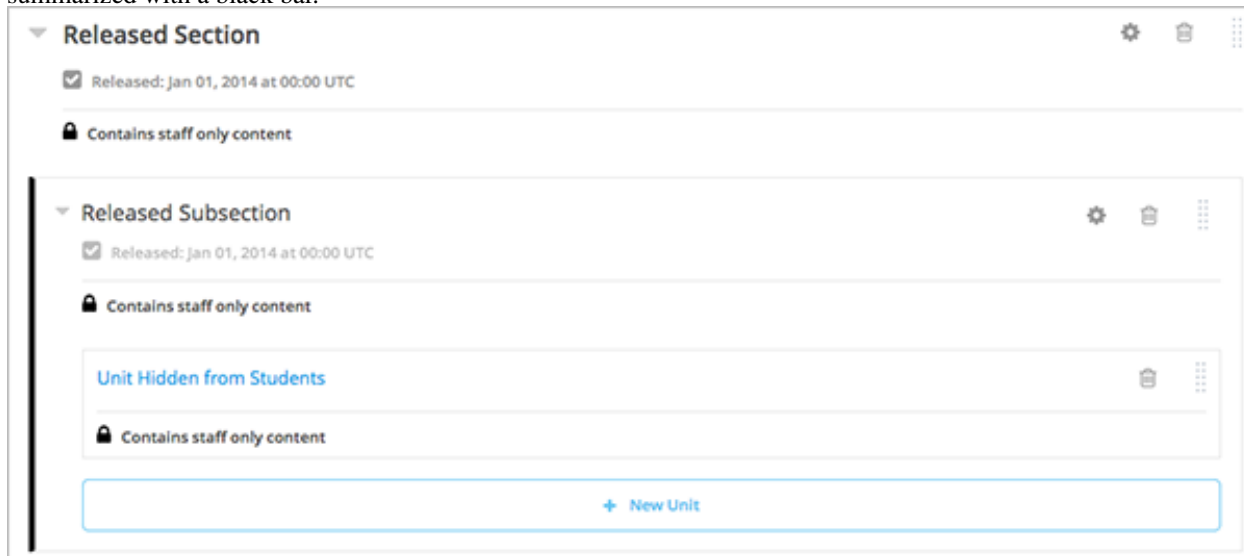


You must publish the unit for learners to see the updates.

Staff Only Content

A section can contain a unit that is hidden from learners and available to members of the course team only. That unit is not visible to learners, regardless of the release date of the section or subsection.

The following example shows how a section that contains a unit that is hidden from learners displays in the outline, summarized with a black bar.



6.3.6 Create a Section

If you do not change the *course start date* default value, 1/1/2030, when you create a new section, its release date will be *Unscheduled*.

If you have modified the course start date, when you create a new section, the default release date is the course start date.

Caution: If the course start date is in the past, newly created sections are immediately visible to learners.

To create a new section, follow these steps.

1. On the **Course Outline** page, select **New Section**. This option appears at both the top of the page and below the current sections in the outline.
A new section appears at the end of the course content, with the section name selected.
2. Enter the name for the new section. A descriptive name can help learners locate content in the course. It can also help you select content when you analyze performance in edX Insights.
3. *Add subsections* to the new section as needed.

It is recommended that you *test course content* as you create new sections.

6.3.7 Change a Section Name

To edit a section name, move your cursor over the section name to show the **Edit** icon.



Select the **Edit** icon next to the section name. The name field becomes editable. Enter the new name, and then tab or click outside of the field to save the name.

6.3.8 Set a Section Release Date

To set the section release date, follow these steps.

1. Select the **Configure** icon in the section box.



The **Settings** dialog box opens.

2. Enter the release date and time for the section.

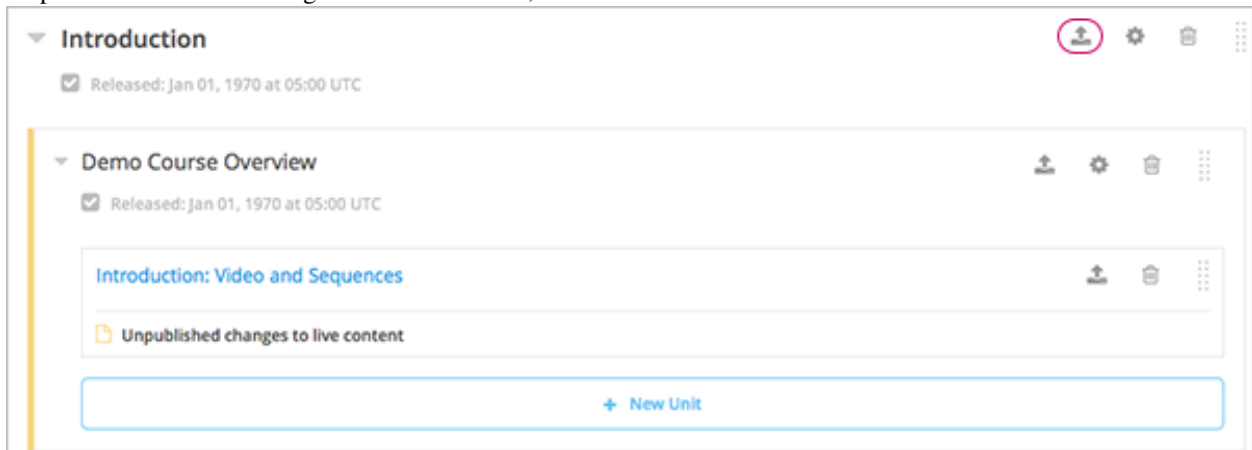
Note: The time that you set, and the time that learners see, is in Coordinated Universal Time (UTC). You might want to verify that you have specified the time that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

1. Select **Save**.

For more information, see [Release Dates](#).

6.3.9 Publish all Units in a Section

To publish all new and changed units in a section, select the **Publish** icon in the box for the section.



Note: The **Publish** icon only appears when there is new or changed content within the section.

For more information about statuses and visibility to learners, see [Unit Publishing Statuses](#).

6.3.10 Hide a Section from Learners

You can hide all content in a section from learners, regardless of the status of subsections and units within the section. For more information, see [Content Hidden from Learners](#).

To hide a section from learners, follow these steps.

1. Select the **Configure** icon in the section box.



The **Settings** dialog box opens.

2. In the **Student Visibility** section, select **Hide from students**.
3. Select **Save**.

Now, none of the content in the section is visible to learners.

To make the section visible to students, repeat these steps and clear the **Hide from students** check box.

Warning: When you clear the **Hide from students** check box for a section, not all content in the section is necessarily made visible to learners. If you explicitly set a subsection or unit to be hidden from learners, it remains hidden from learners. Unpublished units remain unpublished, and changes to published units remain unpublished.

6.3.11 Delete a Section

When you delete a section, you delete all subsections and units within the section.

Warning: You cannot restore course content after you delete it. To ensure you do not delete content you may need later, you can move any unused content to a section in your course that you set to never release.

To delete a section, follow these steps.

1. Select the **Delete** icon in the section that you want to delete.



2. When you receive the confirmation prompt, select **Yes, delete this section**.

6.4 Developing Course Subsections

To develop subsections in your course, you must first understand the following topics.

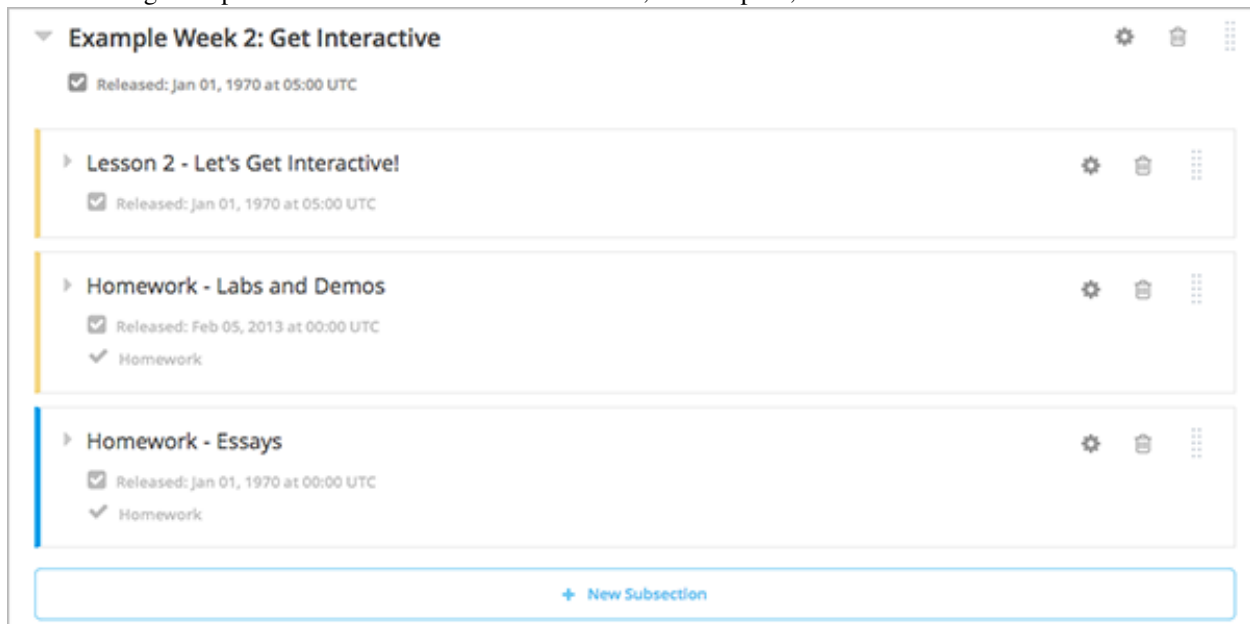
- *What Is a Subsection?*
- *Viewing Subsections in the Outline*
- *The Learner View of a Subsection*
- *Subsections and Visibility to Learners*
- *Release Statuses of Subsections*
 - *Scheduled with the Section*
 - *Unscheduled*
 - *Scheduled Later than the Section*
 - *Scheduled with Unpublished Changes*
 - *Released with Unpublished Changes*
 - *Released*
 - *Staff Only Content*
- *Create a Subsection*
- *Change a Subsection Name*
- *Set a Subsection Release Date*
- *Set the Assignment Type and Due Date for a Subsection*
- *Publish All Units in a Subsection*
- *Hide a Subsection from Learners*
- *Delete a Subsection*

6.4.1 What Is a Subsection?

Sections are divided into subsections, which in turn contain one or more units. A subsection may represent a topic in your course, or another organizing principle. Subsections are sometimes called “lessons” or they might represent a week’s worth of material.

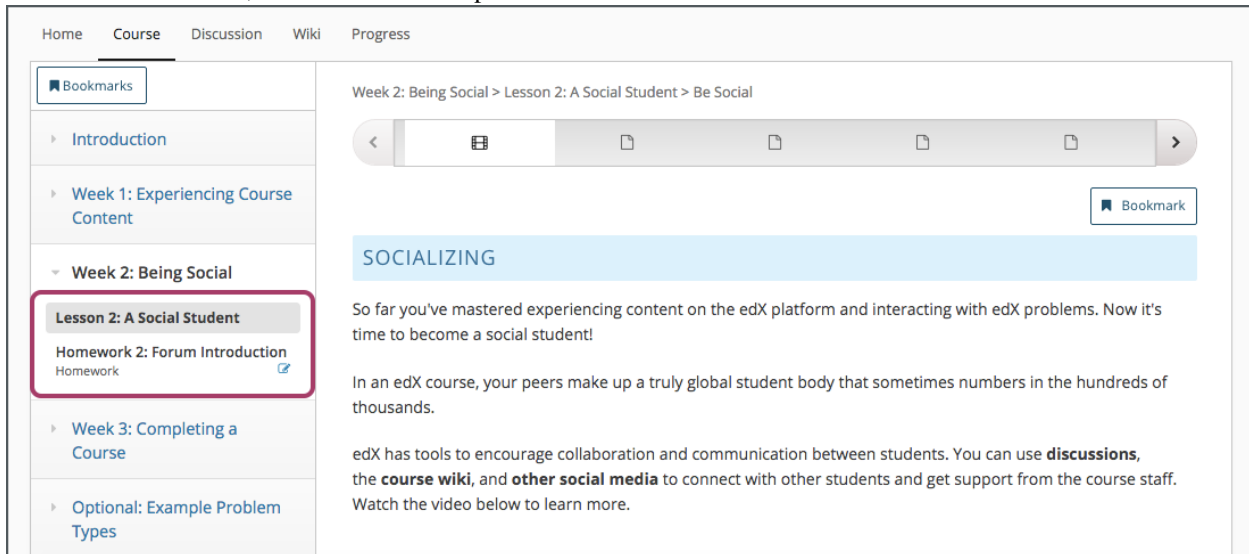
6.4.2 Viewing Subsections in the Outline

The following example shows three subsections in a section, all collapsed, in the course outline.



6.4.3 The Learner View of a Subsection

Learners see subsections on the **Course** page, listed beneath the expanded section. In the following example, two subsections are circled, and the first one is open in the LMS.



6.4.4 Subsections and Visibility to Learners

Learners cannot see any content in a subsection if the subsection's release date and time is unscheduled or has not passed.

If a subsection's release date has passed, learners can see content in the subsection if the following three conditions are met.

- The release date of the parent section has passed.
- The units have been published.
- The units are not hidden from learners.

Note: The time that you set, and the time that learners see, is in Coordinated Universal Time (UTC). You might want to verify that you have specified the time that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

6.4.5 Release Statuses of Subsections

As a course author, you control the release status of subsections. For the content of a subsection to be visible to learners, the subsection must be released. See the following topics for more information about the possible release statuses of subsections.

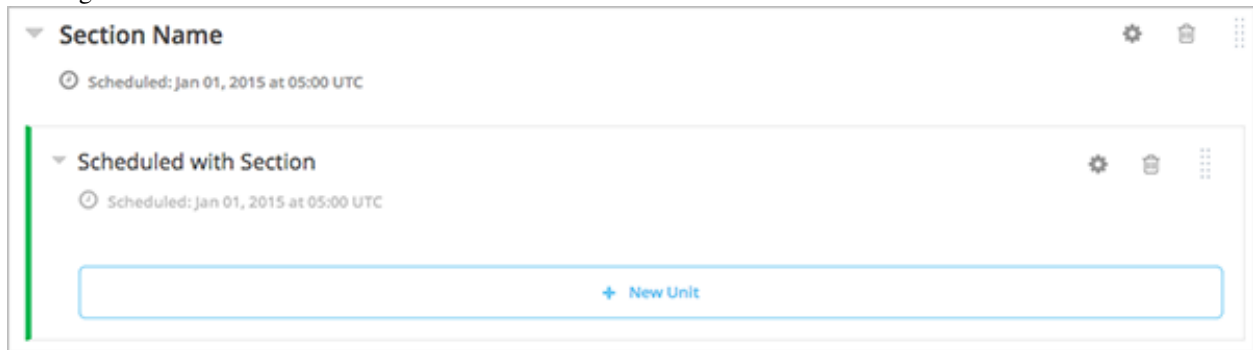
- *Scheduled with the Section*
- *Unscheduled*
- *Scheduled Later than the Section*
- *Scheduled with Unpublished Changes*
- *Released with Unpublished Changes*

- *Released*

Scheduled with the Section

When you create a subsection, it is set by default to release on the same date and time as the section it is in. Therefore, published content in the subsection is visible to learners at the date and time the section is released.

The following example shows how a subsection in the Scheduled with Section state displays in the outline, summarized with a green bar.



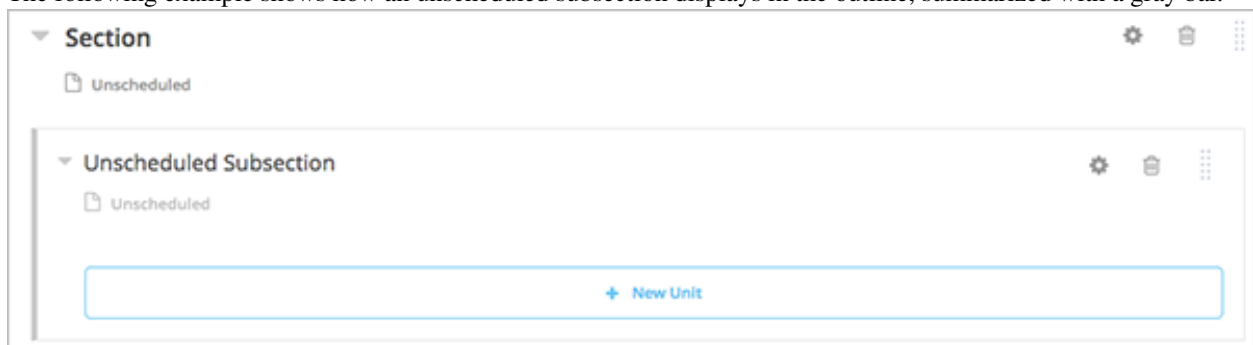
You can change the release date for a subsection to be different from the section it is in. For more information, see [Set a Subsection Release Date](#).

Unscheduled

If the parent section is unscheduled, when you create a new subsection it will also be unscheduled.

Regardless of the publishing status of units within the subsection, no content in an unscheduled subsection is visible to learners.

The following example shows how an unscheduled subsection displays in the outline, summarized with a gray bar.



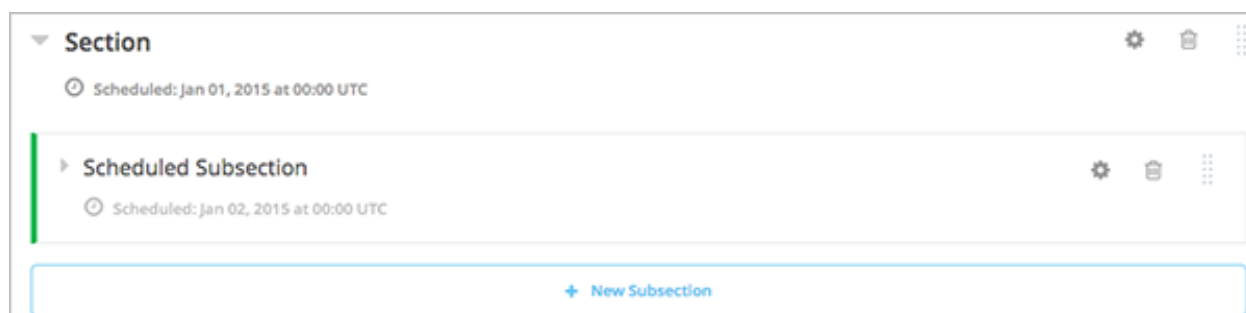
Content in the subsection is not visible to learners until you set a release date and the date passes.

Scheduled Later than the Section

You can set a subsection to release on a date after the section releases.

Content in a subsection that is scheduled for release on a future date is not visible to learners, even if some or all of the units in the subsection are published.

The following example shows the way that a subsection that will release after its parent subsection displays in the course outline.



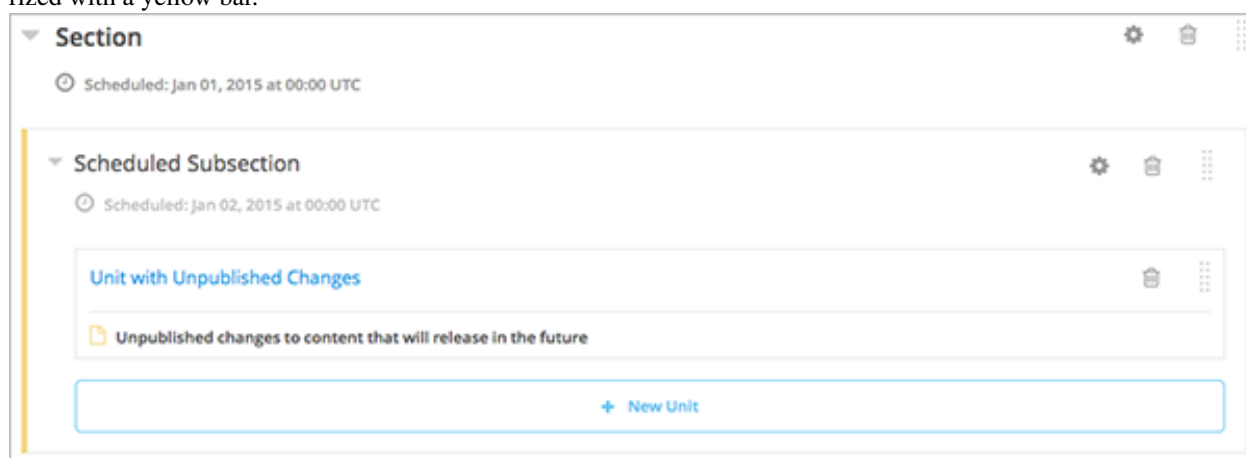
The scheduled date must pass for the subsection to be visible to learners.

Scheduled with Unpublished Changes

You can make changes to a published unit before its parent subsection is released.

In this situation, when the release date for the subsection passes, the last published version of units within the subsection are made visible to learners. The changes in units are not visible to learners until you publish them.

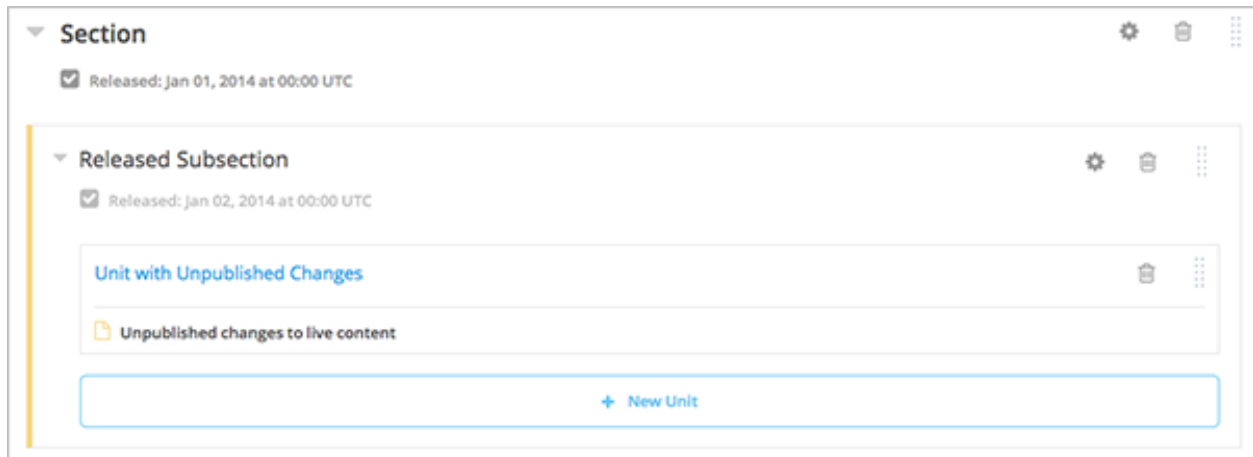
The following example shows how a scheduled subsection with unpublished changes displays in the outline, summarized with a yellow bar.



Released with Unpublished Changes

If you modify a unit within a released subsection, those modifications are not visible to students until you publish them.

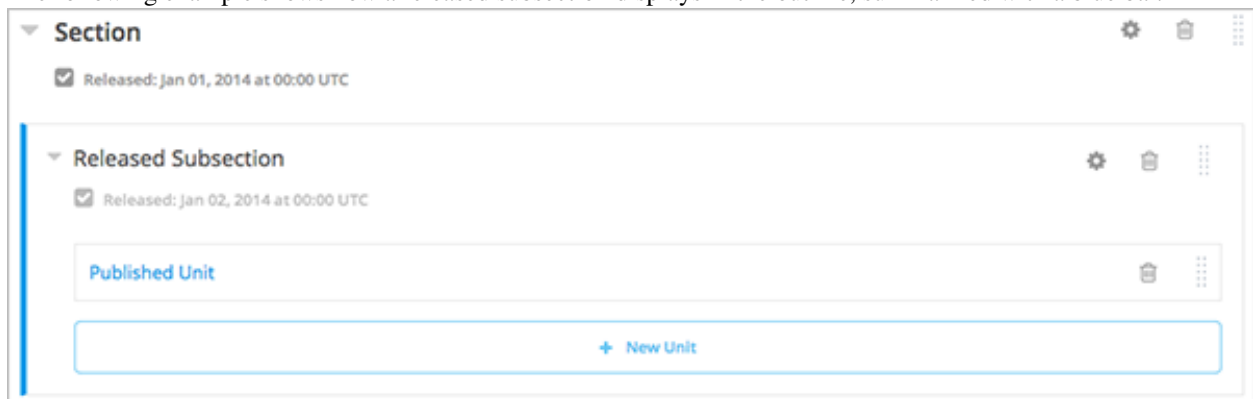
The following example shows how a released section that has unpublished changes displays in the outline, summarized with a yellow bar.



Released

A subsection that is released is visible to learners; however, learners see only units within the subsection that are published.

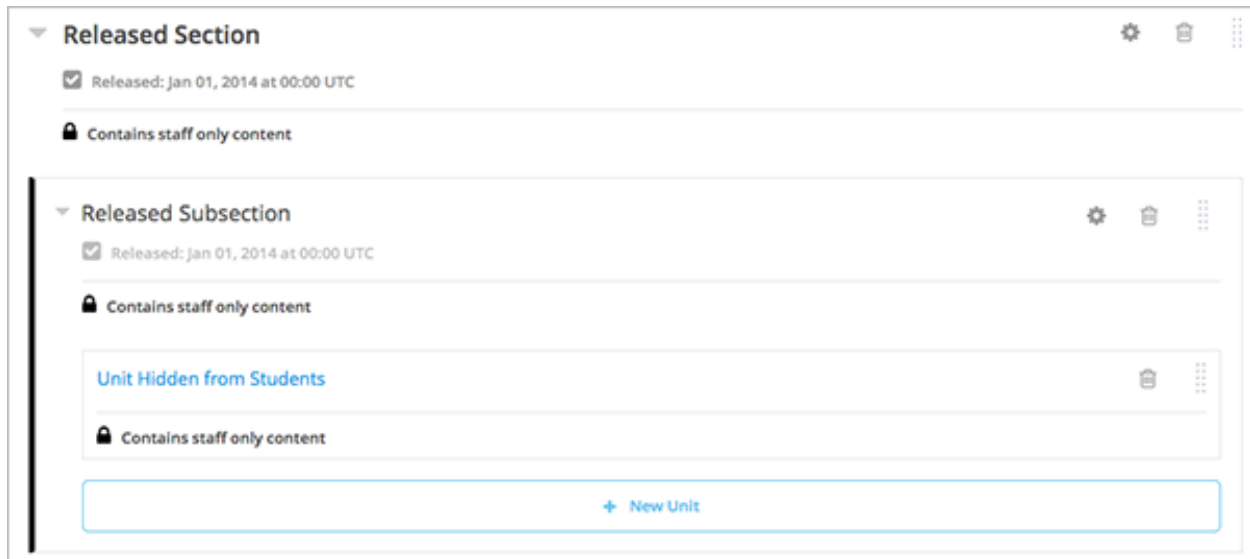
The following example shows how a released subsection displays in the outline, summarized with a blue bar.



Staff Only Content

A subsection can contain a unit that is hidden from learners and available to members of the course team only. That unit is not visible to learners, even if the subsection has been released.

The following example shows how a section with a subsection that contains a unit with staff only content displays in the outline, summarized with a black bar.



6.4.6 Create a Subsection

To create a new subsection, follow these steps.

1. In the outline, expand the section in which you want to create a new subsection.
2. Select **New Subsection** at the bottom of the expanded section. A new subsection appears at the end of the section, with the subsection name selected.
3. Enter the name for the new subsection. A descriptive name can help learners locate content in the course. It can also help you select content when you analyze performance in edX Insights.
4. *Add units* to the new subsection as needed.

It is recommended that you *test course content* as you create new subsections.

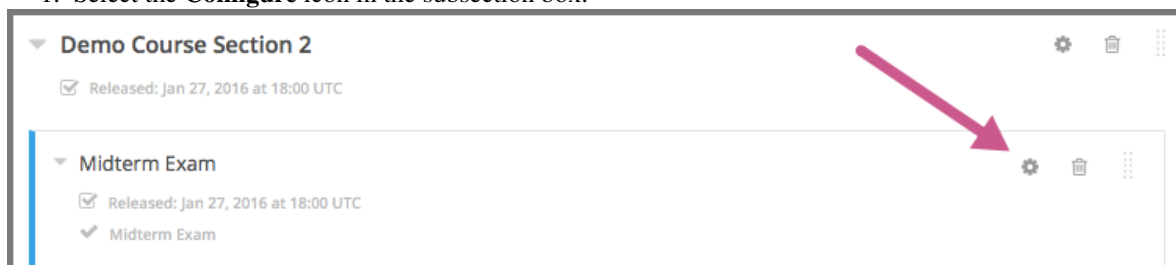
6.4.7 Change a Subsection Name

To change a subsection name, select the **Edit** icon next to the subsection name. The name field becomes editable. Enter the new name, and then tab or click outside of the field to save the name.

6.4.8 Set a Subsection Release Date

To set the subsection release date, follow these steps.

1. Select the **Configure** icon in the subsection box.



The **Settings** dialog box opens.

2. Enter the release date and time for the subsection.

Note: The time that you set, and the time that learners see, is in Coordinated Universal Time (UTC). You might want to verify that you have specified the time that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

3. Select **Save**.

For more information, see [Release Dates](#).

6.4.9 Set the Assignment Type and Due Date for a Subsection

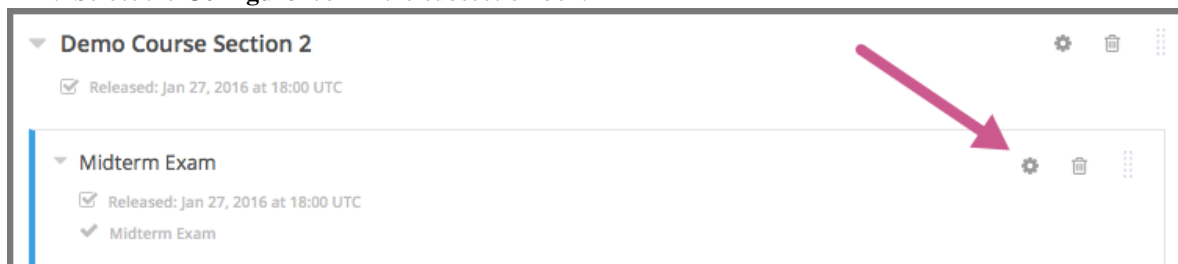
You set the assignment type for problems at the subsection level.

When you set the assignment type for a subsection, all problems within the subsection are graded and weighted as a single type. For example, if you designate the assignment type for a subsection as **Homework**, then all problem types in that subsection are graded as homework.

Note: Unlike other problem types, ORA assignments are not governed by the subsection due date. Due dates for each ORA assignment are set in the assignment's settings. For details, see [Step 4. Specify the Assignment Name and Response Dates](#).

To set the assignment type and due date for a subsection, follow these steps.

1. Select the **Configure** icon in the subsection box.



The **Settings** dialog box opens.

2. In the **Grading** section, select the assignment type for this subsection in the **Grade as** field.
3. Enter or select a due date and time for problems in this subsection.

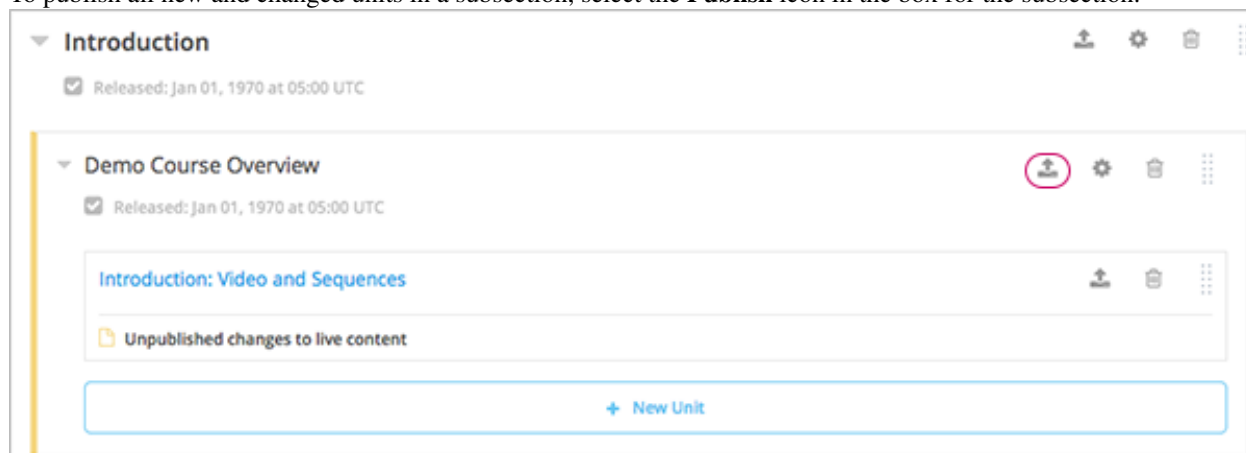
Note: The time that you set, and the time that learners see, is in Coordinated Universal Time (UTC). You might want to verify that you have specified the time that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

4. Optionally, for a course that has the timed exam feature enabled, select the **Advanced** tab to set the subsection to be *timed*.
5. Select **Save**.

For more information, see [Establishing a Grading Policy For Your Course](#).

6.4.10 Publish All Units in a Subsection

To publish all new and changed units in a subsection, select the **Publish** icon in the box for the subsection.



Note: The **Publish** icon only appears when there is new or changed content within the subsection.

See *Unit Publishing Statuses* for information about statuses and visibility to learners.

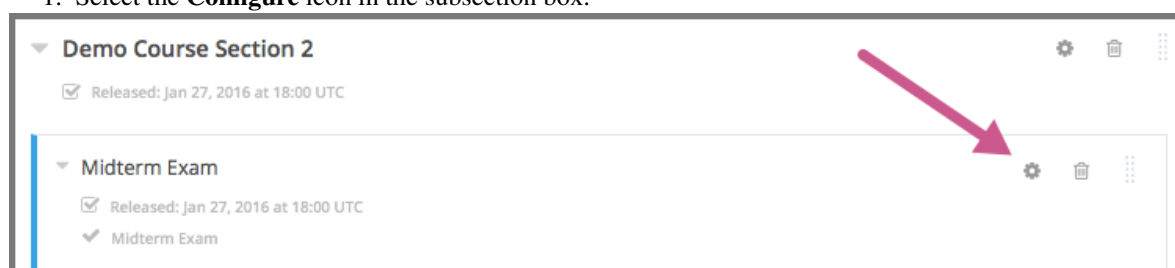
6.4.11 Hide a Subsection from Learners

You can hide all content in a subsection from learners, regardless of the status of units within the section.

For more information, see *Content Hidden from Learners*.

To hide a subsection from learners, follow these steps.

1. Select the **Configure** icon in the subsection box.



The **Settings** dialog box opens.

2. In the **Student Visibility** section, select **Hide from students**.
3. Select **Save**.

Now, no content in the subsection is visible to learners.

To make the subsection visible to learners, repeat these steps and clear the **Hide from students** check box.

Warning: When you clear the **Hide from students** check box for a subsection, not all content in the subsection is necessarily made visible to learners. If you explicitly set a unit to be hidden from learners, it remains hidden from learners. Unpublished units remain unpublished, and changes to published units remain unpublished.

6.4.12 Delete a Subsection

When you delete a subsection, you delete all units within the subsection.

Warning: You cannot restore course content after you delete it. To ensure you do not delete content you may need later, you can move any unused content to a section in your course that you set to never release.

To delete a subsection, follow these steps.

1. Select the **Delete** icon in the subsection that you want to delete.



2. When the confirmation prompt appears, select **Yes, delete this subsection**.

6.5 Developing Course Units

To work with units in the course outline and develop your course, you need to understand the following concepts and complete the following tasks.

- *What is a Unit?*
- *Viewing Units in the Outline*
- *Viewing the Unit Page*
- *Viewing Units as a Learner*
- *The Unit Workflow*
- *Unit Publishing Status and Visibility to Learners*
- *Unit Publishing Statuses*
- *Create a Unit*
- *Edit a Unit*
- *Preview a Unit*
- *Publish a Unit*
- *Discard Changes to a Unit*
- *View a Published Unit*
- *Hide a Unit from Learners*
- *Delete a Unit*

You add content to units with *course components*.

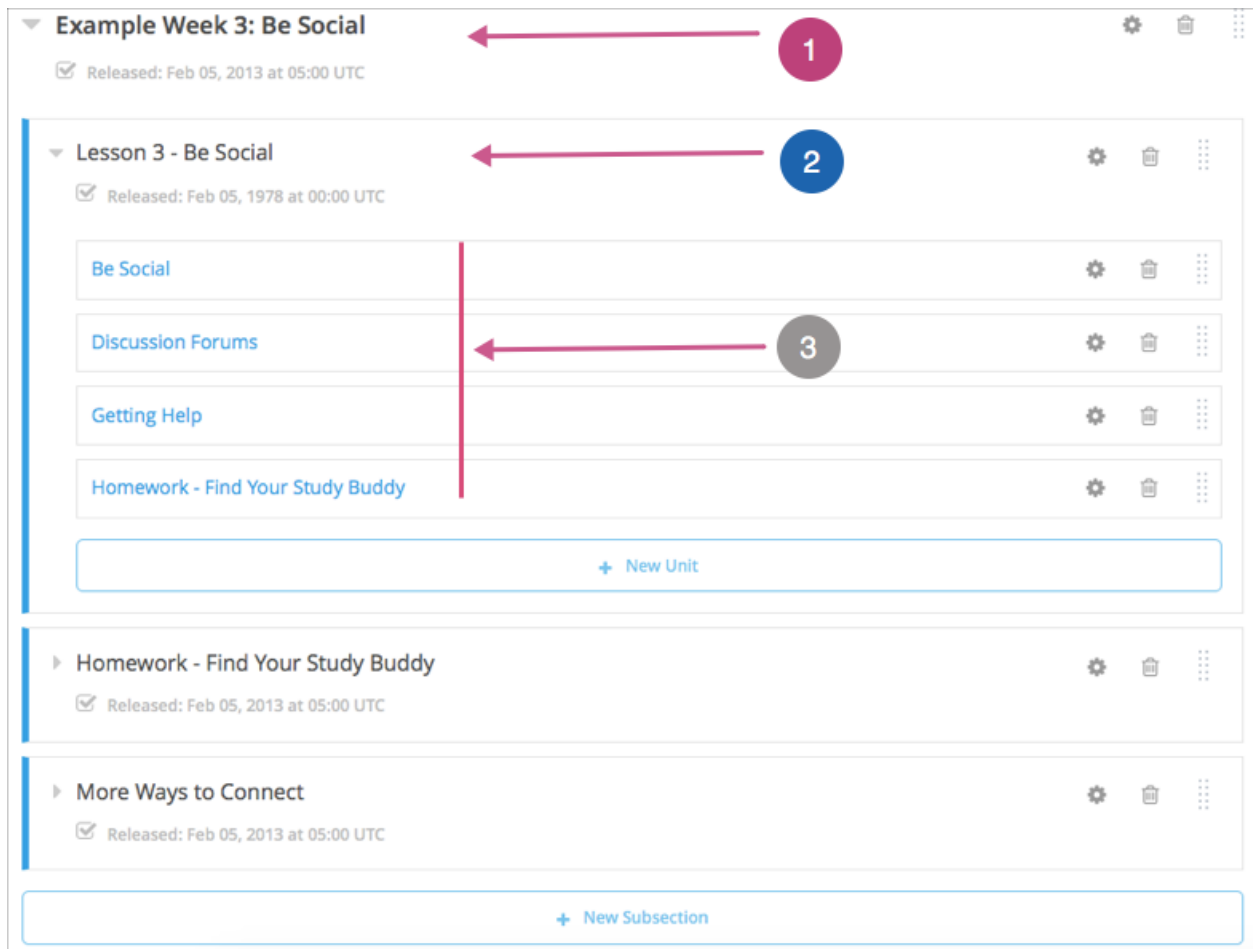
6.5.1 What is a Unit?

A unit is a part of a *subsection* that learners view as a single page.

A unit contains one or more *components*, such as text with *HTML* markup, *problems*, a *discussion*, or a *video*.

6.5.2 Viewing Units in the Outline

To view units in the outline, you *expand* the parent section and subsection.



1. The section.
2. The subsection.
3. The units in the subsection.

6.5.3 Viewing the Unit Page

When you select a unit name in the outline, the **Unit** page opens.

The following example shows a unit page with two components, with circles and text to show different areas and controls in the page.

The screenshot shows the 'Be Social' unit editor in the edX system. The interface is divided into several sections:

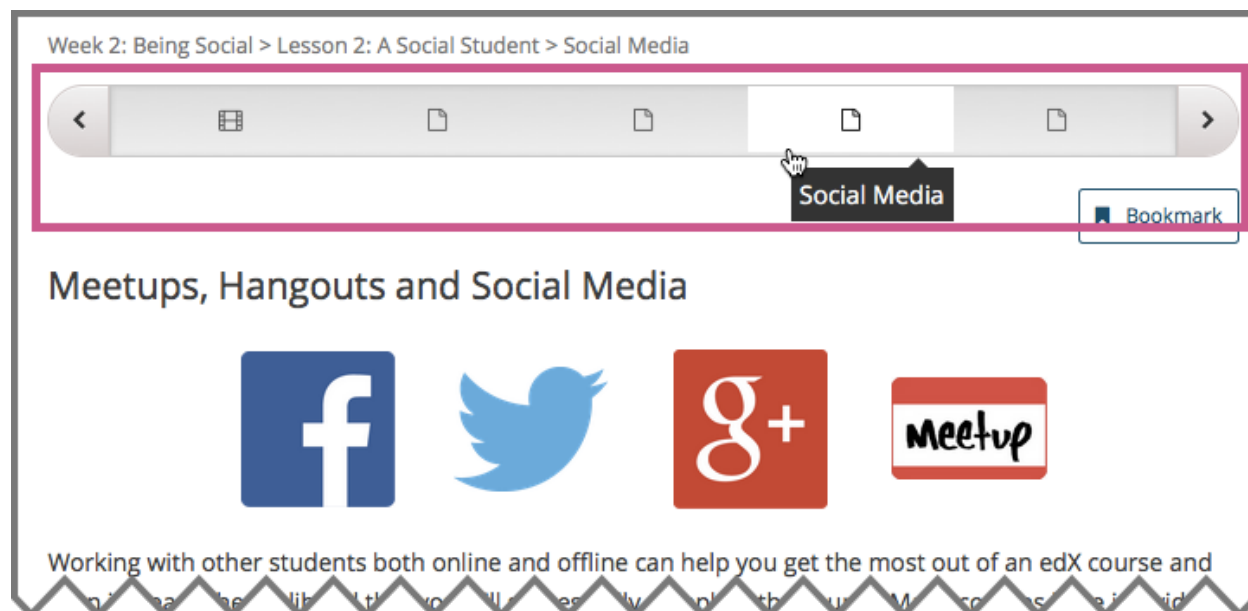
- Top Bar:** Displays 'Example Week 3: Be Social / Lesson 3 - Be Social'. On the right, there are buttons for 'View Live Version' (highlighted with a pink box and number 2) and 'Preview'.
- Unit Header:** Shows 'Be Social' with a pencil icon and a pink circle with the number 1.
- Caution Bar:** A dark bar with a warning icon and text: 'Caution: The last published version of this unit is live. By publishing changes you will change the student experience.'
- Main Content Area:** Contains the unit title 'BE SOCIAL', a paragraph about online learning, an illustration of two people interacting, another paragraph about social learning, and a note about the discussion forum. Below the text is an 'Add New Component' section with five buttons: 'Advanced', 'Discussion', 'HTML', 'Problem', and 'Video'.
- Published and Live Panel:** On the right, this panel (highlighted with a pink box and number 3) shows the unit's status. It includes a 'Previously published' section with release date 'Feb 05, 1978 at 00:00 UTC' and visibility settings 'Staff and Students' and 'Hide from students'. There are 'Publish' and 'Discard Changes' buttons.
- Unit Location Panel:** Below the 'Published and Live' panel, this section (highlighted with a pink box and number 4) shows the unit's location in the course outline. It includes a 'LOCATION ID' (3c4b575924bf4b75a2f3542df5c354fc) and a 'LOCATION IN COURSE OUTLINE' section showing the unit's position within 'Example Week 3: Be Social' and 'Lesson 3 - Be Social'. A '+ New Unit' button is at the bottom.

1. A component in the unit.
2. Options for testing the unit.
3. Status panel for the unit.
4. Location of the unit in the course outline.

6.5.4 Viewing Units as a Learner

To a learner using the edX learning management system (LMS), each unit in the subsection is represented by an icon in the unit navigation bar at the top of the **Course** page. The components in the selected unit appear below the unit navigation bar.

The following image shows a subsection with five units in the LMS. The fourth unit is open.



6.5.5 The Unit Workflow

When you have set up the *section* and *subsection* in the course outline, you then work with units.

The typical workflow includes these steps.

1. *Create a unit.*
2. *Add components to the unit.*
3. *Modify components in the unit.*



You *publish the unit* after you add all of its components. If you make additional modifications, you must publish the unit again for the changes to be visible to learners.

As you work through these steps, the publishing status of the unit changes. The publishing status controls the content available to learners, along with *release dates* (in an instructor-paced course). See the next section for more information.

Note: Release dates apply only to instructor-paced courses. For more information about instructor-paced and self-paced courses, see *Setting Course Pacing*.

6.5.6 Unit Publishing Status and Visibility to Learners

The following information summarizes whether or not learners can see a unit.

- Learners never see a unit with the publishing status *Draft (Never Published)*.

- Learners never see a unit with the publishing status *Visible to Staff Only*. For more information, see *Hide a Unit from Learners*.
- Learners do not see a unit with the publishing status *Published Not Yet Released* until the *release date* (in an instructor-paced course). On the release date, the status changes to *Published and Live*.
- If the publishing status is *Published and Live*, learners see the current version of the unit.
- If the publishing status is *Draft (Unpublished Changes)*, learners see the last published version of the unit if the *release dates* for the containing section and subsection have passed.

For more information, see *Controlling Content Visibility*.

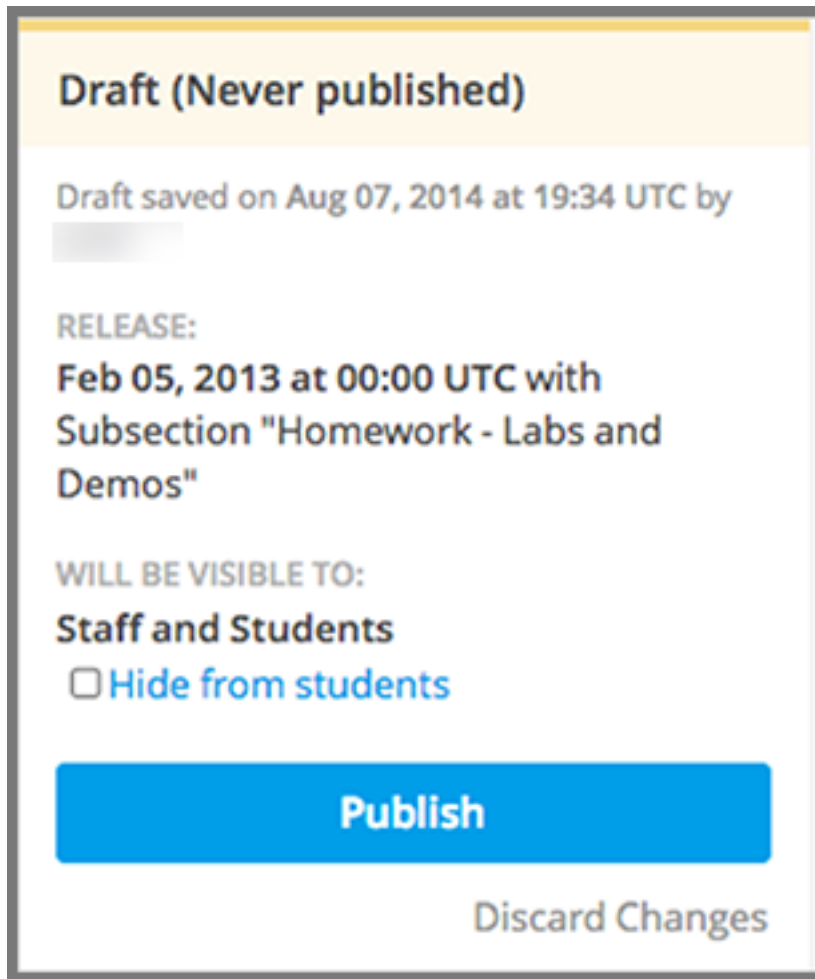
6.5.7 Unit Publishing Statuses

As a course author, you work with units that have the following statuses.

- *Draft (Never published)*
- *Published and Live*
- *Published (not yet released)*
- *Draft (Unpublished changes)*
- *Visible to Staff Only*

Draft (Never published)

When you create a new unit and add components to it, the unit's publishing status is **Draft (Never Published)**, as shown in the status panel.



Draft (Never published)

Draft saved on Aug 07, 2014 at 19:34 UTC by [redacted]

RELEASE:
Feb 05, 2013 at 00:00 UTC with
Subsection "Homework - Labs and
Demos"

WILL BE VISIBLE TO:
Staff and Students
☐ Hide from students

Publish

Discard Changes

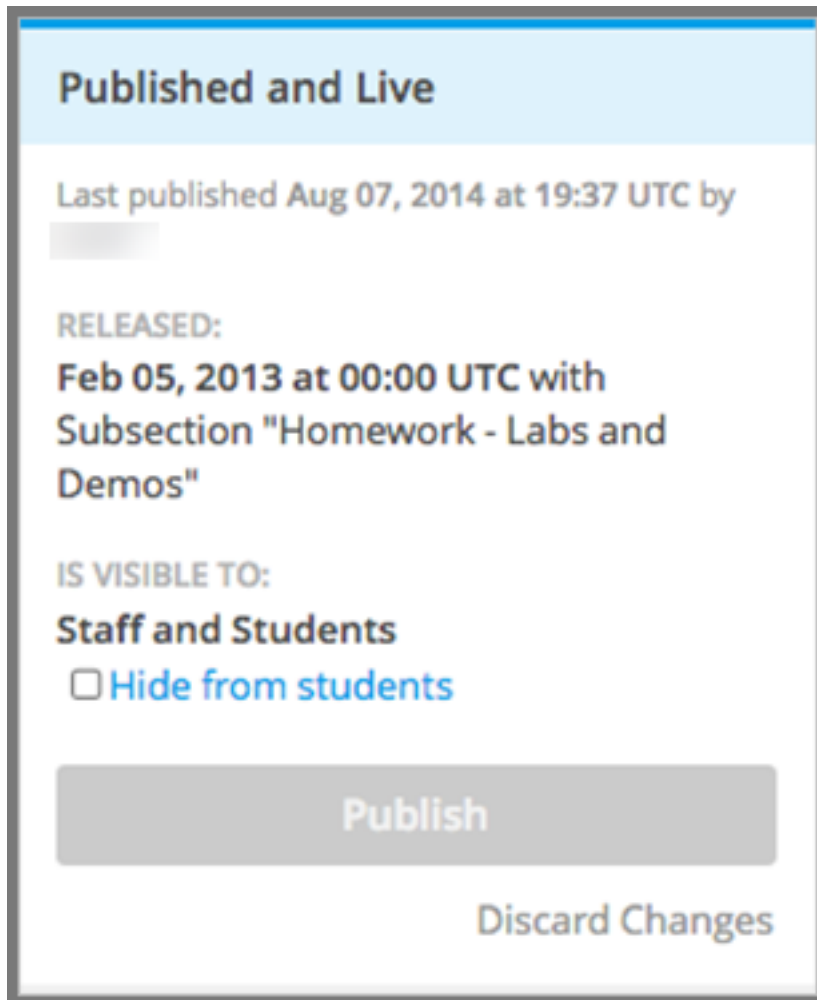
Note: The **Release** section applies only to instructor-paced courses. It does not appear for units in self-paced courses. For more information about instructor-paced and self-paced courses, see [Setting Course Pacing](#).

In Studio, you see the draft content as you develop the unit. Though you do not see the unit in the LMS, you can *preview the unit*.

Learners never see a unit with this status, even after the release date (in an instructor-paced course). You must *publish the unit* for it to be included in the LMS.

Published and Live

You published the unit and have not modified it. The release date for the section and subsection have passed (in an instructor-paced course). You, and enrolled learners, see the current version of the unit.



Published and Live

Last published Aug 07, 2014 at 19:37 UTC by [redacted]

RELEASED:
Feb 05, 2013 at 00:00 UTC with
Subsection "Homework - Labs and
Demos"

IS VISIBLE TO:
Staff and Students
☐ **Hide from students**

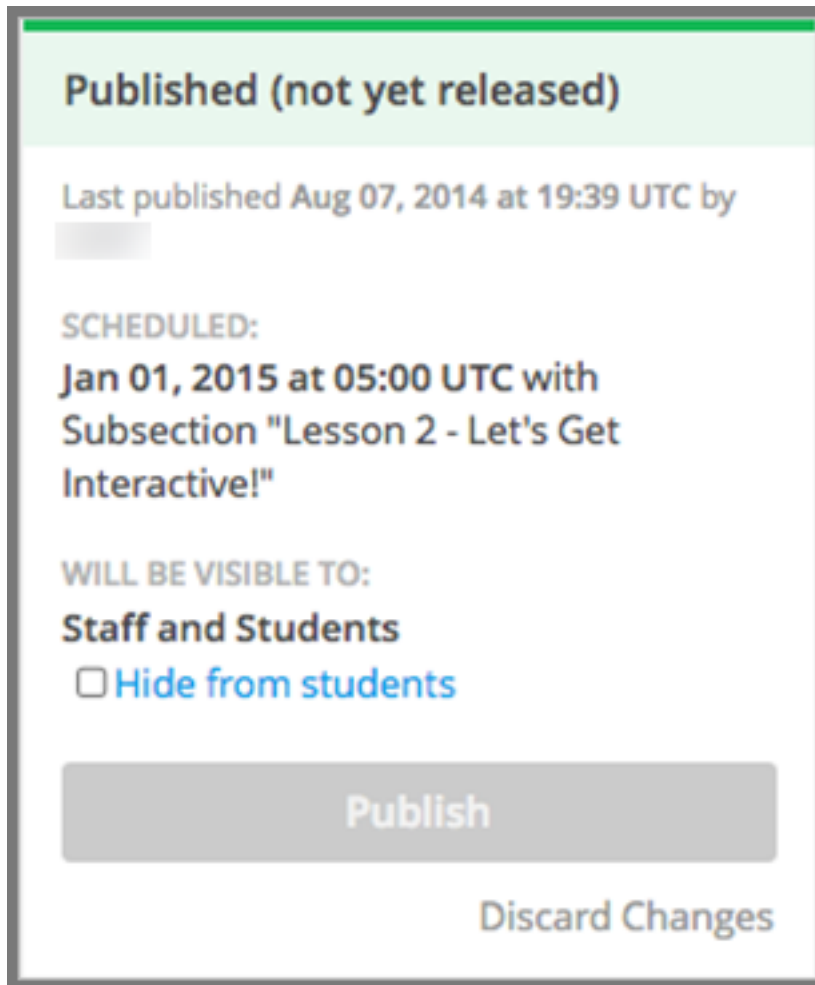
Publish

Discard Changes

The **Release** section applies only to instructor-paced courses. It does not appear for units in self-paced courses. For more information, see *Setting Course Pacing*.

Published (not yet released)

You published the unit, but the release date is still in the future. Learners cannot see this unit until the release date passes.



The screenshot shows a status panel with a light green header. The header text is 'Published (not yet released)'. Below the header, the text reads 'Last published Aug 07, 2014 at 19:39 UTC by' followed by a greyed-out user name. The next section is titled 'SCHEDULED:' and contains the text 'Jan 01, 2015 at 05:00 UTC with Subsection "Lesson 2 - Let's Get Interactive!"'. The following section is titled 'WILL BE VISIBLE TO:' and contains the text 'Staff and Students' and a checkbox labeled 'Hide from students'. At the bottom, there are two buttons: 'Publish' and 'Discard Changes'.

Published (not yet released)

Last published Aug 07, 2014 at 19:39 UTC by [redacted]

SCHEDULED:
Jan 01, 2015 at 05:00 UTC with
Subsection "Lesson 2 - Let's Get
Interactive!"

WILL BE VISIBLE TO:
Staff and Students
☐ Hide from students

Publish

Discard Changes

This status applies only to instructor-paced courses. It does not apply to self-paced courses.

Draft (Unpublished changes)

When you edit a published unit, whether or not it is released, the unit's publishing status changes to **Draft (Unpublished Changes)**, as shown in the status panel.

Draft (Unpublished changes)

Draft saved on Aug 07, 2014 at 19:41 UTC by [redacted]

RELEASE:
Jan 01, 2015 at 05:00 UTC with
Subsection "Lesson 2 - Let's Get Interactive!"

WILL BE VISIBLE TO:
Staff and Students
☐ Hide from students

Publish

Discard Changes

The **Release** section applies only to instructor-paced courses. It does not appear for units in self-paced courses.

In Studio, you see the draft content as you develop the unit. You can *preview the changes to a unit* to test how your changes will appear to learners after you publish the unit.

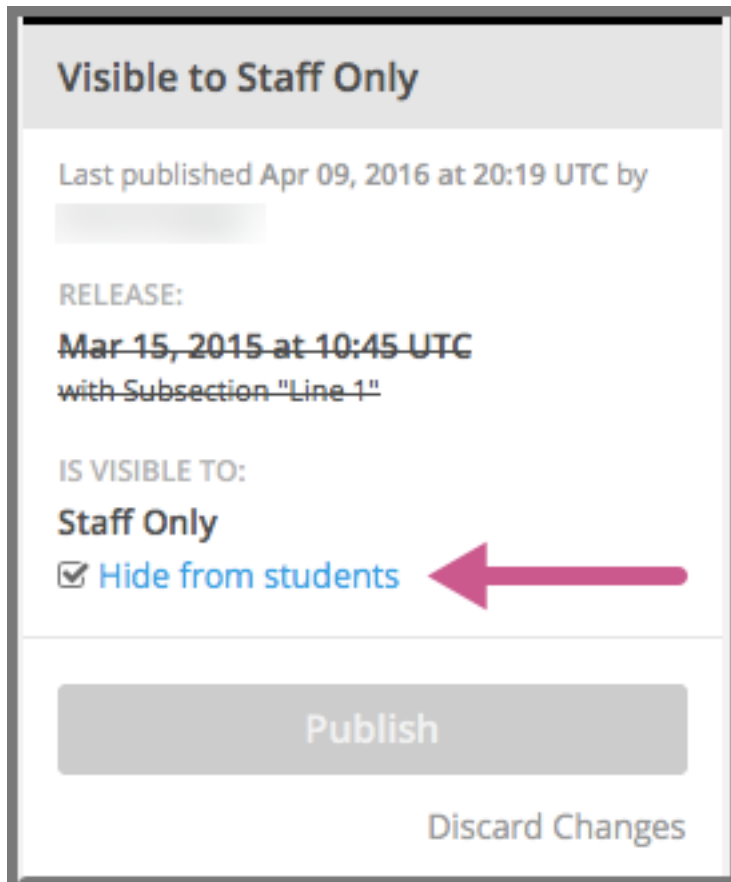
If the release date has passed in an instructor-paced course, learners see the last published version of the unit. If the release date is in the future, learners cannot see your content. You must *publish the unit* for learners to see your changes.

Visible to Staff Only

When you *hide a unit from learners*, the unit's publishing status changes to **Visible to Staff Only**.

The publishing status of a unit also changes to **Visible to Staff Only** if you hide the parent *section* or *subsection* from learners.

Learners never see a unit with this status, even if it has been published and the release date has passed (in an instructor-paced course).



Visible to Staff Only

Last published Apr 09, 2016 at 20:19 UTC by

RELEASE:

~~Mar 15, 2015 at 10:45 UTC~~
~~with Subsection "Line 1"~~

IS VISIBLE TO:

Staff Only

☒ **Hide from students** ←

Publish

Discard Changes

The **Release** section applies only to instructor-paced courses. It does not appear for units in self-paced courses.

6.5.8 Create a Unit

You can create a unit from the outline or create a unit in the same subsection from the unit page.

To create a unit from the outline, follow these steps.

1. In the outline, expand the subsection in which you want to create a new unit.
2. Select **New Unit** at the bottom of the expanded subsection. A new page opens for you to add components to the unit.
3. On the unit page, the unit name is selected. Supply an identifying name. A descriptive name can help learners locate content in the course. It can also help you select content when you analyze performance in edX Insights.
4. *Add components* to the new unit as needed.

To create a unit from a unit page, follow these steps.

1. In the **Unit Location** panel, select **New Unit**.

Unit Location

LOCATION ID

d0d804e8863c4a95a659c04d8a2b2bc0

Use this ID when you create links to this unit from other course content. You enter the ID in the URL field.

LOCATION IN COURSE OUTLINE

Example Week 2: Get Interactive

Lesson 2 - Let's Get Interactive!

Lesson 2 - Let's Get Interactive!

Zooming Diagrams

+ New Unit

The unit page for the new unit opens automatically.

2. On the unit page, the unit name is selected. Supply an identifying name. A descriptive name can help learners locate content in the course. It can also help you select content when you analyze performance in edX Insights.
3. *Add components* to the new unit as needed.

You must then *publish the unit* to make it visible to learners.

6.5.9 Edit a Unit

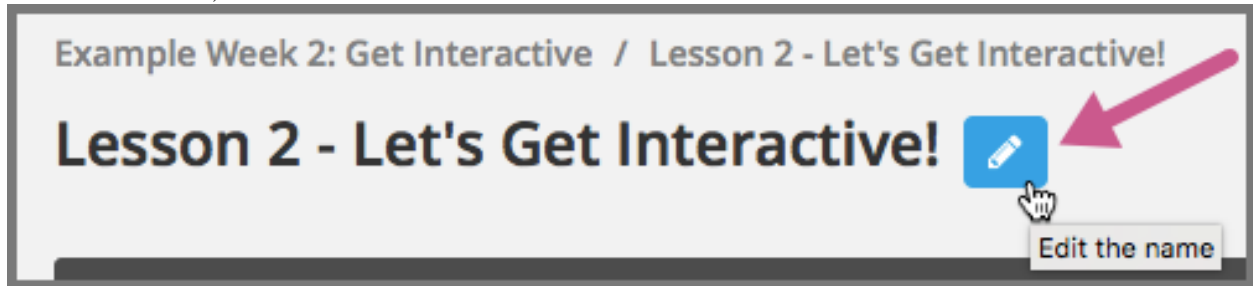
You can edit a unit in the following ways.

- *Edit the unit name*
- *Develop components*
- *Reorganize Components in Units*

When you make any of these changes, if you previously published the unit, the state changes to *Draft (Unpublished Changes)*. You must then *publish the unit* to make your edits visible to learners.

Edit the Unit Name

To edit a unit name, select **Edit** next to the name.



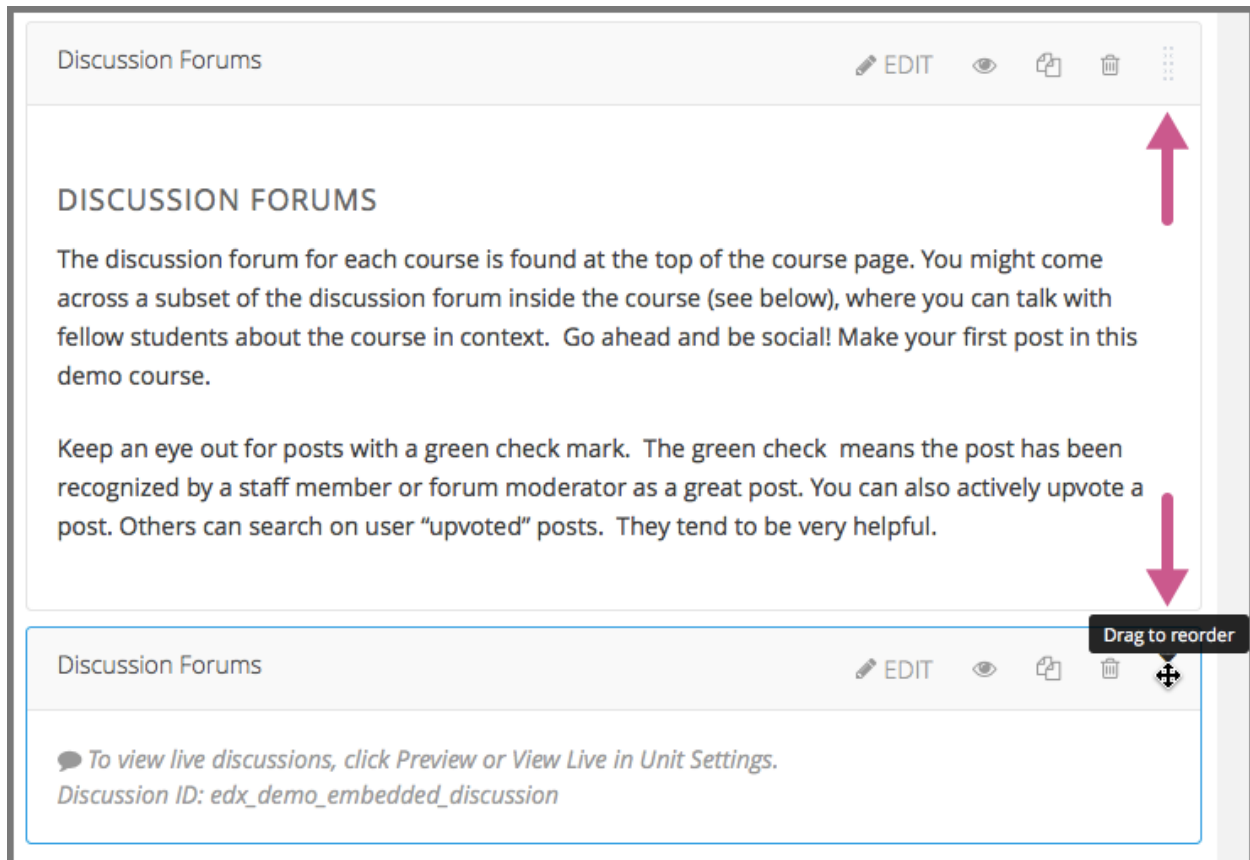
The name field becomes editable. Enter the new name, and then tab or click outside of the field to save the name.

Reorganize Components in Units

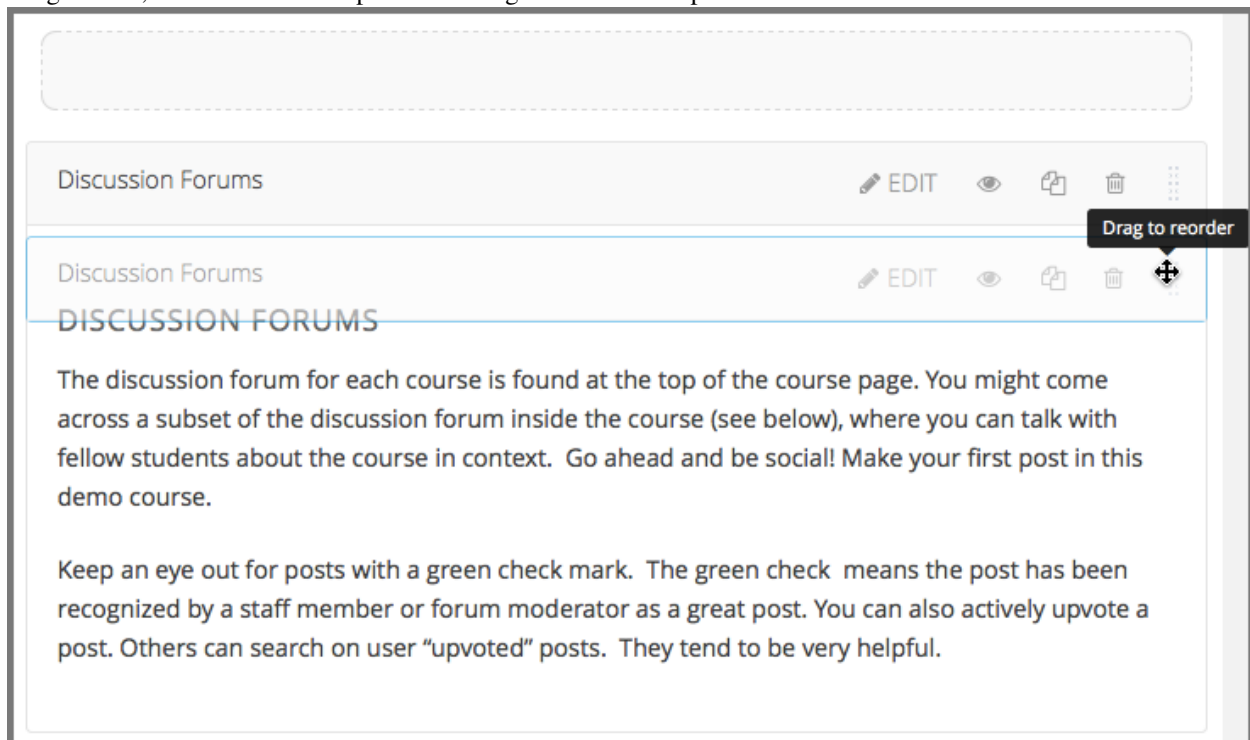
You can reorganize components within a unit by dragging and dropping them to new locations.

To change the location of a component, move your mouse pointer over the **Drag to reorder** handle on the component toolbar. The pointer changes to a four-headed arrow. You can then drag the component to the location that you want.

In the image that follows, the handle for the discussion component is selected.



A dashed outline indicates where the component will land when you release the mouse button. For example, in the image below, the discussion component is being moved to the top of the unit.

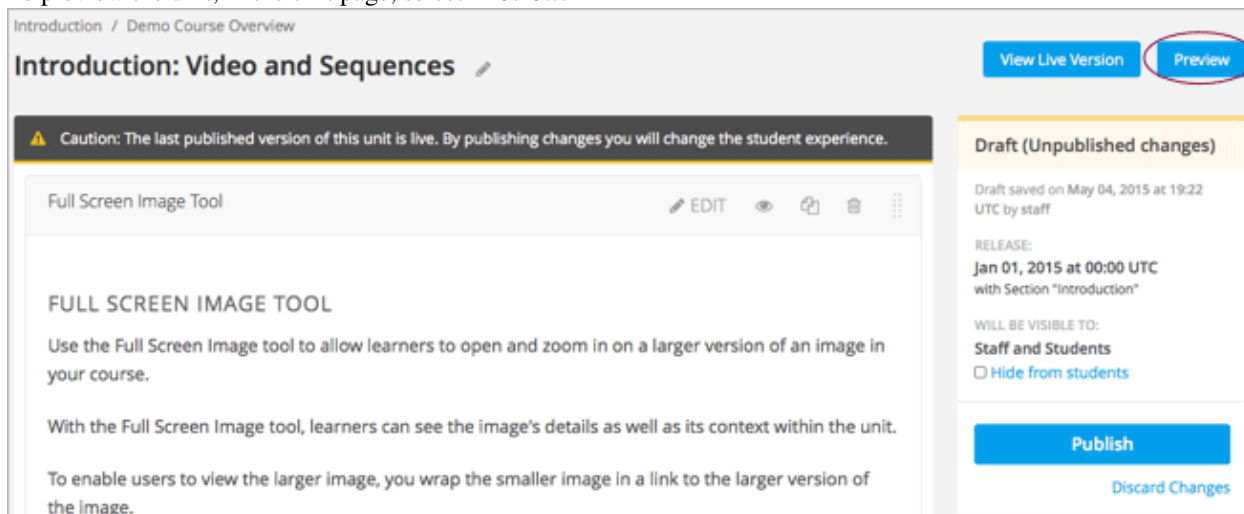


6.5.10 Preview a Unit

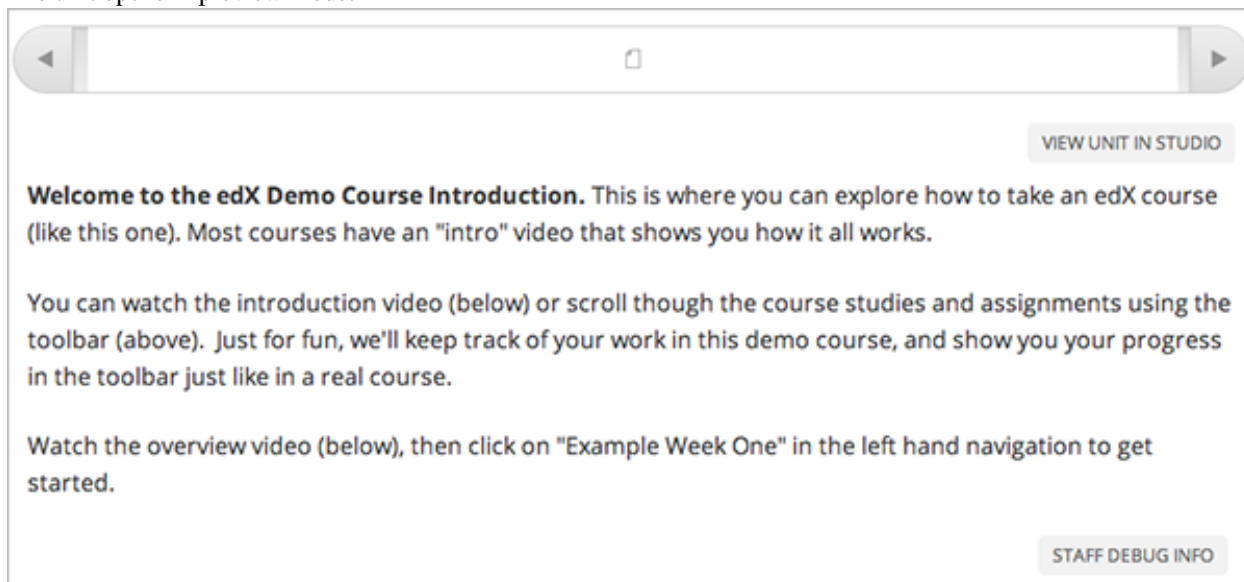
You preview a unit to review and test the content before it is visible to learners.

You can preview a unit before it is published and before the course is live. In a live course, after the unit is published and if there are no pending changes, previewing a unit is exactly the same as viewing the live version of the unit.

To preview the unit, in the unit page, select **Preview**.



The unit opens in preview mode.



When you are revising a previously published unit, it can be helpful to preview your changes in one browser window and *view the published unit* in a second window.

For more information about previewing course content, see *Preview Course Content*.

6.5.11 Publish a Unit

Publishing a unit makes the current version of the unit in Studio available to learners. In an instructor-paced course, the release dates for the section and subsection must also have passed for learners to access a published unit.

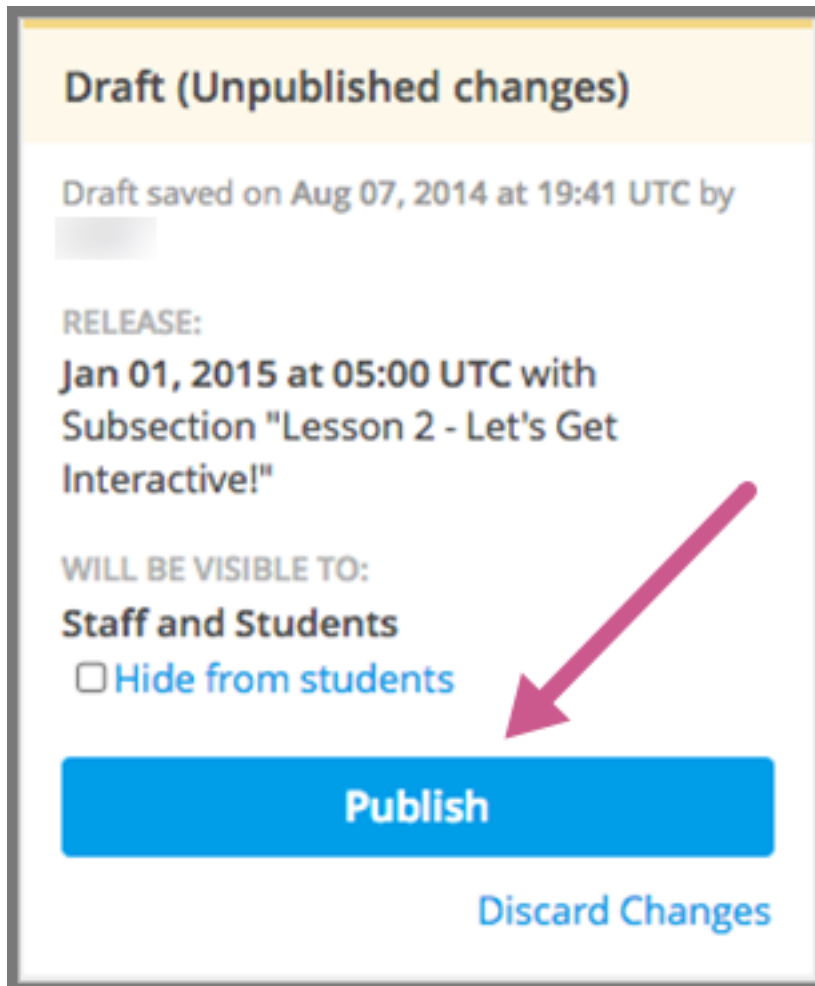
You publish a unit that has a status of *Draft (Never Published)* or *Draft (Unpublished Changes)*. When you publish a unit, the status changes to *Published and Live* or *Published Not Yet Released*.

You can publish a unit from the unit page or the course outline.

For more information about instructor-paced and self-paced courses, see *Setting Course Pacing*.

Use the Unit Page to Publish a Unit

To publish the unit, select **Publish** in the status panel.



The screenshot shows a status panel for a unit in draft status. At the top, it says "Draft (Unpublished changes)" in a yellow header. Below this, it states "Draft saved on Aug 07, 2014 at 19:41 UTC by" followed by a greyed-out username. The "RELEASE:" section indicates a scheduled release on "Jan 01, 2015 at 05:00 UTC with Subsection 'Lesson 2 - Let's Get Interactive!'". The "WILL BE VISIBLE TO:" section shows "Staff and Students" selected, with an unchecked checkbox for "Hide from students". A large blue "Publish" button is prominently displayed, with a red arrow pointing to it from the right. Below the "Publish" button is a blue link for "Discard Changes".

Use the Outline to Publish a Unit

To publish a unit from the outline, select the **Publish** icon in the box for the unit.



Note: The **Publish** icon only appears when there is new or changed content in the unit.

6.5.12 Discard Changes to a Unit

When you modify a published unit, your changes are saved in Studio, though the changes are not visible to learners until you publish the unit again.

If you decide that you never want to publish your changes, you can discard the changes so that Studio reverts to the last published version of the unit.

To discard changes and revert the Studio version of the unit to the last published version, select **Discard Changes** in the status panel.


Draft (Unpublished changes)

Draft saved on Jul 21, 2014 at 19:02 UTC by

RELEASED:
Jan 01, 1970 at 05:00 UTC with Section "Introduction"

WILL BE VISIBLE TO:
Staff and Students
☐ Hide from students

Publish

 Discard Changes

Caution: When you discard changes to a unit, the changes are permanently deleted. You cannot retrieve discarded changes or undo the action.

6.5.13 View a Published Unit

To view the last published version of a unit in the LMS, select **View Live Version**.

Example Week 2: Get Interactive / Lesson 2 - Let's Get Interactive!

Lesson 2 - Let's Get Interactive!

View Live Version **Preview**

Caution: The last published version of this unit is live. By publishing changes you will change the student experience.

Lesson 2: Let's Get Interactive!

EDIT

LESSON 2: LET'S GET INTERACTIVE!

Now that you know your way around an edX course let's look at some of the exciting interactive tools you may encounter. Use the learning sequence above to explore.

Once you have tried the interactive tools in this lesson, make sure to check out the week 2 homework where we show you several of the really cool interactive labs we've created for past courses. They're fun to play with. Many courses will have tools and labs that you need to use to complete homework assignments.

Published and Live

Last published May 05, 2015 at 14:47 UTC by staff

RELEASED:
Jan 01, 1970 at 05:00 UTC with Subsection "Lesson 2 - Let's Get Interactive!"

IS VISIBLE TO:
Staff and Students
☐ Hide from students

Publish

Discard Changes

The unit page opens in the LMS in Staff view. You might be prompted to log in to the LMS.

If the unit status is *Draft (Unpublished Changes)*, you do not see your changes in the LMS until you publish the unit again.

If the unit status is *Draft (Never Published)*, **View Live Version** is not enabled.

6.5.14 Hide a Unit from Learners

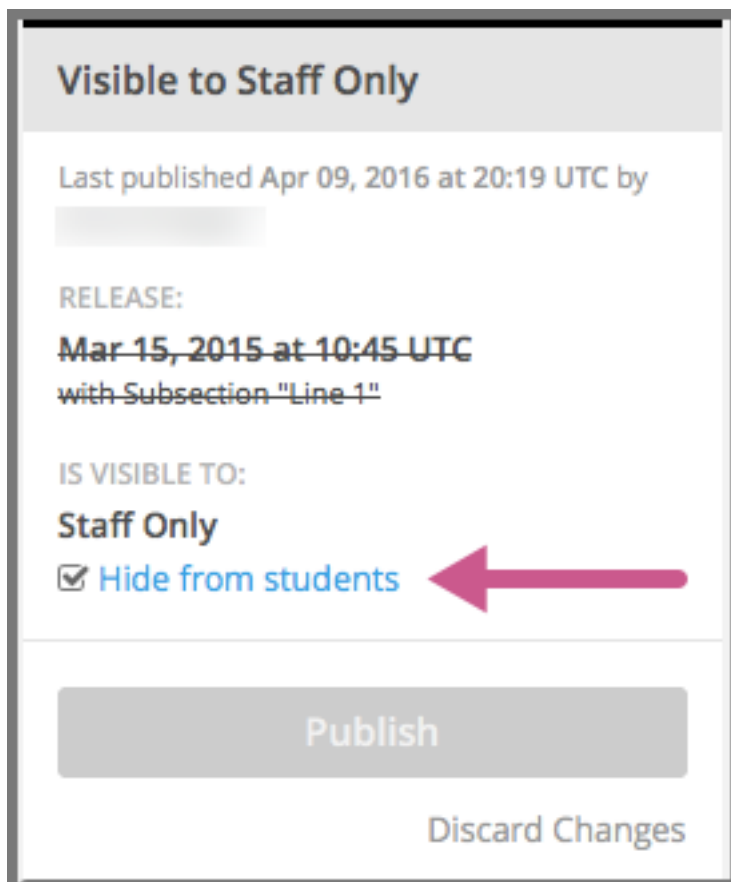
You can prevent learners from seeing a unit regardless of the unit status or the release schedules of the section and subsection.

For more information, see *Content Hidden from Learners*.

You can hide a unit from learners using the course outline or the unit page.

Use the Unit Page to Hide a Unit

Select the **Hide from students** check box in the status panel.



The screenshot shows a unit status panel with the following elements:

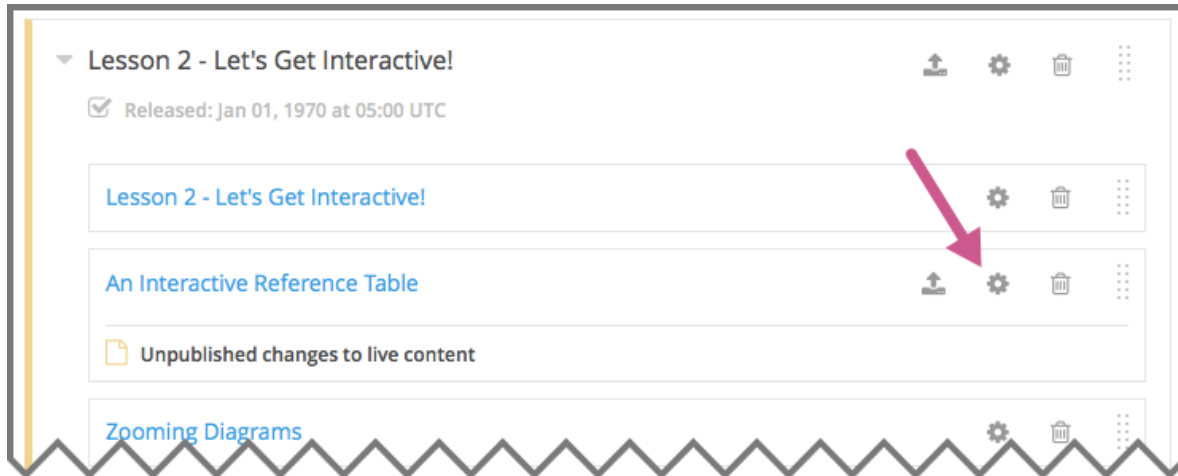
- Visible to Staff Only** (header)
- Last published Apr 09, 2016 at 20:19 UTC by [redacted]
- RELEASE:**
~~Mar 15, 2015 at 10:45 UTC~~
with Subsection "Line 1"
- IS VISIBLE TO:**
Staff Only
- ☒ **Hide from students** (highlighted with a red arrow)
- Publish** (button)
- Discard Changes** (button)

The **Release** section applies only to instructor-paced courses. It does not appear for units in self-paced courses.

For more information, see *Controlling Content Visibility*.

Use the Outline to Hide a Unit

1. Select the **Configure** icon in the unit box.



The **Settings** dialog box opens.

2. Check **Hide from students**.
3. Select **Save**.

Make a Hidden Unit Visible to Learners

Before you make a hidden unit visible to learners, be aware that course content will immediately be visible to learners, as follows.

- For a hidden unit that previously was published, clearing the check box publishes the current content for the unit. If you made changes to the unit while it was hidden, those draft changes are published.
- When you make a section or subsection that was previously hidden visible to learners, draft content in units is *not* published. Changes you made since last publishing units are not made visible to learners.

You can make a hidden unit visible to learners from the unit page or the course outline. Follow the instructions above and clear the **Hide from students** check box.

You are prompted to confirm that you want to make the unit visible to learners.

6.5.15 Delete a Unit

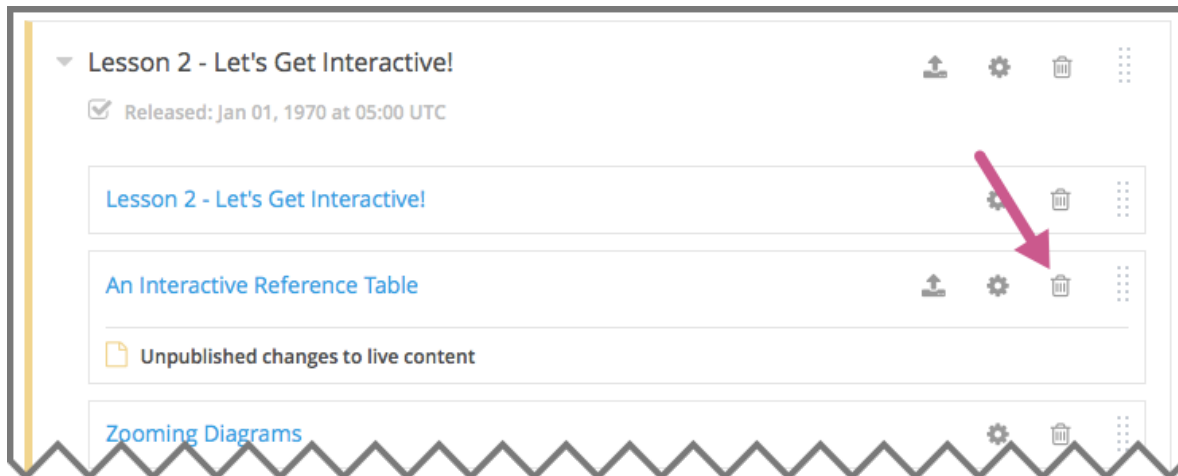
You delete a unit from the course outline.

When you delete a unit, you delete all components within the unit.

Warning: You cannot restore course content after you delete it. To ensure that you do not delete any content that you need later, move the unit to a hidden section or subsection instead of deleting it.

To delete a unit, follow these steps.

1. Select the **Delete** icon in the box for the unit you want to delete.



2. When you receive the confirmation prompt, select **Yes, delete this unit**.

6.6 Developing Course Components

This section describes how you develop course components.

- *What is a Component?*
- *Add a Component*
- *Edit a Component*
- *Duplicate a Component*
- *Delete a Component*
- *Components that Contain Other Components*
- *Reorganizing Child Components*

For more information about specific component types, see the following topics.

- *Adding Course Components*
- *Creating Exercises and Tools*

6.6.1 What is a Component?

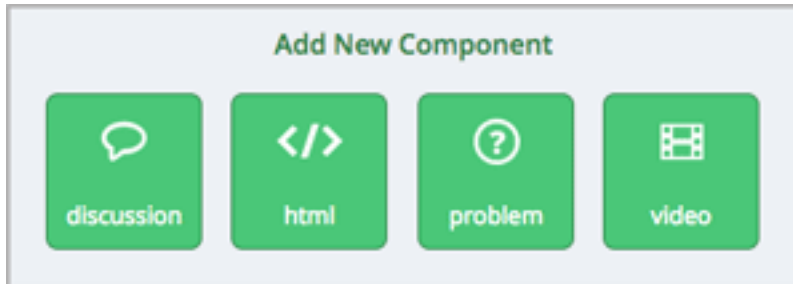
A component is the part of a unit that contains your actual course content. A unit can contain one or more components.

By default, Studio includes four types of components for you to add to your course.

- **Discussion** components provide discussion spaces in the body of your course. Learners can explore ideas about a lesson with their peers in a discussion space.
- **HTML** components allow you to add text, images, and some types of learning tools to your course. Content in HTML components is formatted as HTML.
- **Problem** components enable you to add many different types of exercises and problems to your course, from simple multiple choice problems to complex circuit schematic exercises.
- **Video** components contain the videos that you want to include in your course.

6.6.2 Add a Component

To add a component to the unit, under **Add New Component** select a component type.



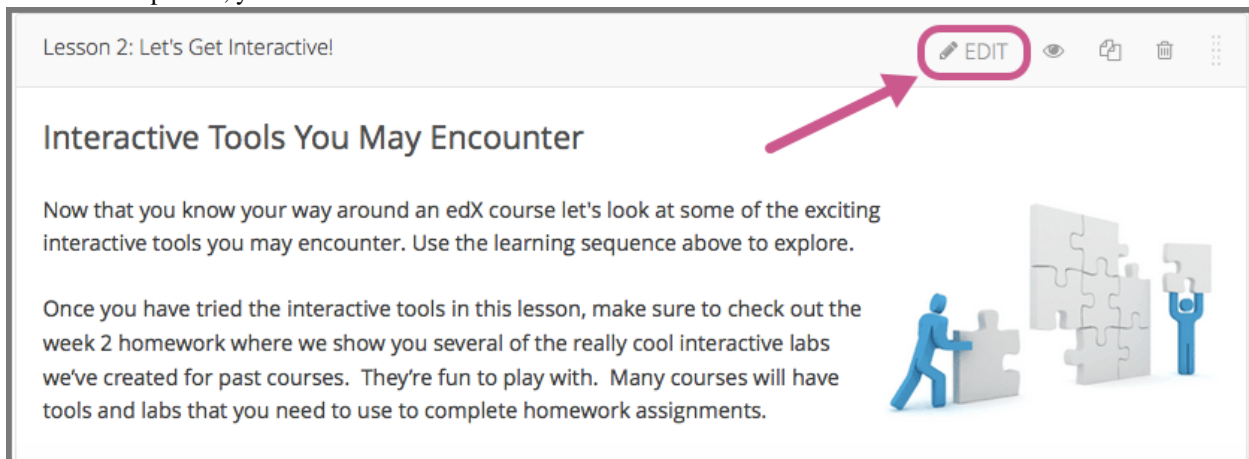
For more information, see the documentation for the specific component type that you want to work with.

- [Working with Discussion Components](#)
- [Working with HTML Components](#)
- [Working with Problem Components](#)
- [Working with Video Components](#)

After you add a component, it is not visible to learners until you *publish the unit*.

6.6.3 Edit a Component

To edit a component, you select **Edit**.



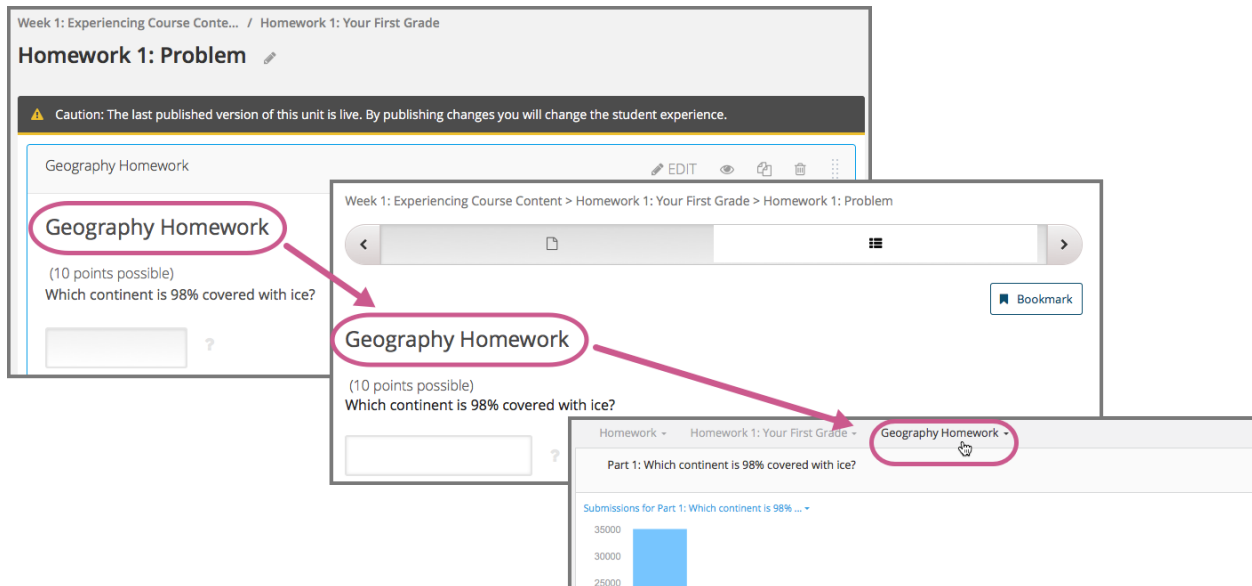
Then, follow instructions for the type of component you are editing.

After you edit a component, the changes are not visible to learners until you *publish the unit*.

Set the Display Name for a Component

The display name identifies the component. This name appears as a heading above the component in the LMS, and it identifies the component for you in Insights.

The following illustration shows the display name of a problem in Studio, in the LMS, and in Insights.



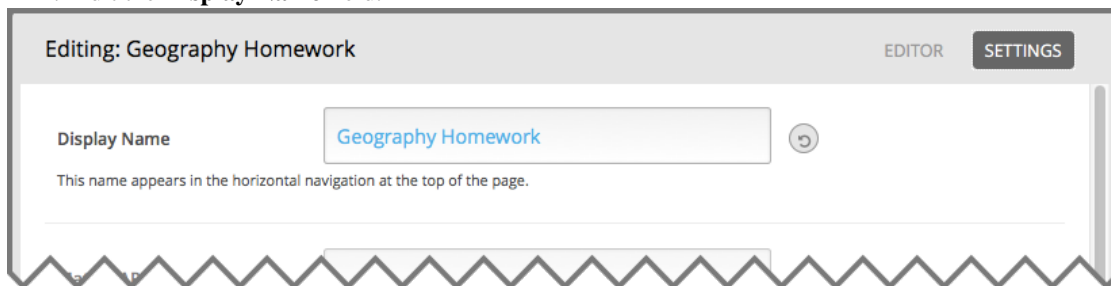
Unique, descriptive display names help you and your learners identify components quickly and accurately.

To set the display name for a component, follow these steps.

1. Edit the component. A dialog box opens.

- For a discussion or video component, the dialog box opens to the list of settings, including the **Display Name** field.
- For an HTML or problem component, the dialog box opens to an editing view. Select **Settings** to show the list of settings, including the **Display Name** field.

2. Edit the **Display Name** field.





1. Select **Save**.

Different types of components have different fields in the **Settings** dialog box, but all of them have a **Display Name** field.


6.6.4 Duplicate a Component

When you duplicate a component, a new copy of that component is added directly beneath the first component. You can then modify the duplicate. In many cases, duplicating a component and editing the copy is a faster way to create new content.

To duplicate a component, select the **Duplicate** icon in the component header.

Building a Computer Memory Element
EDIT



BUILDING A COMPUTER MEMORY ELEMENT



Building a memory element ...

(A) First attempt

SPEAKER 1: OK, let's dive right in and try to build this abstract memory cell that I just showed you earlier.

OK, so here's my memory cell. It has an input dIN, output dOUT. And it has a store signal, OK? And recall the property. Its property is that when the store signal is high, the

Then, follow instructions for the type of component you are editing.

After you duplicate a component, the new component is not visible to learners until you *publish the unit*.

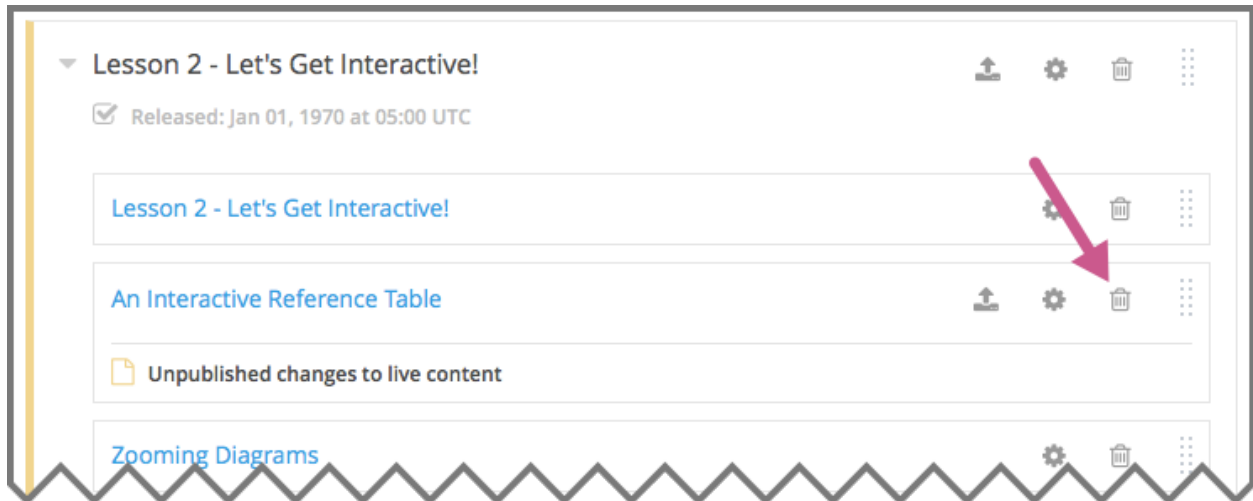
Note: You cannot duplicate a content experiment.

6.6.5 Delete a Component

Caution: Be sure you want to delete the component. You cannot undo the deletion.

To delete a component, follow these steps.

1. Select the **Delete** icon in the component header.



2. When you receive the confirmation prompt, select **Yes, delete this component**.

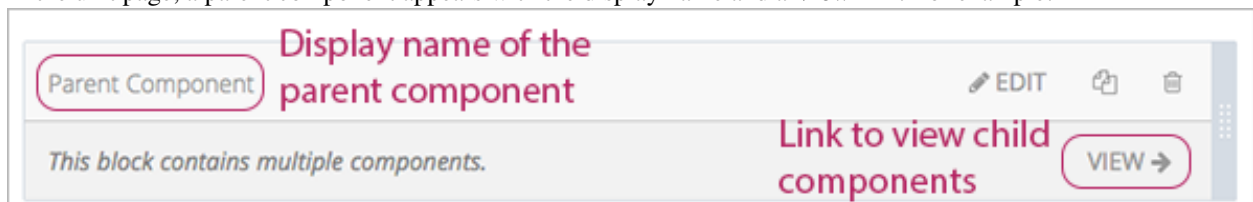
After you delete a component, the component remains visible to learners until you *publish the unit*.

6.6.6 Components that Contain Other Components

For specific use cases, you configure course content so that components contain other components. For example, if you want to include conditional components or content experiments, you have to create components inside components. See *Creating Content Experiments* for more information.

The component that contains other components is referred to as the *parent*; the contained components are referred to as children.

In the unit page, a parent component appears with the display name and a **View** link. For example:



Edit a Parent Component

A parent component does not directly contain content. Content such as HTML, videos, or problems are in the child components.

A parent component has a display name. When the unit is private or in draft, select **Edit** in the parent component to change the display name.

Note: Parent components of a specific type, such as content experiments, have additional attributes that you edit.

View Child Components

When you select **View** in the parent component, the parent component page opens, showing all child components. In this example, Child Component A contains an HTML component and a video.

Child Component A

Child Component A


EDIT

This is an HTML component within component A.

Video

EDIT

VIDEO



0:00 / 1:56

SPEED 1.0x

Add New Component

Discussion

HTML

Problem

Video

Select the arrow next to a child component name to collapse it and hide the component's contents.



Select the arrow again to expand the component.

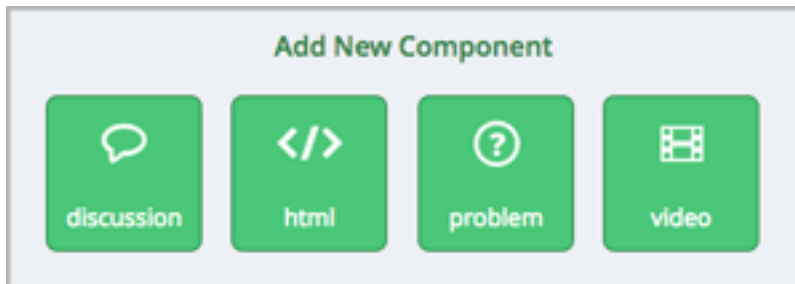
For more information, see the following topics.

- *Edit a Component*
- *Set the Display Name for a Component*
- *Duplicate a Component*
- *Delete a Component*

Add a Child Component

If the containing unit is private or in draft, you can add a child component in its parent component.

To add a child component, open and expand the parent component. Then, select the component type that you want under **Add New Component** within the parent component.



For more information, see the section for the specific component type that you want.

- *Working with Discussion Components*
- *Working with HTML Components*
- *Working with Problem Components*
- *Working with Video Components*

XML for Parent and Child Components

You develop parent and child components in XML, then import the XML course into Studio to verify that the structure is as you intended.

For more information about working with your course's XML files, including information about terminology, see the [EdX Open Learning XML Guide](#).

The following examples show the XML used to create the unit and components shown in Studio above.

The XML for the unit is as follows.

```
<vertical display_name="Unit 1">
  <html url_name="6a5cf0ea41a54b209e0815147896d1b2"/>
  <vertical url_name="131a499ddaa3474194c1aa2eced34455"/>
</vertical>
```

The `<vertical url_name="131a499ddaa3474194c1aa2eced34455"/>` element above references the parent component file that contains the child components.

```
<vertical display_name="Parent Component">
  <vertical url_name="2758bbc495dd40d59050da15b40bd9a5"/>
  <vertical url_name="c5c8b27c2c5546e784432f3b2b6cf2ea"/>
</vertical>
```

The two verticals referenced by the parent component refer to the child components, which contain the actual content of your course.

```
<vertical display_name="Child Component A">
  <html url_name="4471618afafb45bfb86cbe511973e225"/>
  <video url_name="fbd800d0bdbd4cb69ac70c47c9f699e1"/>
</vertical>
```

```
<vertical display_name="Child Component B">
  <html url_name="dd6ef295fda74a639842e1a49c66b2c7"/>
  <problem url_name="b40ecbe4ed1b4280ae93e2a158edae6f"/>
</vertical>
```

Theoretically, there is no limit to the levels of component nesting you can use in your course.

The Learner View of Nested Components

For learners, all parent and child components appear on the unit page. The following example shows the learner view of the unit described above.

1. SEPTEMBER 21

Words of encouragement! This is a short note that most students will read.

Anant Agarwal (6.002x Principal Instructor)

Primary versus Secondary Updates:

Unfortunately, the internet throws a lot of text at students, and they do not read everything that they are given. However, many students *do* read all that they are given, and so detailed explanations in this section will benefit the most conscientious. Any essential information should be extremely quickly summarized in the primary section for skimmers.

Star Forum Poster

Students appreciate knowing that the course staff is reading what they post, and one of several ways that you can do this is by acknowledging the star posters in your announcements.

This is group A.

VIDEO



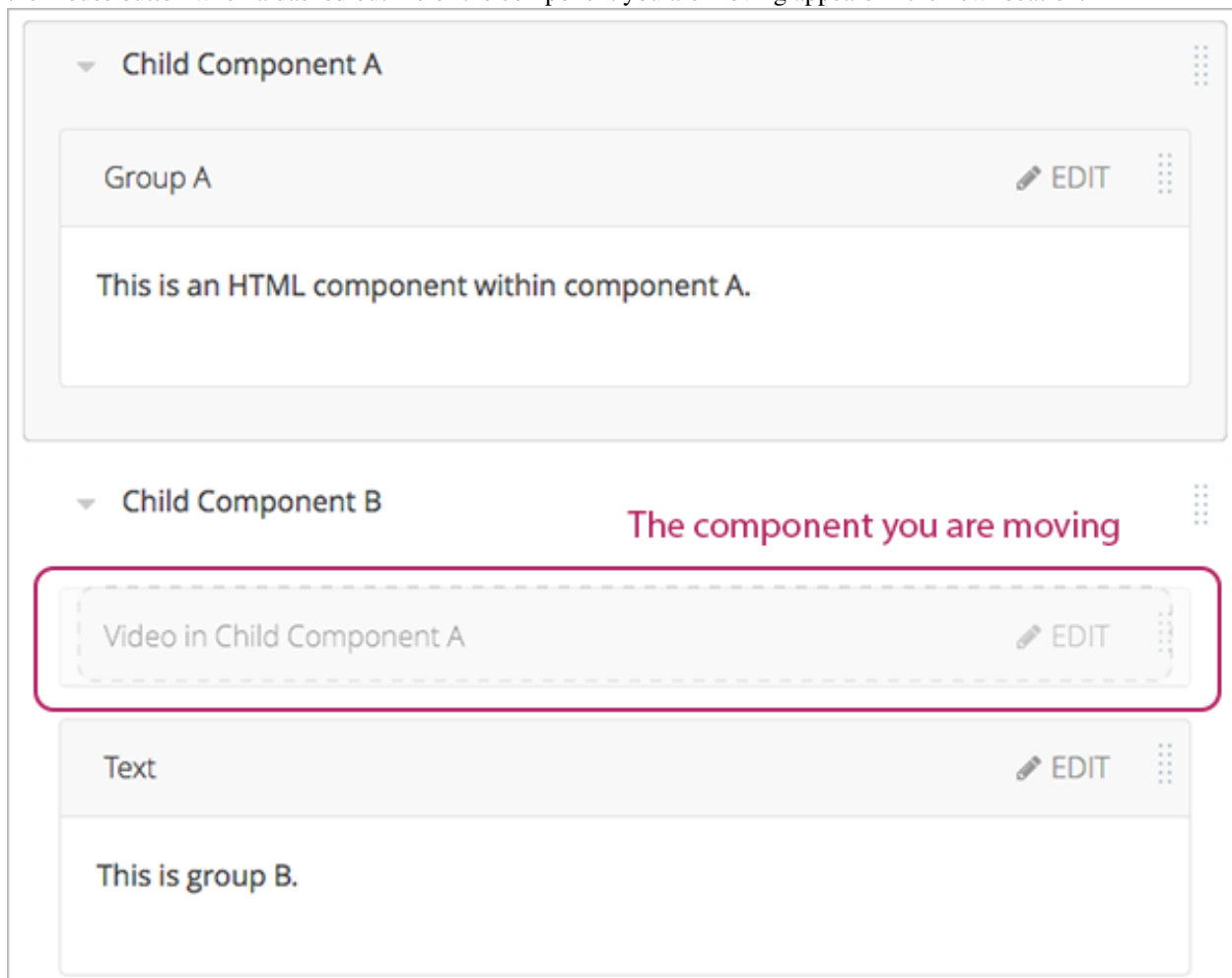
This is group B.

Note: The visibility of nested components depends on the visibility of the parent unit. The parent unit must be public for learners to see nested components. For more information, see [Unit Publishing Status and Visibility to Learners](#).

6.6.7 Reorganizing Child Components

You can reorganize child components through the same drag and drop process you use for other objects in your course outline. You hover over the element handle on the right side of the screen until the mouse pointer changes to a four-headed arrow. Then, click and drag the element to the location that you want.

Furthermore, when you have multiple levels of nesting, you can drag a child component into a different parent component, if both parents are expanded. For example, you can select the video component that is in Child Component A and drag it into Child Component B. Select the video component, and as you drag it into Child Component B, release the mouse button when a dashed outline of the component you are moving appears in the new location.



You can also drag a child component outside of a parent, so that the child moves to the same level as the parent.

Note: For content experiments, you cannot drag a child component outside of a test group.

6.7 Controlling Content Visibility

As a member of the course team, you must carefully control which content is visible to learners and when.

You control content visibility through these features in Studio.

- [Release Dates](#)
- [Unit Publishing Status](#)
- [Content Hidden from Learners](#)
- [Content Groups](#)
- [Configuring Prerequisite Course Subsections](#)

These features work together to control content visibility for learners.

6.7.1 Release Dates

You specify release dates and times for the sections and subsections in an instructor-paced course. By defining release dates, you ensure that content is available to learners on a planned schedule, without requiring manual intervention while the course is running.

Note: Self-paced courses do not have release dates for sections and subsections. For more information about instructor-paced and self-paced courses, see [Setting Course Pacing](#).

By default, a subsection inherits the release date and time of the section it is in. You can change the release date of the subsection to another date.

Published units are not visible to learners until the scheduled release date and time. When the section and subsection have different release schedules, published units are not visible until both dates have passed.

Prior to release, content is visible to course team members by [previewing the course](#) or [viewing the live course as staff](#).

Note: The release times that you set, and the times that learners see, are in Coordinated Universal Time (UTC). You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

For more information about setting release dates in an instructor-paced course, see the following topics.

- [Set a Section Release Date](#)
- [Set a Subsection Release Date](#)

6.7.2 Unit Publishing Status

You publish units to make them visible to learners. In both instructor-paced and self-paced courses, units must be published to be visible to learners. Learners see the last published version of a unit if the section and subsection it is in are released.

Learners do not see units that have never been published, and they do not see unpublished changes to units or components within units. Therefore, you can make changes to units in released subsections without disrupting the learner experience.

For more information, see [Unit Publishing Statuses](#).

You can publish all changes in a section or subsection at once, or publish changes to individual units. For more information about publishing units, see the following topics.

- [Publish all Units in a Section](#)
- [Publish All Units in a Subsection](#)
- [Publish a Unit](#)

6.7.3 Content Hidden from Learners

You can hide content from learners in both instructor-paced and self-paced courses. Such content is never visible to learners, regardless of the release and publishing status.

You might hide a unit from learners, for example, when that unit contains an answer to a problem in another unit of that subsection. After the problem's due date, you could make the unit with the answer visible.

You could also hide a unit from learners if you wanted to use that unit to provide instructions or guidance meant only for the course team. Only course team members would see that unit in the course.

Note: As a best practice, do not hide sections, subsections, or units that contain graded content. When the platform performs grading for any learner, the grading process does not include problems that a learner does not have access to, in other words, any content that is hidden from that learner. For more details, see [Hiding Graded Content](#).

You can hide content at different levels, as described in the following topics.

- [Sections](#)
- [Subsections](#)
- [Units](#)

Note: When you make a previously hidden section or subsection visible to learners, some content in the section or subsection might remain hidden. If you have explicitly set a subsection or unit to be hidden from learners, this subsection or unit remains hidden even when you change the visibility of the parent section or subsection. Unpublished units remain unpublished, and changes to published units remain unpublished.

Hiding Graded Content

Grading is affected if you hide a section, subsection, or unit that contains graded problems. When the platform performs grading for any learner, the grading process does not include problems that the learner does not have access to, in other words, any content that is hidden from that learner.

Note: Grading is not affected for timed exams when you select the setting to keep timed exam content hidden from learners even after the exam due date has passed. For more information, see [Timed Exams](#).

6.7.4 Content Groups

If you have cohorts enabled in your course, you can use content groups to designate particular components in your course as visible only to specific groups of learners.

For details, see [Content Groups](#) and [Creating Cohort-Specific Course Content](#).

6.7.5 Configuring Prerequisite Course Subsections

You can hide subsections of your course until learners complete other, prerequisite subsections. If a subsection has a prerequisite, it is not visible in the course navigation unless a learner has earned a minimum score in the prerequisite subsection.

Enable Subsection Prerequisites

To enable prerequisite subsections in a course, follow these steps.

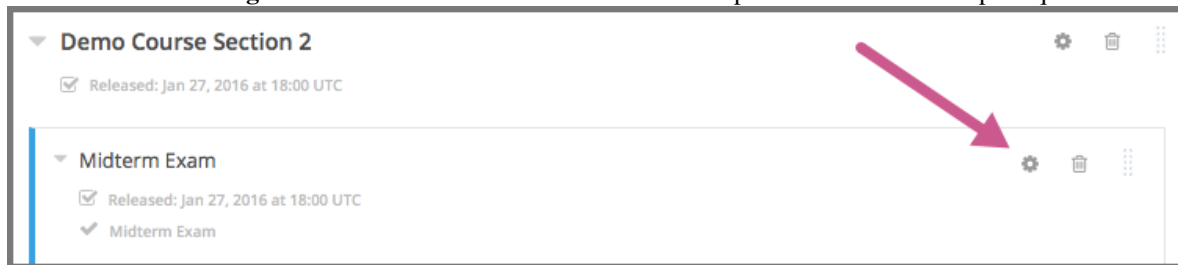
1. From the **Settings** menu, select **Advanced Settings**.
2. In the **Enable Subsection Prerequisites** field, enter `true`.
3. Select **Save Changes**.

Create a Prerequisite Subsection

To prevent learners from seeing a subsection of your course until they have earned a minimum score in a prerequisite subsection, follow these steps.

Note: Make sure that you configure subsection prerequisites in the order that you intend for learners to encounter them in the course content. The prerequisite configuration controls do not prevent you from creating a circular chain of prerequisites that will permanently hide them from learners.

1. Enable subsection prerequisites for your course. For more information, see [Enable Subsection Prerequisites](#).
2. Select the **Configure** icon for the subsection that must be completed first. This is the prerequisite subsection.



3. Select the **Access** tab.
4. Select **Use as a Prerequisite > Make this subsection available as a prerequisite to other content**.
5. Select **Save**.
6. Select the **Configure** icon for the subsection that will be hidden until the prerequisite is met.
7. Select the **Access** tab.
8. In the **Limit Access > Prerequisite** menu, select the name of the subsection you want to specify as the prerequisite.
9. Enter the percent of the total score that learners must earn in the **Minimum Score** field. A learner's score for all problems in the prerequisite subsection must be equal to or greater than this percentage in order to satisfy the prerequisite and display the current subsection.

For example, if the prerequisite subsection includes four problems and each problem is worth the same number of points, set the **Minimum Score** to 75 to require at least three correct answers.

10. Select **Save**.
11. In the course outline, if a subsection has a prerequisite, the prerequisite name appears under the subsection name.

6.8 Testing Your Course Content

The way your course looks in Studio is different from the way that learners will see and experience it when it is live in the LMS.

As a best practice, you should test content continually as you build your course, so you can interact with your course from a learner's point of view.

- *Preview Course Content*
- *View Your Live Course*
 - *Staff View*
 - *Student View*
 - *Specific Student View*
- *Open Studio from Your Live Course*

Note: If you use content groups in your course to designate content as visible only to particular students, see *Preview Cohort-Specific Course Content*.

For information about setting up a beta test for your course, see *Beta Testing a Course*.

6.8.1 Preview Course Content

You can preview course content before the course is live, or before you publish specific units in a live course, to test how content will appear to students when it is released.

When you preview course content, you see the latest course content that is configured in Studio. You see content in units with the publishing status *Draft (Never published)*, *Draft (Unpublished changes)*, or *Visible to Staff Only*.

Note: If you use content groups and have designated components in a unit as visible only to particular groups, the visibility status indicates that some content in the unit is visible only to particular groups. For information about previewing course content if you use content groups to designate content as visible only to particular groups, see *Preview Cohort-Specific Course Content*.

Note: If you use randomized content blocks in your course, you cannot preview unpublished units that contain content from randomized content blocks, because the randomized content is not assigned until after the unit is published. For information about viewing the actual content that has been assigned to a particular student from a randomized content block in a live course, see *Specific Student View*.

For example, you *publish a unit* that includes a video component and a discussion component.

Video Example / Course Testing

Example Video + Discussion

View Live Version


Preview

⚠ Caution: The last published version of this unit is live. By publishing changes you will change the student experience.

Welcome from Professor Agarwal

EDIT

Welcome from Professor Agarwal



ANANT AGARWAL: Welcome to edX.

I'm Anant Agarwal, I'm the president of edX,

I'm also a professor of electrical engineering and computer science at MIT.

Online learning is revolutionizing the world.

Education will never be the

Introduce Yourself

EDIT

To view live discussions, click Preview or View Live in Unit Settings.

Discussion ID: 4e9b21bad571a9648f9c0ad194041ae8ab91a3b8

Published and Live

Last published Mar 27, 2016 at 18:02 UTC by AlisonHodges

RELEASED:

Jan 27, 2016 at 18:00 UTC with Section "Video Example"

IS VISIBLE TO:

Staff and Students

☐ Hide from students

Publish

Discard Changes

Last published Mar 27, 2016 at 18:02 UTC by AlisonHodges

Unit Location

LOCATION ID

3ece2b8757c7421ba6c49f5465d64

Use this ID when you create links to this unit from other course content. You enter the ID in the URL field.

LOCATION IN COURSE OUTLINE

Video Example


Course Testing

Example Video + Discussion

+ New Unit


Students see the same content in the LMS.

Video Example > Course Testing > Example Video + Discussion

<  >

[Bookmark](#)

Welcome from Professor Agarwal



ANANT AGARWAL: Welcome to edX.

I'm Anant Agarwal, I'm the president of edX,

I'm also a professor of electrical engineering and computer science at MIT.

Online learning is revolutionizing the world.

Education will never be the

[Show Discussion](#) [New Post](#)

You later decide to add a knowledge check problem to the unit, between the video and the discussion. Before you publish this change, you can see how the question will look to students by previewing the unit in the LMS.

When you select **Preview** and select to view the course as a **Student**, you see the unit in the LMS with the multiple choice question. This preview shows how students will experience the unit after you *publish the change*.

Video Example > Course Testing > Example Video + Discussion

<


≡

>

VIEW UNIT IN STUDIO

Bookmark

Welcome from Professor Agarwal



ANANT AGARWAL: Welcome to edX.

I'm Anant Agarwal, I'm the president of edX,

I'm also a professor of electrical engineering and computer science at MIT.

Online learning is revolutionizing the world.

Education will never be the

0:00 / 2:211.0x

STAFF DEBUG INFO

Knowledge Check

(1 point possible)

If you were going to create a Computer Science course that used a blended learning format, which of the following resources would you need to run that course successfully?

(Select all that apply)

☐ Access to computers and the Internet

☐ A lecture hall

☐ Teaching Assistants with strong computer programming skills

☐ Clear guidelines for your students outlining your expectations, the class activities, and

In the live course, students continue to see the existing content, without the multiple choice question, until you *publish the change*.

Note: When the unit's state is *Published and Live*, the preview and the live version of the course are exactly the same. Selecting either of **View Live** or **Preview** gives you the same view.

6.8.2 View Your Live Course

While you are working in Studio, you can test your live course by viewing it in the LMS as all students, or a particular student, would see it. You can see your course in ref:*Staff View*, *Student View*, or *Specific Student View*. If you are using content groups to designate specific content as visible only to particular content groups, you can see your course as a content group would see it.

You can view the course as a member of these groups.

Role	When You "View As" This Role
Staff	You see all content in the course, including content that is hidden from students.
Student	You see any content that is intended for all students.
Specific Student	You see content that is intended for the student whose email or username you specify.
Student in <Content Group Name>	You see content that is intended for all students, as well as any content specifically set to be visible to this content group.

To switch to your live course and see how it appears to members of the groups in the table above, follow these steps.

1. From the Studio **Course Outline** page, select **View Live**. Alternatively, from a unit page, select **View Live Version**.

A separate browser tab opens for the course in the LMS.

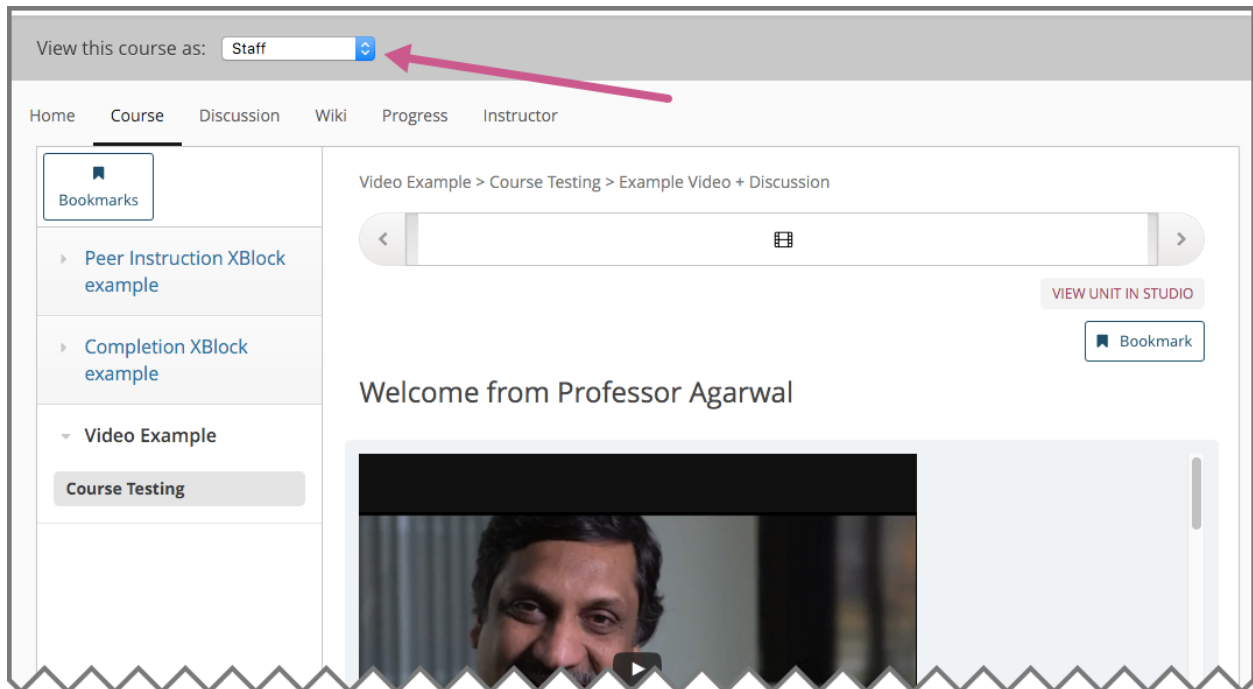
2. In the LMS, select one of the **View this course as** options, as described in the table above.

The course view refreshes to present course content as a member of the selected group would see it.

For details about each view, see *Staff View*, *Student View*, or *Specific Student View*.

Staff View

In the LMS, to view your live course as any member of the course team would see it, from **View this course as** select **Staff**.



- You see all units that are *Published and Live*. For units that are *Draft (Unpublished changes)* or *Visible to Staff Only*, you see the last published version of the unit. You see these units regardless of the release dates of the containing section or subsection.
- You do not see units that are *Draft (Never published)*. To see these units, you must use Preview mode as described in *Preview Course Content*.
- You can select **Instructor** to access the instructor dashboard, which has options and reports that help you *run your course*.

When you view your course in **Staff View**, you can execute tests to make sure that your course works the way you intend. For example, before the release date of a subsection, members of the course team can work through the problems to verify that the correct answer gets a green check for correct, and that any answer other than the correct one gets a red X for incorrect.

Student View

In the LMS, to view your live course as learners see it, select **Student** from the **View this course as** list.

Note: If your course has not started, you cannot see the content on the **Course** page when you use the **Student** view. To see this content before the course has started, add yourself as a beta tester on the Instructor Dashboard. Make sure to set the course start date and the **Days Early for Beta** setting so that you can see the content that you want. For more information, see *Beta Testing a Course*.

Note: If you have enabled your course for cohorts and have designated some content as visible only to certain content groups, you can select a content group from the **View Course As** dropdown list to see the content exactly as a student in a cohort associated with that content group will see it. For more information, see *Preview Cohort-Specific Course Content*.

When you view content as a student, be aware of the following limitations.

- You do not see sections or subsections that have not yet been released.
- If the section and subsection are released, you see units that are *Published and Live*. For units that are *Draft (Unpublished changes)*, you see the last published version of the unit.
- You do not see units that are *Draft (Never published)* or *Visible to Staff Only*. To see these units, you must switch back to Instructor view or use Preview mode as described in *Preview Course Content*.

Specific Student View

Note: If your course has not started, you cannot see the content on the **Course** page when you use the **Specific student** view. To see this content before the course has started, add yourself as a beta tester on the Instructor Dashboard. Make sure to set the course start date and the **Days Early for Beta** setting so that you can see the content that you want. For more information, see *Beta Testing a Course*.

In the LMS, to view your live course as one particular learner sees it, select **Specific student** from the **View this course as** list. Then, enter that learner's username or email address.

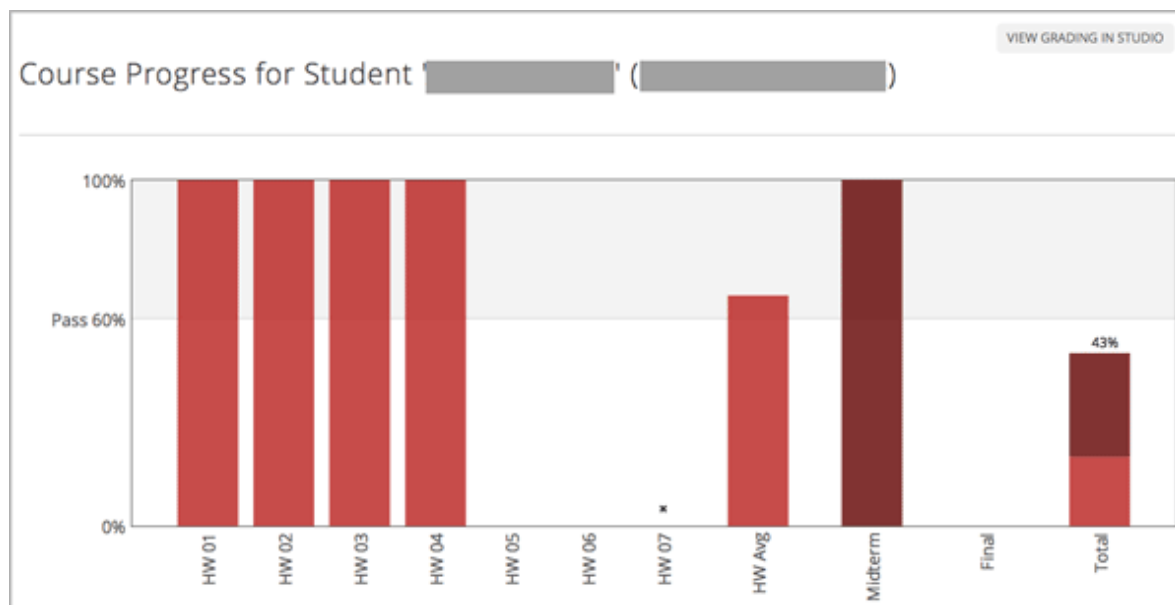
When you view content as a specific student, be aware of the following limitations.

- In courses with randomized content blocks, you see the actual problem that was assigned to a specific learner. This view allows you to evaluate a request to adjust a grade or reset the number of attempts for a problem. For details about adjusting grades or resetting attempts, see *Adjust Grades*.
- You cannot view open response assessment problems as a specific student.
- You do not see sections or subsections that have not yet been released.
- If the section and subsection are released, you see units that are *Published and Live*. For units that are *Draft (Unpublished changes)*, you see the last published version of the unit.
- You do not see units that are *Draft (Never published)* or *Visible to Staff Only*. To see these units, you must switch back to Staff view or use Preview mode as described in *Preview Course Content*.

6.8.3 Open Studio from Your Live Course

When you are viewing your course in the LMS as **Staff View**, you can open Studio directly.

- In a unit page, select **View Unit in Studio**.
The unit page opens in Studio.
- In the instructor dashboard, select **View Course in Studio** to open the course outline.
For information about the tasks you can complete from the instructor dashboard, see *Managing a Running Course*.
- In the **Course Progress** page, select **View Grading in Studio** to open the **Grading** page.



For information about checking a student's progress, see [Review How Grading Is Configured for Your Course](#).

Adding Course Components

Use the topics in this section to understand how to create course content of different types.

For information on creating exercises and tools, see *Creating Exercises and Tools*.

For information on how to develop your course content in the Studio Outline page, see *Developing Your Course*.

7.1 Working with HTML Components

This section describes how to work with HTML components in Studio.

- *HTML Component Overview*
- *Options for Editing HTML Components*
- *The Visual Editor*
- *The Raw HTML Editor*
- *HTML Component Templates*
- *Create an HTML Component*
- *Add a Link in an HTML Component*

7.1.1 HTML Component Overview

HTML, or HyperText Markup Language, is the standard markup language used to create web pages. Web browsers present HTML code in a more readable format.

When students see text and images in your course, they are seeing HTML code that is formatted and presented by their browsers. For more information about HTML, see [Wikipedia](#).

HTML Components

HTML components are the basic building blocks of your course content. You use HTML components to add and format text, links, images, and more. You can work with your HTML components in a “visual” or WYSIWYG editor that hides the HTML code details, or in a “raw” editor that requires you to mark up your content.

Note: Review *Developing Your Course* and *Use Best Practices for HTML Markup* before you start working with HTML components.

To add an instant hangout to an HTML component, see [Google Instant Hangout Tool](#).

7.1.2 Options for Editing HTML Components

You can use two different editing interfaces to work with an HTML component.

- *The Visual Editor*

With the visual editor you create, edit, and format content in a word processing-like interface, without using HTML markup directly. With the visual editor, you can more easily format your content, and add links and images. The visual editor includes an **HTML** option for you to review the HTML markup and make small formatting changes to your content. However, this HTML option does not provide the detailed control you can get with the raw HTML editor, and does not support custom formatting or scripts.

If you add an HTML component and select **Text**, when you select **Edit** the visual editor opens by default.

- *The Raw HTML Editor*

If you prefer to mark up your content directly with HTML markup, you can use the raw HTML editor. If you need to include custom formatting or scripts in your content, you must use the raw HTML editor.

If you add an HTML component and select **Raw HTML**, when you select **Edit** the raw HTML editor opens by default.

You can switch back and forth between these two editing interfaces at any time. For more information, see [Set the Editor for an HTML Component](#).

Note: If you copy text from another source and paste it into either the visual or raw HTML editor, be sure to proofread the result carefully. Some applications automatically change quotation marks and apostrophes from the “straight” version to the “smart” or “curly” version. Both editors require “straight” quotation marks and apostrophes.

Set the Editor for an HTML Component

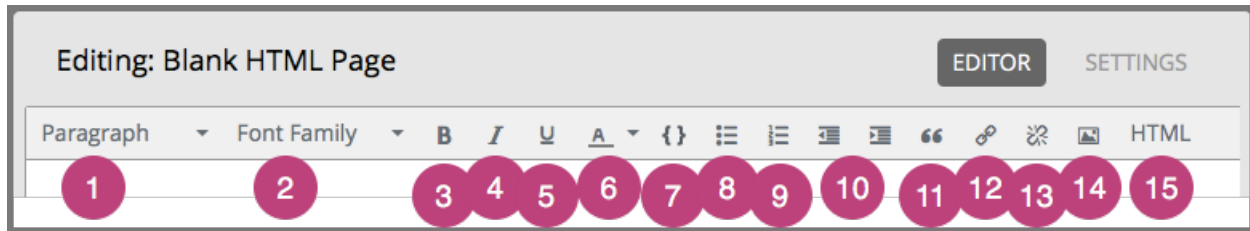
1. Add or locate the HTML component in your course.
2. Select **Edit**, and then select **Settings**.
3. Select **Visual** or **Raw**.
4. Select **Save**, and then reopen the component to use the new editor.

Warning: If you work with content in the raw HTML editor, then switch to the visual editor, custom HTML can be lost. If you need to create custom HTML, edX recommends that you start by using the visual editor, and then switch to the raw HTML editor when you are ready to add the custom HTML.

7.1.3 The Visual Editor

The visual editor provides a “what you see is what you get” (WYSIWYG) interface that allows you to format text by selecting options at the top of the editor.

The following image shows callouts for the editing options and is followed by descriptions.



1. Choose a formatting style for the selected text, such as paragraph, preformatted (monospace), or a heading level. The heading levels available for an HTML component begin with Heading 3. Because HTML components are part of a complete page, and heading levels 1 and 2 are in use by other elements on the page, any text with a heading 1 or 2 style within an HTML component can interfere with the functionality of tools such as screen readers.
2. Choose a font family for selected text, such as Arial, Courier New, or Times New Roman.
3. Format the selected text in bold, or remove bolding. The editor inserts `` tags around the selected text.
4. Format the selected text in italics, or remove italicization. The editor inserts `` tags around the selected text.
5. Underline the selected text, or remove underlining. The editor encloses the selected text in the tag ``.
6. Apply a color to the selected text. The editor encloses the selected text in the tag ``.
7. Format the selected text as a code block, or remove this formatting. The editor inserts `<code>` tags around the selected text, which is then displayed in a monospace font.
8. Create a bulleted list, or remove this formatting. The editor inserts `` tags around the selected text, and encloses each paragraph in `` tags.
9. Create a numbered list, or remove this formatting. The editor inserts `` tags around the selected text, and encloses each paragraph in `` tags.
10. Decrease and increased the indentation of the selected paragraph.
11. Format the selected paragraph as a blockquote. The editor inserts `<blockquote>` tags around the selected text, which is then displayed as a separate paragraph in a monospace font.
12. Create a hypertext link from the selected text. See [Add a Link in an HTML Component](#).
13. Remove a hypertext link from the selected text.
14. Insert an image at the cursor. See [Add an Image to an HTML Component](#).
15. Review the HTML markup.

Note: The visual editor is not available for *course handouts*.

Review HTML Markup in the Visual Editor

To review the HTML markup added to content in the visual editor, select **HTML** from the visual editor's toolbar. The HTML source code editor opens.

HTML source code

```
1 <p><strong>Welcome to the edX Demo Course Introduction.</strong>&nbsp;This is <code>where</code> you can
  explore how to take an edX course (like this one). Most courses have an "intro" video that shows you how it
  all works.&nbsp;</p>
2 <blockquote>
3 <p style="margin-right: 0px; font-size: 16px; margin-left: 0px; font-family: 'Open Sans', Verdana, Geneva,
  sans-serif;">You can watch the introduction video (below) or scroll though the course studies and
  assignments using the toolbar (above). &nbsp;Just for fun, we'll keep track of your work in this demo
  course, and show you your progress in the toolbar just like in a real course.</p>
4 </blockquote>
5 <p style="margin-right: 0px; font-size: 16px; margin-left: 0px; font-family: 'Open Sans', Verdana, Geneva,
  sans-serif;">Watch the overview video (below), then click on "Example Week One" in the left hand navigation
  to get started.</p>
```

OK Cancel

You can edit text and the HTML markup in this editor. However, you cannot add custom styles or scripts in this editor. Use the *raw HTML editor* instead.

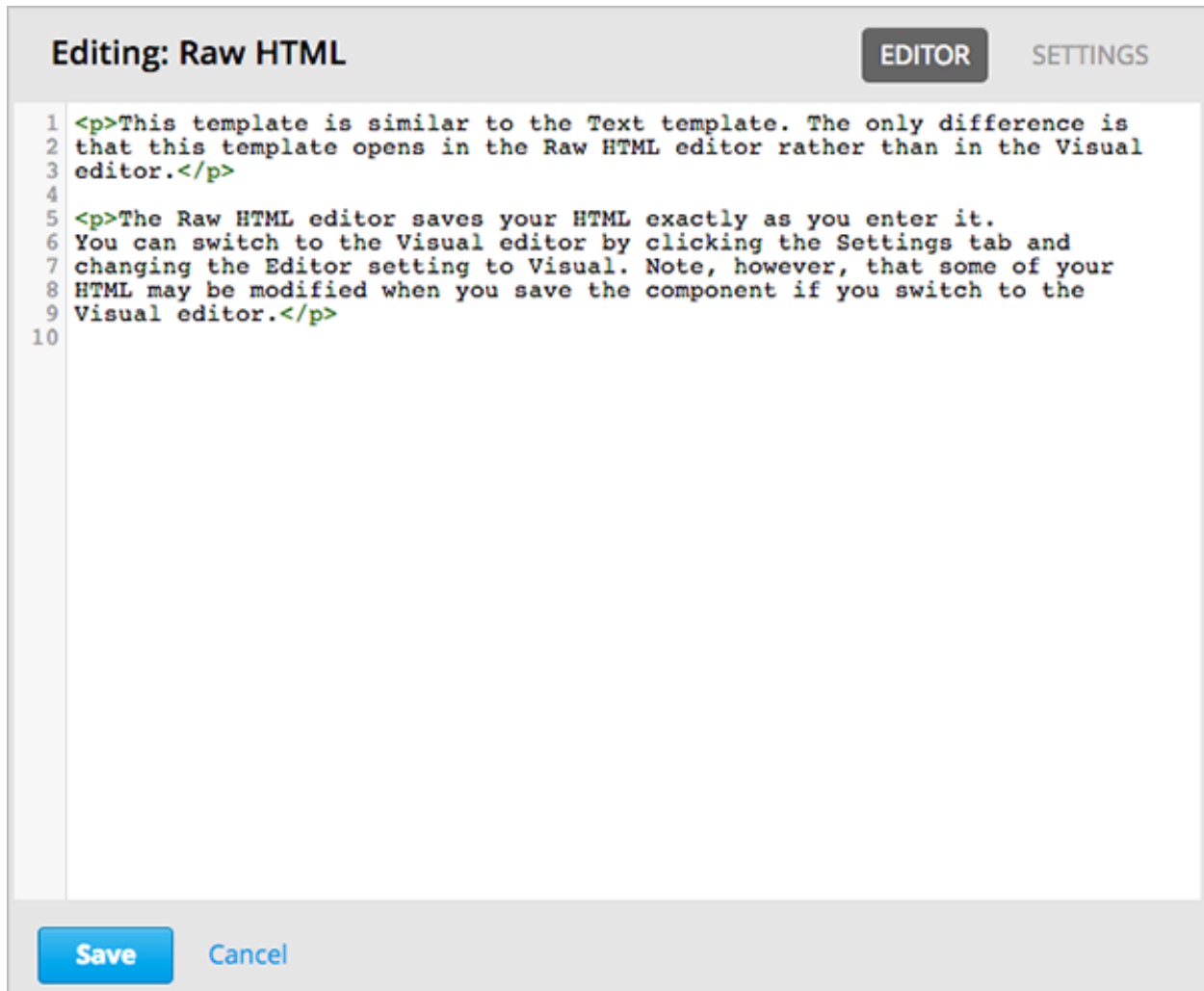
Select **OK** to return to the visual editor. The visual editor attempts to correct any problems with the markup that you entered. For example, if you do not provide a close paragraph tag, the editor adds the tag for you.

You can then continue working in the visual editor.

Warning: Selecting **OK** in the source code editor does not save your changes to the HTML component. To save your changes and close the component, select **Save** in the visual editor. If you select **Cancel**, the changes you made in the HTML source code editor are discarded.

7.1.4 The Raw HTML Editor

The raw HTML editor is a text editor. It does not offer a toolbar with formatting options.

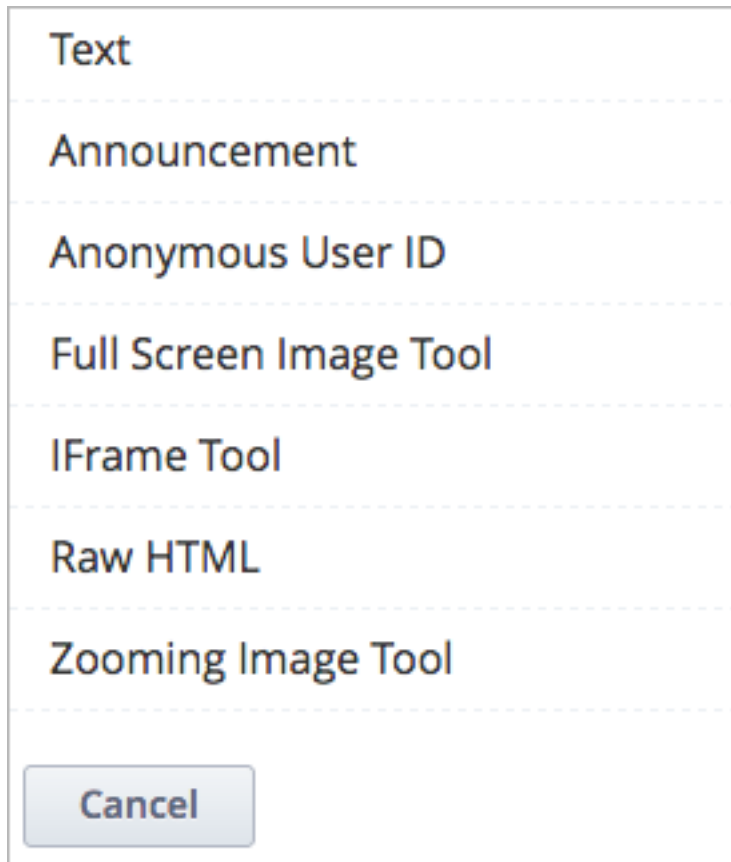


When you use this editor, you must supply valid HTML. The raw HTML editor does not validate your HTML code. If you use this editor, you should thoroughly test the HTML content in your course.

Important: Because HTML components are part of a complete page, any text with a heading 1 or 2 style within an HTML component can interfere with the functionality of tools such as screen readers. Be sure that the headings you add to an HTML component are Heading 3 <h3> through Heading 6 <h6>, and not <h1> or <h2>.

7.1.5 HTML Component Templates

When you create an HTML component, you select from a list of templates.



A vertical list of HTML component templates. The list includes: Text, Announcement, Anonymous User ID, Full Screen Image Tool, IFrame Tool, Raw HTML, and Zooming Image Tool. At the bottom of the list is a button labeled "Cancel".

The raw HTML template uses the raw HTML editor by default. All of the other templates use the visual editor by default. You can switch between the editors in any HTML component. For more information, see [Set the Editor for an HTML Component](#).

7.1.6 Create an HTML Component

1. Under **Add New Component**, select **HTML**.
2. Select the template.

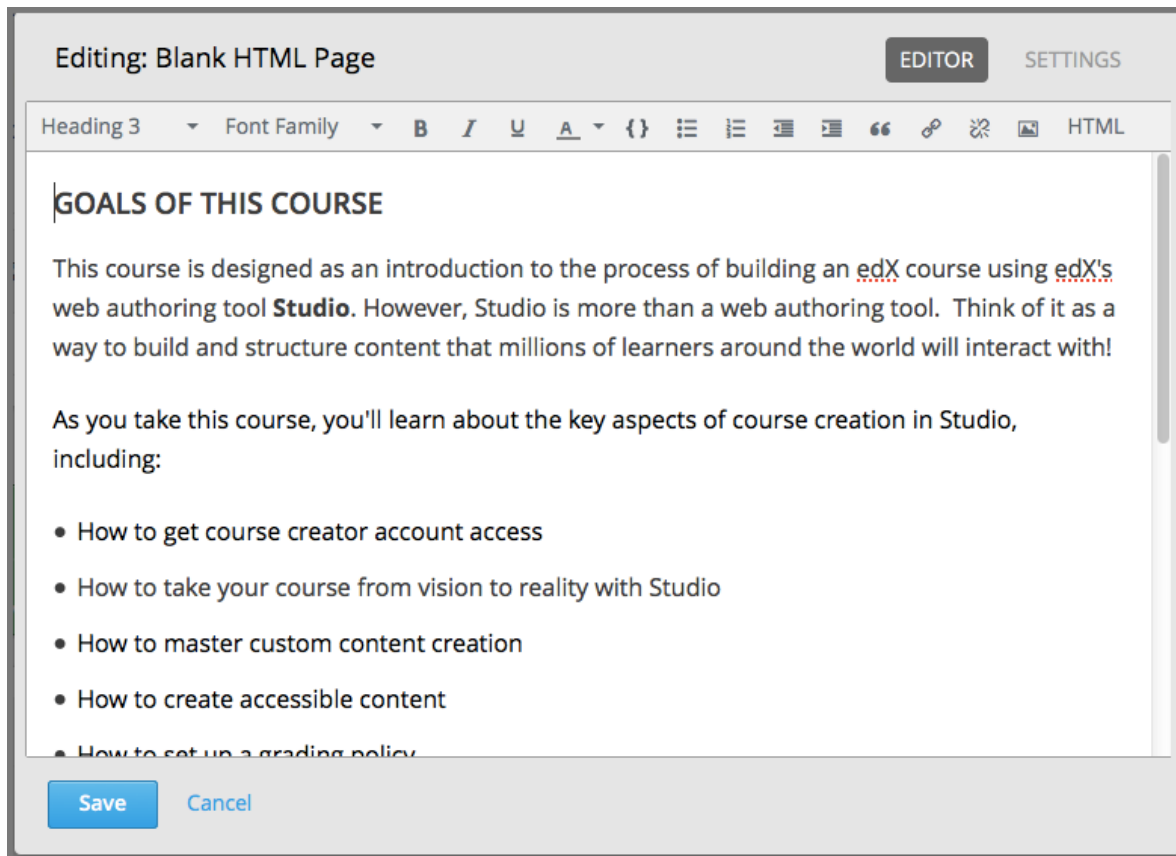
The rest of these instructions assume that you selected **Text**, which creates an empty HTML component with the *visual editor* selected.

An empty HTML component appears at the bottom of the unit.

3. In the component, select **Edit**.

The HTML component opens in the visual editor.

4. Enter and format your content. You can [review the HTML markup](#) if needed.



5. Enter a display name for the component. The display name identifies the component for learners, so it should describe the content effectively. To do so, select **Settings**, and then enter text in the **Display Name** field.

Each HTML template supplies a default display name. Changing the default to a unique, descriptive display name can help you and your learners identify course content quickly and accurately. If you delete the default display name and do not enter your own identifying name, the platform supplies “html” for you.

To return to the visual editor, select **Editor**.

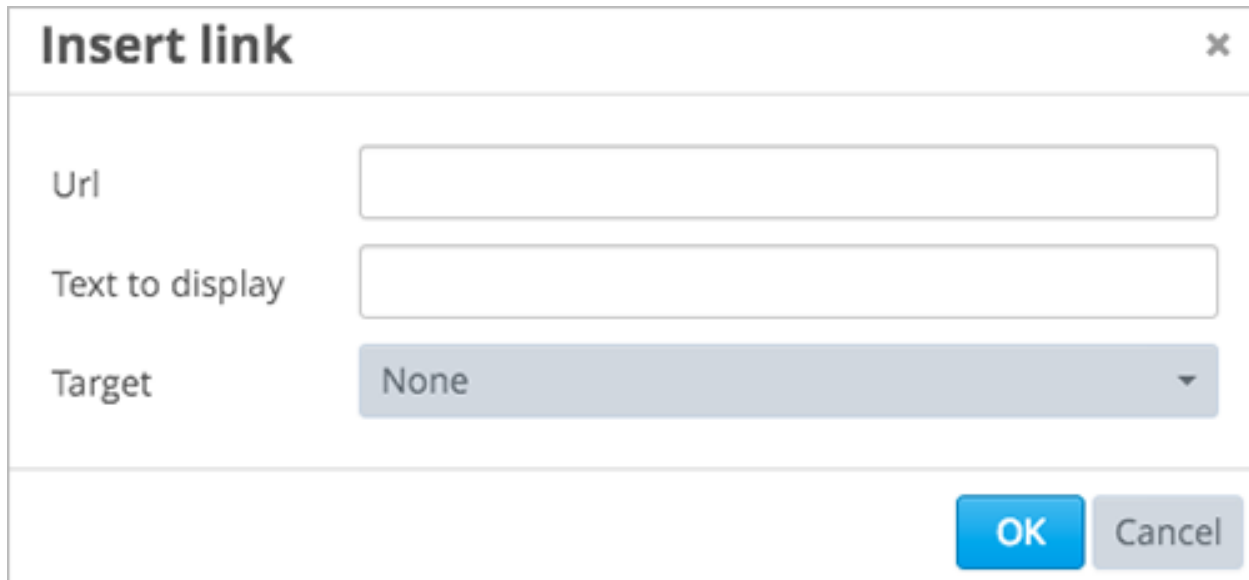
6. Select **Save**.

When using the visual editor, you can also perform the following tasks.

- *Add a Link in an HTML Component*
- *Add an Image to an HTML Component*
- *Import LaTeX Code into an HTML Component*

7.1.7 Add a Link in an HTML Component

When using the visual editor, to add a link to a website, course unit, or file in an HTML component, you work with the **Insert link** dialog box.



The 'Insert link' dialog box is shown with three input fields: 'Url', 'Text to display', and 'Target'. The 'Target' field is a dropdown menu currently set to 'None'. At the bottom right are 'OK' and 'Cancel' buttons.

Insert link	
Url	<input type="text"/>
Text to display	<input type="text"/>
Target	None ▼
<div>OK Cancel</div>	

For more information, see the following tasks.

- *Add a Link to a Website*
- *Add a Link to a Course Unit*
- *Add a Link to a File*

Add a Link to a Website

1. Select the text that you want to use as the link text.
2. Select the link icon in the toolbar.
3. In the **Insert link** dialog box, enter the URL of the website that is the destination for your link.



The 'Insert link' dialog box is shown with example data: 'http://edx.org' in the 'Url' field, 'edX Website' in the 'Text to display' field, and 'None' in the 'Target' dropdown menu. At the bottom right are 'OK' and 'Cancel' buttons.

Insert link	
Url	<input type="text" value="http://edx.org"/>
Text to display	<input type="text" value="edX Website"/>
Target	None ▼
<div>OK Cancel</div>	

4. If you want the link to open in a new window, select the dropdown arrow next to the **Target** field, and then select **New Window**. If not, you can leave the default value.
5. Select **OK**.

6. Save the HTML component.
7. To test the link, select **View Live Version** or **Preview**. When the unit opens in the LMS, select the linked text and verify that the correct website opens.

Add a Link to a Course Unit

Note: To link to another component, the unit of that destination component must be published for the link to work.

1. Obtain the unit identifier of the unit you want to link to. To do this, open the unit page in Studio, and copy the unit ID from the **Unit Identifier** field under **Unit Location** in the right pane.

The screenshot shows the Open edX Studio interface. On the left, a video player displays a woman writing on a whiteboard. The video title is "Best Practices for Recording Video". On the right, the "Unit Location" panel is visible. It contains the "LOCATION ID" field, which is circled in red and contains the value "a3940a924b314bc1aabb9ad93bcf85c5". Below the "LOCATION ID" field, there is a note: "Use this ID when you create links to this unit from other course content. You enter the ID in the URL field." The "Unit Location" panel also includes a "Publish" button and a "Discard Changes" button.

2. Open the HTML component where you want to add the link.
3. Select the text that you want to make into the link.
4. Select the link icon in the toolbar.
5. In the **Insert link** dialog box, enter the following in the **URL** field.

`/jump_to_id/<unit identifier>`

Make sure to replace `<unit identifier>` (including the brackets) with the unit identifier that you copied in step 1, and make sure to include both forward slashes (/).



The 'Insert link' dialog box contains three input fields: 'Url' with the value '/jump_to_id/f0e6d90842c44cc7a50fd1a18a7dd982', 'Text to display' with the value 'Unit 2', and 'Target' with the value 'None'. At the bottom right are 'OK' and 'Cancel' buttons.

Caution: Ensure you use `/jump_to_id/<unit identifier>` as the URL value. Do not use the URL of the unit that you see in the browser address bar. If you do not use `/jump_to_id/<unit identifier>`, the link will be broken if you export then import the course.


1. If you want the link to open in a new window, select the dropdown arrow next to the **Target** field, and then select **New Window**. If not, you can leave the default value.
2. Select **Insert**.
3. Save the HTML component and test the link.

Add a Link to a File

You can add a link in an HTML component to any file that is uploaded for the course. For more information about uploading files, see [Adding Files to a Course](#).

Tip: When adding links to files, open the HTML component and the **Files & Uploads** page in separate browser windows. You can then more quickly copy and paste file URLs.

1. On the **Files & Uploads** page, copy the **Studio** URL of the file.

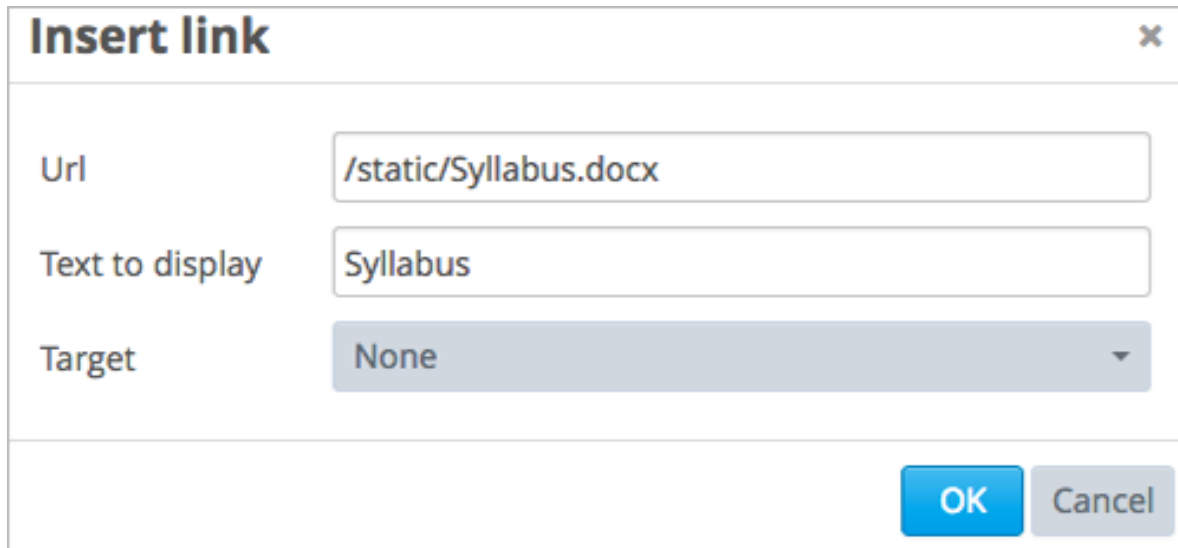
Preview	Name	Type	Date Added	URL
	201_courses.JPG	JPG	Feb 19, 2015 at 19:50 UTC	Studio: /static/201_courses.JPG Web: edge.edx.org/c4x/test_doc/SB101/

Note: You must use the **Studio** URL to link to the file, not the **Web** URL.

2. In the HTML component where you want to add the link, select the text that you want to make into the link.
3. Select the link icon in the toolbar.
4. In the **Insert link** dialog box, enter the Studio URL for the file in the **URL** field.

`/static/{FileName}.{type}`

Make sure to include both forward slashes (/).



5. If you want the link to open in a new window, select the dropdown arrow next to the **Target** field, and then select **New Window**. If not, you can leave the default value.
6. Select **Insert**.
7. Save the HTML component and test the link.

Add an Image to an HTML Component

When you use the visual editor, you can add any image that you have uploaded for the course to an HTML component. For more information about uploading images, see [Adding Files to a Course](#).

Review [Use Best Practices for Describing Images](#) before you add images to HTML components.

Note: Ensure that you obtain copyright permissions for images you use in your course, and that you cite sources appropriately.

To add an image, you need the URL of the image that you uploaded to the course. You then create a link to the image in the HTML component.

Tip: When adding images, open the HTML component and the **Files & Uploads** page in separate browser windows. You can then more quickly copy and paste image URLs.

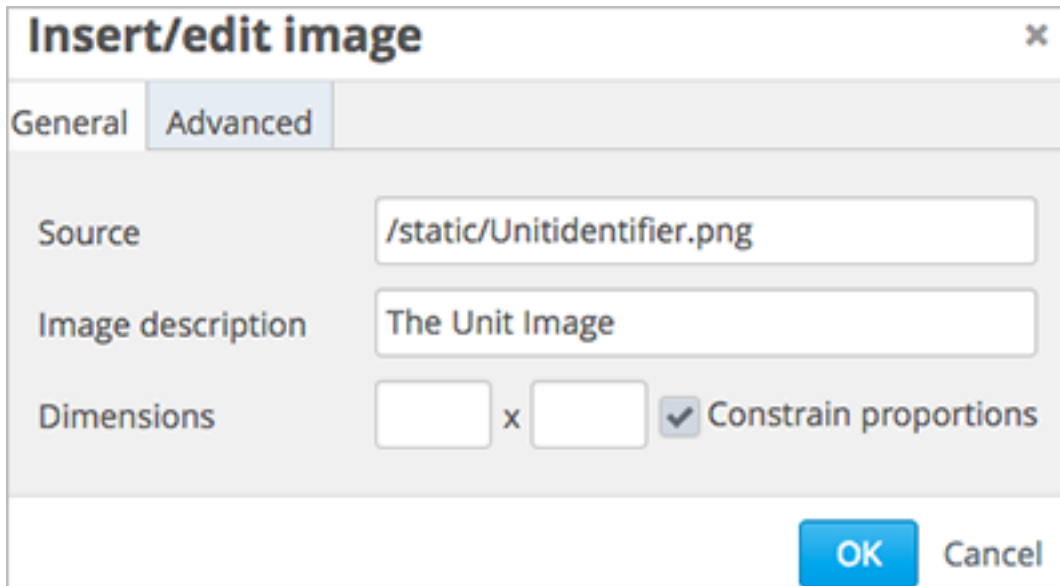
1. On the **Files & Uploads** page, copy the **Studio** URL of the image that you want. For an example illustration, see [Add a Link to a File](#).

Note: You must use the **Studio** URL to add the image, not the **Web** URL.

2. In the HTML component where you want to add the link, select the image icon in the toolbar.
3. In the **Insert image** dialog box, enter the Studio URL for the file in the **URL** field.

`/static/{FileName}.{type}`

Make sure to include both forward slashes (/).

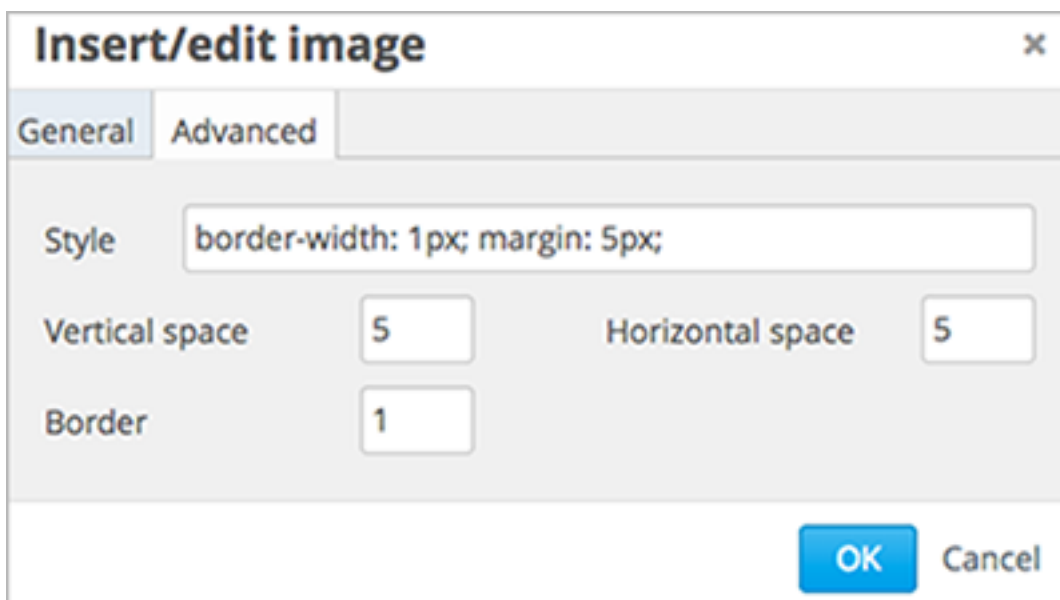


The dialog box is titled "Insert/edit image" with a close button (X) in the top right corner. It has two tabs: "General" and "Advanced". The "General" tab is selected. It contains three input fields: "Source" with the value "/static/Unitidentifier.png", "Image description" with the value "The Unit Image", and "Dimensions" with two empty input boxes separated by an "x". To the right of the dimensions is a checked checkbox labeled "Constrain proportions". At the bottom right are "OK" and "Cancel" buttons.

4. Enter alternative text in the **Image description** field. This text becomes the value of the `alt` attribute in HTML and is required for your course to be fully accessible. See [Use Best Practices for Describing Images](#) for more information.
5. As needed, customize the image dimensions. Keep **Constrain proportions** selected to ensure the image keeps the same width and height proportions.

With **Constrain proportions** selected, you only change one dimension. When you tab out of the field, the other dimension changes to a value that maintains the same image proportions.

6. To change the spacing and border of the image, select the **Advanced** tab.



The dialog box is titled "Insert/edit image" with a close button (X) in the top right corner. It has two tabs: "General" and "Advanced". The "Advanced" tab is selected. It contains a "Style" input field with the value "border-width: 1px; margin: 5px;". Below this are three input fields: "Vertical space" with the value "5", "Horizontal space" with the value "5", and "Border" with the value "1". At the bottom right are "OK" and "Cancel" buttons.

7. Enter the **Vertical space**, **Horizontal space**, and **Border** as needed. The values you enter are automatically added to the **Style** field.
8. Select **OK** to insert the image in the HTML component.
9. Save the HTML component and test the image.

Import LaTeX Code into an HTML Component

You can import LaTeX code into an HTML component. You might do this, for example, if you want to create “beautiful math” such as the following.

Example of E-text in LaTeX

You can write complex equations such as the following in LaTeX.

$$x = \frac{-b \pm \sqrt{b^2 - 4 * a * c}}{2a}$$

$$L' = L \sqrt{1 - \frac{v^2}{c^2}}$$

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \stackrel{\left[\frac{0}{0} \right]}{=} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2}$$

Warning: The LaTeX processor that Studio uses to convert LaTeX code to XML is a third- party tool. We recommend that you use this feature with caution. If you do use it, make sure to work with your partner manager.

Enable the LaTeX Processor

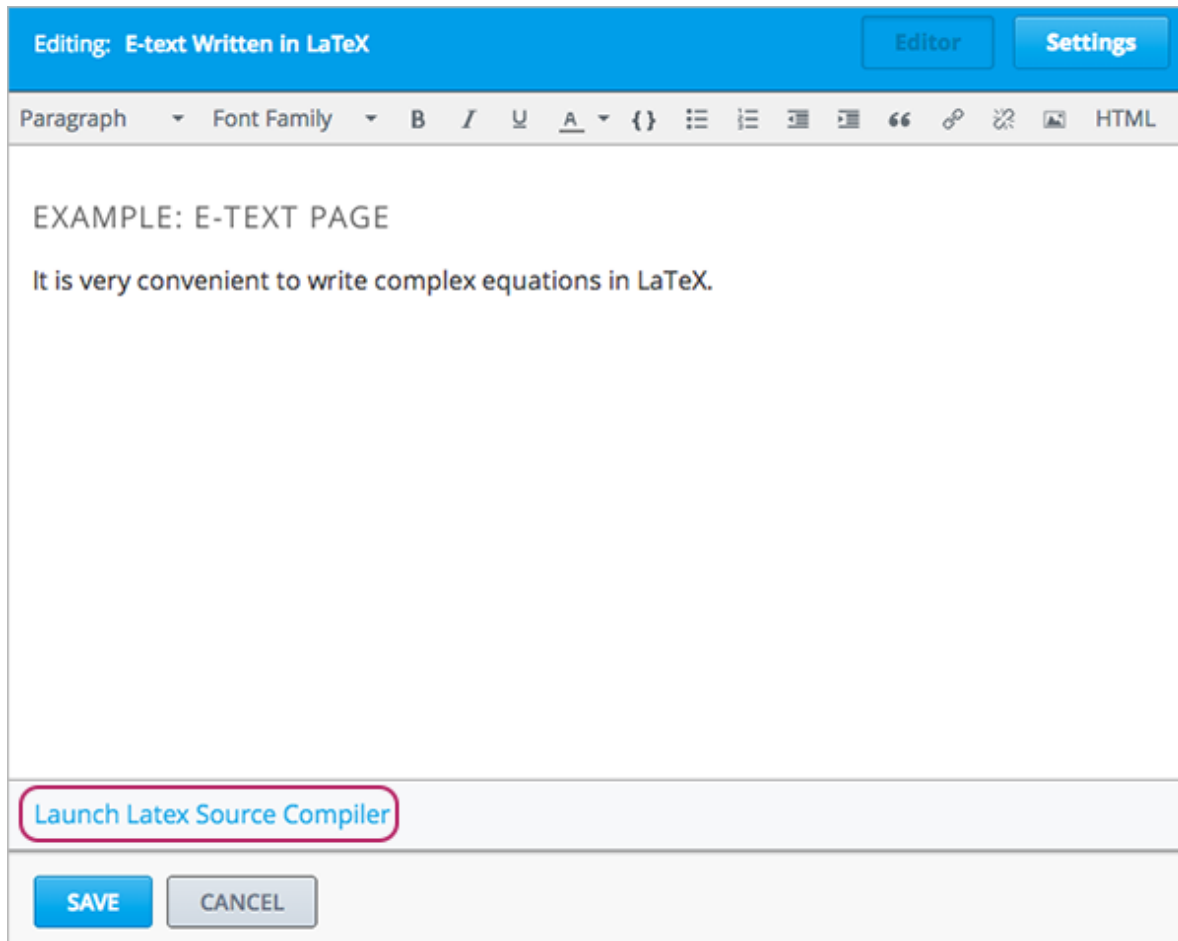
The LaTeX processor is not enabled by default. To enable it, you have to change the advanced settings in your course.

1. In Studio, select **Settings**, and then select **Advanced Settings**.
2. In the field for the **Enable LaTeX Compiler** policy key, change **false** to **true**.
3. At the bottom of the page, select **Save Changes**.

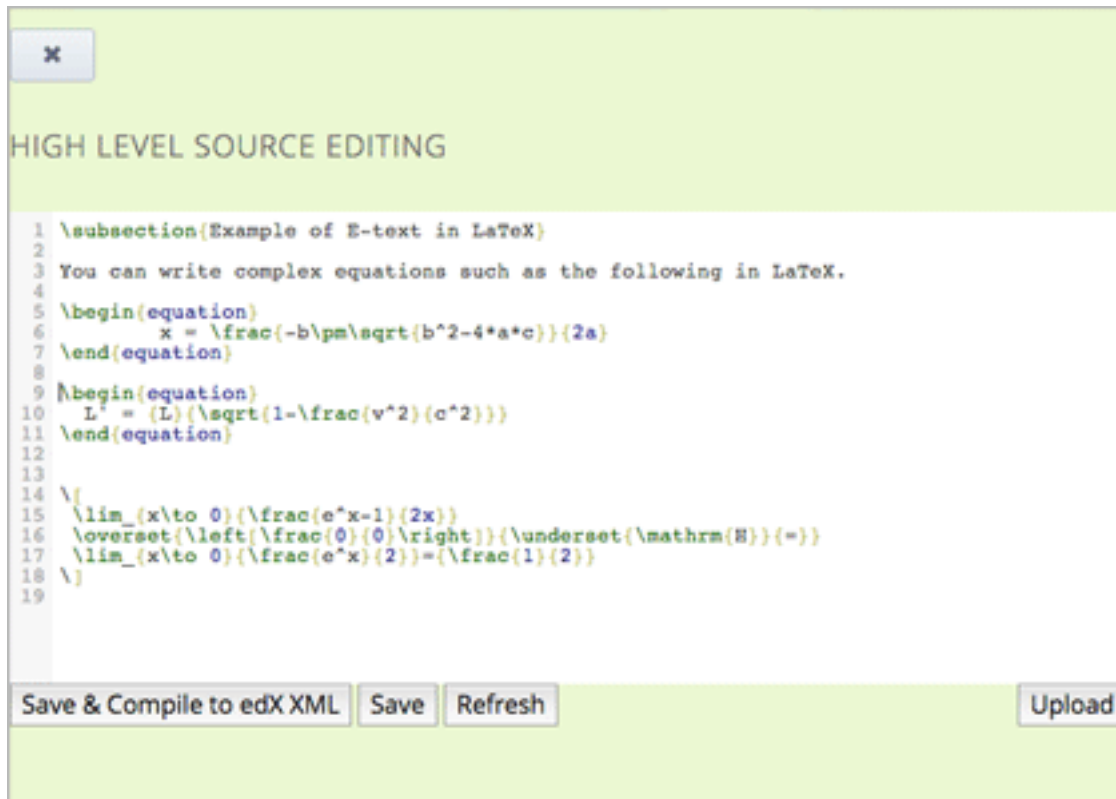
Add an HTML Component that Contains LaTeX Code

When the LaTeX processor is enabled, you can create an HTML component that contains LaTeX code.

1. In the unit where you want to create the component, select **html** under **Add New Component**, and then select **E-text Written in LaTeX**. The new component is added to the unit.
2. Select **Edit** to open the new component. The component editor opens.

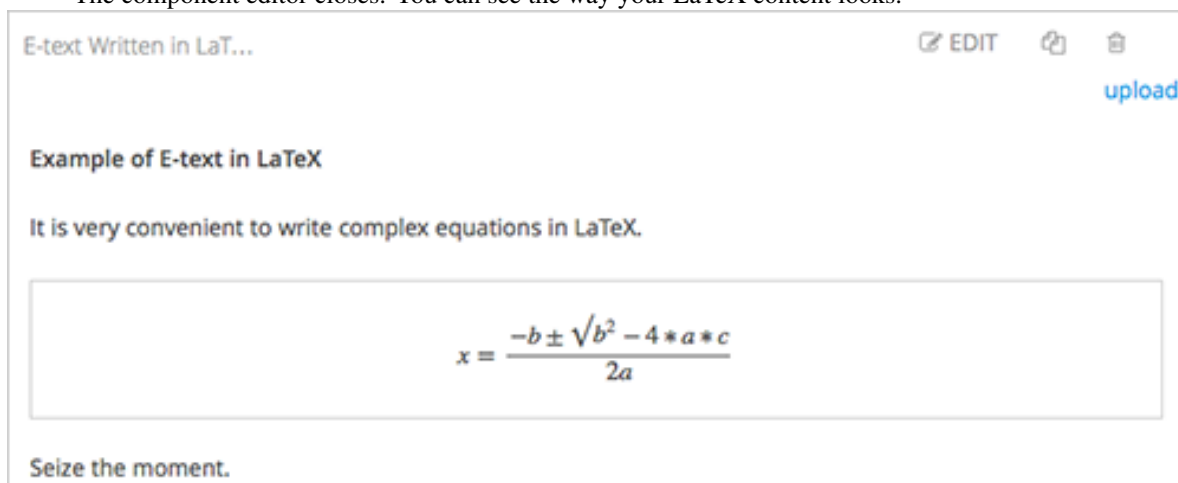


3. In the component editor, select **Launch Latex Source Compiler**. The LaTeX editor opens.



- Write LaTeX code as needed. You can also upload a LaTeX file into the editor from your computer by selecting **Upload** in the bottom right corner.
- When you have written or uploaded the LaTeX code you need, select **Save & Compile to edX XML** in the lower-left corner.

The component editor closes. You can see the way your LaTeX content looks.



- On the unit page, select **Preview** to verify that your content looks the way you want it to look in the LMS.

If you see errors, go back to the unit page. Select **Edit** to open the component again, and then select **Launch Latex Source Compiler** in the lower left corner of the component editor to edit the LaTeX code.

7.2 Working with Video Components

This section describes how to include videos as part of the content of your course.

- *Overview*
- *Step 1. Create the Video*
- *Step 2. Create or Obtain a Video Transcript*
- *Step 3. Post the Video Online*
- *Step 4. Create a Video Component*
- *Including Optional Collateral*

You can also include an “about” video for your course. A course about video appears on learner dashboards to market your course. For more information, see [Adding a Course About Video](#).

7.2.1 Overview

You can create videos and add them to a course to supplement active learning components, such as discussions and problems. Videos can be effective for a number of purposes, such as presenting motivating material, showing experiments, and reducing cognitive load for complex content.

For more information about how learners can interact with course videos, see [Watching Videos on the edX Video Player](#) in the *EdX Learner’s Guide* or [Watching Videos on the edX Video Player](#) in the *Open edX Learner’s Guide*.

When to Use a Video

Before creating video content, decide whether video is the best medium by asking the following questions.

- Should the content be conveyed through text?
- Through an interactive demonstration?
- By having learners work through a problem?

Video Length

Keep videos as short as possible.

Learners are more likely to finish watching a video if it is no more than 5-10 minutes long.

Video Accessibility

Be sure to review [Create Accessible Media](#) before you create videos for your course.

Allowing Learners to Download Videos

To help course teams protect video assets, the edX video player hides video URLs by default. This functionality is in effect for all video files, including YouTube videos and videos that are hosted in other locations.

You can allow learners to download videos by selecting the **Video Download Allowed** option for your video components.

For more information about posting videos to hosting sites other than YouTube, see [Step 3. Post the Video Online](#).

For more information about options that you can set when you create a video component, see [Setting Advanced Options](#) under [Step 4. Create a Video Component](#).

7.2.2 Step 1. Create the Video

Your videos can contain whatever content you want to include in the course. The [Creating Videos](#) section of [edX101 Overview of Creating an edX Course](#) has some helpful pointers for creating good video content.

When you create videos, follow Richard E. Mayer's [12 Principles of Multimedia Learning](#). The principles in this document are based on extensive experimental research of student learning.

Recommended Compression Specifications

EdX recommends the following video compression specifications. These specifications are recommended but not required.

Output	Publish to YouTube	Publish downloadable file to AWS S3
Codec	H.264 .mp4	H.264 .mp4
Resolution & Frame Rate (see note)	1920x1080, progressive, 29.97 fps	1280x720, progressive, 29.97 fps
Aspect	1.0	1.0
Bit Rate	VBR, 2 pass	VBR, 2 pass
Target VBR	5 mbps	1 mbps
Max VBR	7.5 mbps	1.5 mbps
Audio	AAC 44.1 / 192 kbps	AAC 44.1 / 192 kbps

Note: Typically you export at the same frame rate that was used when you created the media file. For example, if you create the file in a country that uses the PAL system, you export at 25 fps instead of the NTSC standard of 29.97 fps.

Supported Video Formats

The edX video player supports videos in .mp4, .mpeg, .webm, and .ogg format. However, to help make sure all standard browsers can play your video, edX strongly recommends that you use the **.mp4 format**.

7.2.3 Step 2. Create or Obtain a Video Transcript

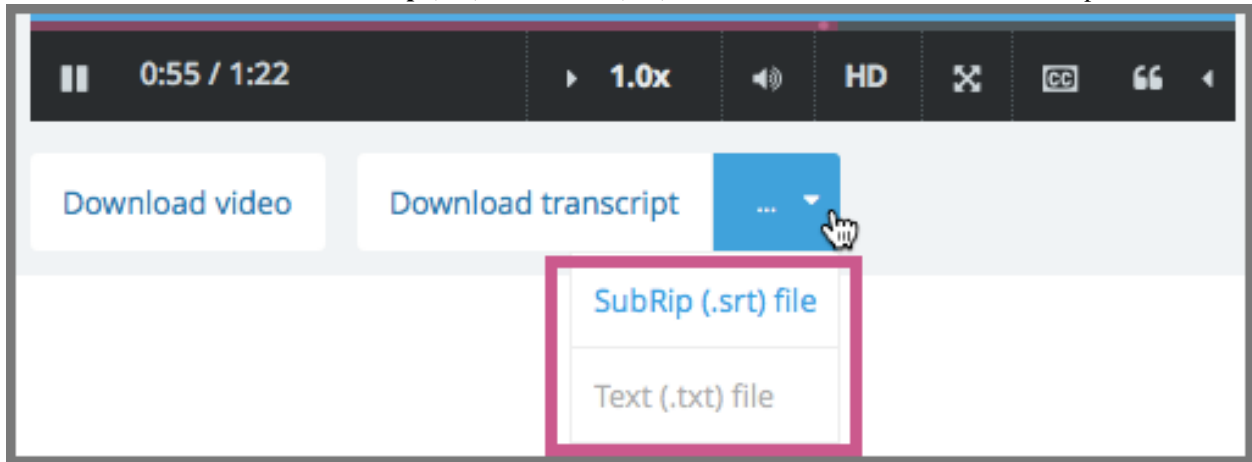
Transcripts are required for your videos. Transcripts help learners with hearing impairments understand audio content, and they are helpful for learners who speak other languages. You can allow learners to download transcripts so that they can read them offline. You associate a transcript with a video when you create the video component.

Timed transcripts in the SubRip Text (.srt) format are strongly recommended. Learners can select the **Show transcript** (") icon in the video player's control bar to show the transcript next to the video. The transcript automatically scrolls as the video plays, and learners can select a line in the transcript to jump to the point in the video where that word is spoken.

Learners can also choose to show the transcript file as overlaid closed captions for the video by selecting the **CC** icon in the video player's control bar.

To create or obtain a transcript in .srt format, you can work with a company that provides captioning services.

When you upload an .srt file, a .txt file is created automatically. You can allow learners to download these transcript files. If you allow your learners to download transcripts, the video player includes a **Download transcript** option. Learners can then select either **SubRip (.srt) file** or **Text (.txt) file** to download the .srt or .txt transcript.



Naming SubRip Text Files

To prevent errors when you upload your video transcripts, edX recommends the following conventions for naming your transcript files.

- Each transcript file should have a unique identifying name. The name should be unique not only across the transcript files for your videos, but across all of your course uploads.
- File names that include special characters, such as ç, å, or ó, cause the upload option to result in an error. Before you upload a transcript, change the file name to remove the special characters.
- Make sure that the file type, .srt, is in lower case.
- Other than to separate the identifying name from the .srt file type, file names should not include periods.

Providing Transcripts in Other Formats

You can provide transcripts in formats other than the .srt format, such as .pdf, and you can provide additional transcript files in different languages. For more information about these options, see [Add a Supplemental Downloadable Transcript](#).

Note: Historically, some courses used .sjson files for video transcripts. Use of .sjson files is no longer recommended; however, if transcripts in your course use this format, see [Upload an .sjson File \(Deprecated\)](#).

7.2.4 Step 3. Post the Video Online

All course videos should be posted to YouTube. By default, the edX video player accesses your YouTube videos.

Because YouTube is not available in all locations, however, edX recommends that you also post copies of your videos on a third-party hosting site such as [Amazon S3](#). When a learner views a video in your course, if YouTube is not available in that learner's location or if the YouTube video does not play, the video on the backup site starts playing automatically. You can also allow the learners to download the video from the backup site.

After you post your video online, make sure you have the URL for that copy of the video. If you post copies of your video in more than one place, make sure you have the URL for each video location.

YouTube

After you create your video, upload the video to [YouTube](#).

Other Sites

You can use any video backup site that you want. However, keep in mind that the site where you post the videos might need to handle high traffic volume.

Note: The URL for the video that you post on a third-party site must end in .mp4, .mpeg, .webm, or .ogg. (To help make sure all standard browsers can play your video, edX **strongly** recommends that you use .mp4 format.) EdX cannot support videos that you post on sites such as Vimeo.

If you (or your beta testers or learners) encounter an error when you view a course video, it might be the result of one of these browser-related problems.

- Verify that the viewer's browser is up to date. For example, some older versions of the Mozilla Firefox browser did not play .mp4 video files. These problems do not occur in more recent browser versions.

For more information, see [Media formats supported by the HTML audio and video elements](#).

- Verify that file metadata, particularly the MIME type, is correctly set on the host site. For example, when edX offered support for Internet Explorer 10 browsers, it was found that videos did not play if the MIME type was not set. The HTTP header `Content-Type` had to be set to `video/mp4` for an .mp4 file.

As an example of how you might set metadata on a video backup site, the *Console User Guide* for the Amazon Simple Storage Service provides this information about [editing object metadata](#).

7.2.5 Step 4. Create a Video Component

To add a video and its transcript to your course, follow these steps.

1. Under **Add New Component**, select **Video**.
2. When the new video component appears, select **Edit**. The video editor opens to the **Basic** page.

Editing: Video **BASIC** **ADVANCED**

Component Display Name
 The name students see. This name appears in the course ribbon and as a header for the video.

Default Video URL
 The URL for your video. This can be a YouTube URL or a link to an .mp4, .ogg, or .webm video file hosted elsewhere on the Internet.

[+ Add URLs for additional versions](#)

Default Timed Transcript **✓ Timed Transcript Found**
 EdX has a timed transcript for this video. If you want to edit this transcript, you can download, edit, and re-upload the existing transcript. If you want to replace this transcript, upload a new .srt

Save **Cancel**

You replace the default values with your own.

3. In the **Component Display Name** field, enter an identifying name for this video. This name appears as a heading above the video in the LMS, and it identifies the video for you in Insights.

The default display name for new video components is “Video”. Changing the default to a unique, descriptive display name can help you and your learners identify different videos quickly and accurately. If you delete this default and do not enter an identifying name, the platform supplies “video” for you.

4. In the **Default Video URL** field, enter the URL of the video. Example URLs follow.

```
http://youtu.be/OEoXaMPEzfM
http://www.youtube.com/watch?v=OEoXaMPEzfM
https://s3.amazonaws.com/edx-course-videos/edx-edx101/EDXSPCPJSP13-G030300.mp4
```

Note: To be sure that all learners can access a video, you can create multiple versions that use different encodings or hosting services. After you post different versions on the Internet, you add each URL below the default video URL. **These URLs cannot be YouTube URLs.** To add a URL for another version, select **Add URLs for additional versions**. The first listed video that is compatible with the learner’s computer plays.

5. Next to **Default Timed Transcript**, select an option.

- If edX already has a transcript for this video, Studio automatically finds the transcript and associates the transcript with the video. This situation can occur when you reuse a video from an existing course.

If you want to modify the transcript, select **Download Transcript for Editing**. You can then make your changes and upload the new file by selecting **Upload New Transcript**.

- If edX does not have a transcript for the video, but YouTube has a transcript, Studio automatically finds the YouTube transcript and asks if you want to import it. To use this YouTube transcript, select **Import YouTube Transcript**. (If you want to modify the YouTube transcript, import the YouTube transcript into Studio, and then select **Download Transcript for Editing**. You can then make your changes and upload the new file by selecting **Upload New Transcript**.)
- If both edX and YouTube have a transcript for your video, but the edX transcript is out of date, you receive a message asking if you want to replace the edX transcript with the YouTube transcript. To use the YouTube transcript, select **Yes, replace the edX transcript with the YouTube transcript**.
- If neither edX nor YouTube has a transcript for your video, and your transcript uses the .srt format, select **Upload New Transcript** to upload the transcript file from your computer.

Note:

- If you want to provide a transcript in a format such as .pdf, do not use this field to upload the transcript. For more information, see [Add a Supplemental Downloadable Transcript](#).
 - If your transcript uses the .sjson format, do not use this field. For more information, see [Upload an .sjson File \(Deprecated\)](#).
-

6. Optionally, select **Advanced** to set more options for the video. For a description of each option, see [Setting Advanced Options](#).

7. Select **Save**.

Setting Advanced Options

The following options appear on the **Advanced** page of the video component.

Component Display Name	The name that you want your learners to see. This is the same as the Display Name field on the Basic tab.
Default Timed Transcript	The name of the transcript file that was specified in the Default Timed Transcript field on the Basic page. You do not have to change this setting.
Download Transcript Allowed	Specifies whether you want to allow learners to download the timed transcript. If you select True , a link to download the file appears below the video. By default, Studio creates a .txt transcript when you upload an .srt transcript. Learners can download the .srt or .txt versions of the transcript when you set Download Transcript Allowed to True . If you want to provide the transcript for download in a different format as well, such as .pdf, upload a file to Studio by using the Upload Handout field.
Downloadable Transcript URL	The URL for a non-.srt version of the transcript file posted on the Files & Uploads page or on the Internet. Learners see a link to download the non-.srt transcript below the video. When you add a transcript to this field, only the transcript that you add is available for download. The .srt and .txt transcripts become unavailable. If you want to provide a downloadable transcript in a format other than .srt, edX recommends that you upload a handout for learners by using the Upload Handout field. For more information, see Add a Supplemental Downloadable Transcript .
EdX Video ID	An optional field used only by course teams that are working with edX to process and host video files.
License	Optionally, you can set the license for the video, if you want to release the video with a license different from the overall course license. <ul style="list-style-type: none"> • Select All Rights Reserved to indicate to learners that you own the copyright for the video. • Select Creative Commons to grant others the right to share and use the video. You must then select the Creative Commons license options to apply. The license options that you select control the copyright notice that learners see for the video. For more information, see Licensing a Course .
Show Transcript	Specifies whether the transcript appears next to the video by default.
Transcript Languages	The transcript files for any additional languages. For more information, see Add a Transcript in Another Language .
Upload Handout	Allows you to upload a handout to accompany this video. Your handout can be in any format. Learners can download the handout by selecting Download Handout under the video. For more information, see Add a Supplemental Downloadable Transcript .
Video Available on Web Only	If you select True , learners are only allowed to play this video in a Web browser. If you select False , learners can use any compatible application to play the video, including Web browsers and mobile apps.
Video Download Allowed	Specifies whether learners can download versions of this video in different formats if they cannot use the edX video player or do not have access to YouTube. If you select True , you must add at least one non-YouTube

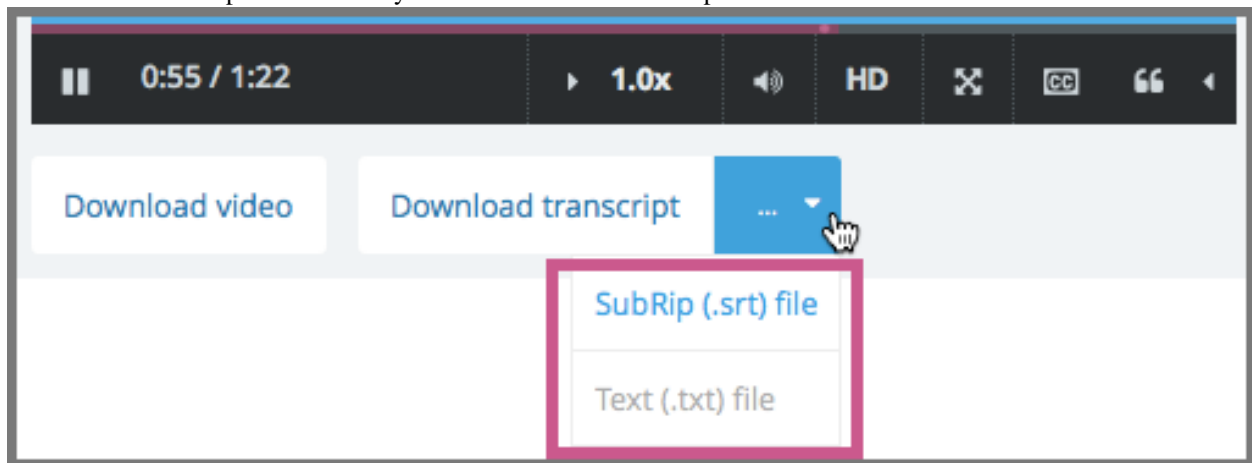
7.2.6 Including Optional Collateral

After you add a video component to your course, you can provide optional collateral to accompany the video.

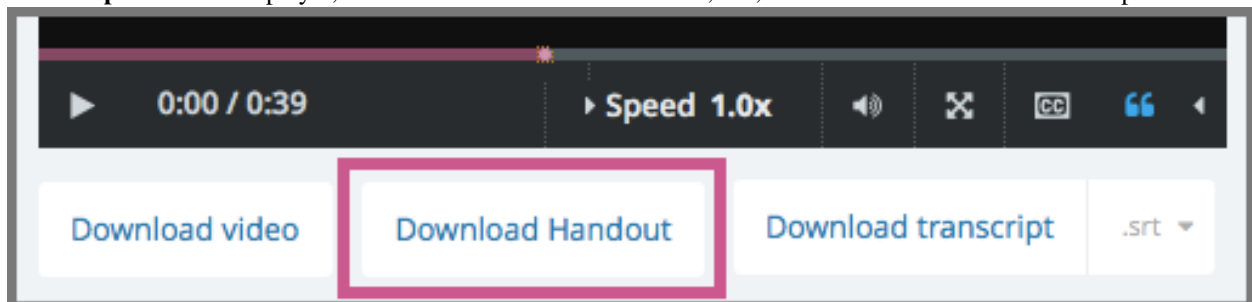
- *Add a Supplemental Downloadable Transcript*
- *Add a Transcript in Another Language*
- *Upload an .sjson File (Deprecated)*

Add a Supplemental Downloadable Transcript

By default, a .txt file is created when you upload an .srt file, and learners can download either the .srt or .txt transcript when you set **Download Transcript Allowed to True**. **Download Transcript** appears below the video, and learners see the .srt and .txt options when they move the cursor over that option.



To provide a downloadable transcript in a format such as .pdf along with the .srt and .txt transcripts, you use the **Upload Handout** advanced setting. When you do this, **Download Handout** appears to the right of the **Download Transcript** in the video player, and learners can download the .srt, .txt, or handout version of the transcript.



To add a downloadable transcript, follow these steps.

1. Create or obtain your transcript as a .pdf or in another format.
2. In the video component, select **Advanced**.
3. Locate **Upload Handout**, and then select **Upload**.
4. In the **Upload File** dialog box, select **Choose File**.
5. In the dialog box, select the file on your computer, and then select **Open**.
6. In the **Upload File** dialog box, select **Upload**.

Add a Transcript in Another Language

You can provide transcripts for your video in more than one language. To do this, you work with a third-party service to obtain an .srt transcript file for each language, and then associate the .srt file with the video in Studio.

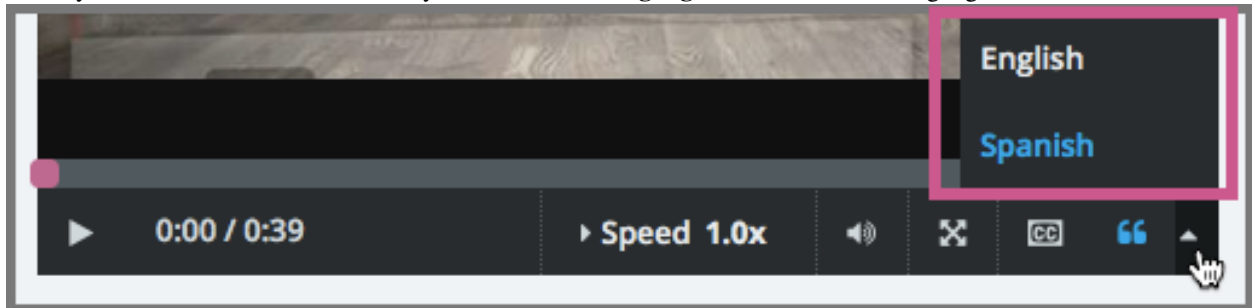
Before you add a transcript file, make sure that each file has a unique name. If you use the same transcript name more than once, only the most recently added transcript will appear for every video component that is set up to use a transcript with that name. To avoid this problem, a best practice is to name additional transcript files by appending the transcript's language to the video file name.

For example, you have two videos, named video1.mp4 and video2.mp4, and their original transcripts are named video1.srt and video2.srt. When you add Spanish transcripts for these videos, you name them video1_ES.srt and video2_ES.srt. Later, when you add Russian transcripts for the videos, you name them video1_RU.srt and video2_RU.srt.

To add a transcript to a video component, follow these steps.

1. After you obtain the .srt files for additional languages, open the video component for the video.
2. On the **Advanced** tab, scroll down to **Transcript Languages**, and then select **Add**.
3. Select the language for the transcript that you want to add.
4. Select **Upload**, browse to the .srt file for the transcript in that language, and then select **Open**.
5. In the **Upload translation** dialog box, select **Upload**.
6. Repeat steps 2 - 5 for any additional languages.

When your learners view the video, they can select the **Language menu** to select a language.



Upload an .sjson File (Deprecated)

If your course uses .sjson files, you upload the .sjson file for the video to the **Files & Uploads** page, and then specify the name of the .sjson file in the video component.

Note: Only older courses that have used .sjson files in the past should use .sjson files. All new courses should use .srt files.

1. Obtain the .sjson file from a media company such as 3Play.
2. Change the name of the .sjson file to use the following format.

```
subs_{video filename}.srt.sjson
```

For example, if the name of your video is **Lecture1a**, the name of your .sjson file must be **subs_Lecture1a.srt.sjson**.

3. Upload the .sjson file for your video to the **Files & Uploads** page.

4. Edit or create the video component.
5. Select **Advanced**.
6. In the **Default Timed Transcript** field, enter the file name of your video. Do not include *subs_* or *.sjson*. For the example in step 2, you would only enter **Lecture1a**.
7. Set the other options that you want.
8. Select **Save**.

7.3 Working with Discussion Components

This section describes how to work with discussion components in Studio.

- *Overview*
- *Create a Discussion Component*
- *A Learner's View of the Discussion*

7.3.1 Overview

You can add discussion components to a unit to pose questions about other components, such as videos or text, in the unit. A discussion component gives learners a chance to respond to and interact with each other about a specific subject.

Discussion topics that you create by adding discussion components in your course are known as content-specific discussion topics.

For more information about discussions, see these topics.

- *Managing Course Discussions*
- *Guidance for Discussion Moderators*
- *Setting up Discussions in Courses with Cohorts*

7.3.2 Create a Discussion Component

Note: EdX recommends that you add an HTML component before each discussion component to introduce the topic that you want learners to discuss. The discussion component itself does not contain any text and can be easy for learners to overlook.

1. Under **Add New Component**, select **Discussion**.

Warning: You should always use these steps to create a discussion component. Do not create discussion components by using the **Duplicate** button in Studio. Duplicated discussion components result in discussion topics containing the same conversations, even if users post in different discussions.

2. In the discussion component that appears, select **Edit**.



3. Follow the guidelines in the editor to fill in the **Category**, the **Display Name**, and the **Subcategory** fields.

Editing: Discussion

Category

A category name for the discussion. This name appears in the left pane of the discussion forum for the course.

Display Name

Display name for this module

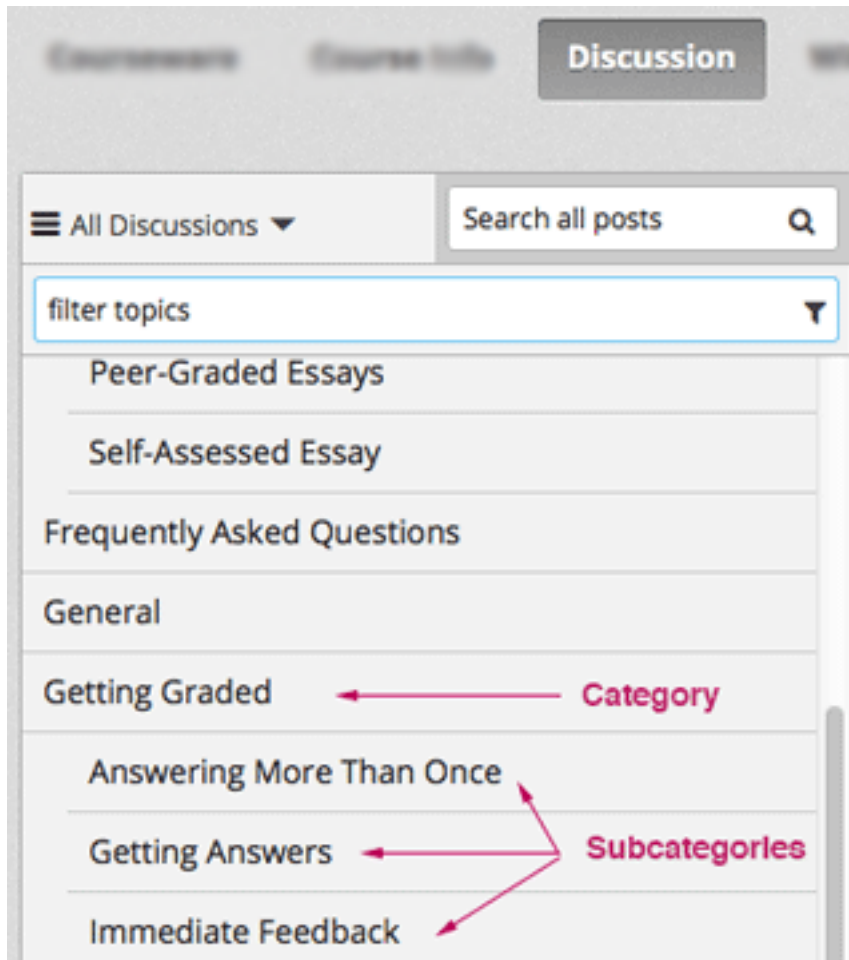
Subcategory

A subcategory name for the discussion. This name appears in the left pane of the discussion forum for the course.

The value in the **Display Name** field identifies the discussion in the course content. The default display name for new discussion components is “Discussion”. Changing the default to a unique, descriptive display name can help you and your learners identify different topics quickly and accurately. If you delete the default display name and do not enter your own identifying name, the platform supplies “discussion” for you.

The values in the **Category** and **Subcategory** fields are visible to learners in the list of discussion topics on the **Discussion** page.

Note: Each **Category/Subcategory** pair for the discussion topics in your course must be unique.



4. Select **Save**.

Note: On the **Discussion** page, you cannot see category and subcategory names of discussion components that you created until after the course has started and the unit is released. For more details about when discussion topics are visible, see [Visibility of Discussion Topics](#).

7.3.3 A Learner's View of the Discussion

When you add a content-specific discussion topic to a unit, learners see only the **Show Discussion** and **New Post** options. EdX recommends that you add an HTML component before each discussion component to introduce the topic that you want learners to discuss.

In the following example, the discussion component follows video and HTML components.


WELCOME TO EDX101! (1:43)



Download video [here](#).

DISCUSSION QUESTION: WELCOME TO EDX101!

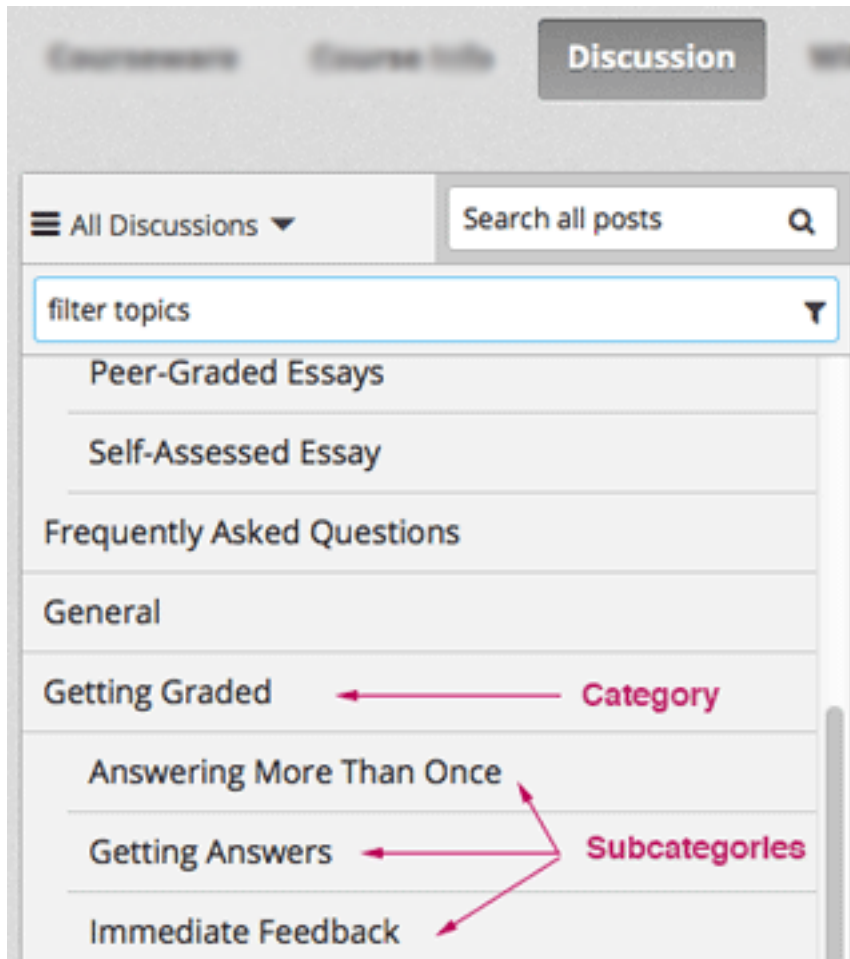
Anant Agarwal mentions several ways to present content in an online medium. In the discussion space below, mention one of these and share your thoughts about how to effectively incorporate it in an online course.

 Show Discussion

 New Post

Learners must select **Show Discussion** to expand the discussion space and read the contributions, or select **New Post** to post their own contributions.

On the **Discussion** page, learners can find the category and subcategory of the discussion in the discussion thread list.



7.4 Working with Problem Components

This section covers the basics of problem components: what they look like to you and your learners, and the options that every problem component has.

- *Overview*
- *Graded Problems*
- *The Learner View of a Problem*
- *The Studio View of a Problem*
- *Problem Settings*
- *Modifying a Released Problem*
- *Multiple Problems in One Component*
- *Adding Feedback and Hints to a Problem*
- *Awarding Partial Credit for a Problem*
- *Problem Randomization*

For more information about individual problem types, see *Exercises and Tools*.

7.4.1 Overview

The problem component allows you to add interactive, automatically graded exercises to your course content. You can create many different types of problems in Studio.

7.4.2 Graded Problems

All problems receive a point score, but, by default, problems do not count toward a learner's grade.

To have problems to count toward the grade, change the assignment type of the subsection that contains the problems. For more information, see [Set the Assignment Type and Due Date for a Subsection](#).

7.4.3 The Learner View of a Problem

All problems on the edX platform have several component parts.

1. **Problem text.** The problem text can contain any standard HTML formatting.
2. **Response field.** Learners enter answers in response fields. The appearance of the response field depends on the type of the problem.
3. **Rendered answer.** For some problem types, the LMS uses MathJax to render plain text as “beautiful math.”
4. **Check.** The learner selects **Check** to submit a response or find out if his answer is correct. If the answer is correct, a green check mark appears. If it is incorrect, a red X appears. When a learner selects **Check**, the LMS saves the grade and current state of the problem.
5. **Save.** The learner can select **Save** to save his current response without submitting it for a grade. This allows the learner to stop working on a problem and come back to it later.
6. **Show Answer.** This button is optional. When the learner selects **Show Answer**, the learner sees both the correct answer (see 2 above) and the explanation (see 10 below). You define whether the **Show Answer** button is visible.
7. **Attempts.** You can set a specific number of attempts or allow unlimited attempts for a problem. By default, the course-wide **Maximum Attempts** advanced setting is null, meaning that the maximum number of attempts for problems is unlimited. If the course-wide **Maximum Attempts** setting is changed to a specific number, the **Maximum Attempts** setting for individual problems defaults to that number, and cannot be set to unlimited.

H1P7: MERCURY ATOMS

How many atoms are in 15.3 cm^3 of mercury (at room temperature)?

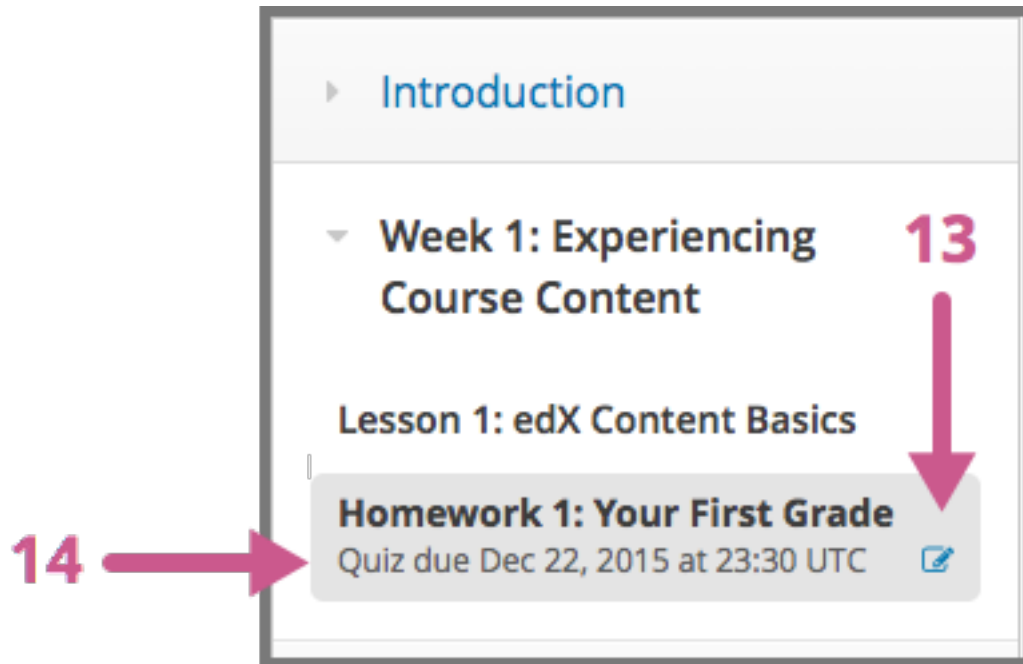
☒ Answer: 6.22E23

SOLUTION:

molar volume of Hg = $14.82 \text{ cm}^3 / \text{mol}$
 moles per unit volume = $(1 / 14.82) \text{ mol} / \text{cm}^3$
 # of Hg atoms in 15.3 cm^3 = $(15.3 \text{ cm}^3)((1 / 14.82) \text{ mol} / \text{cm}^3)(6.02 \times 10^{23})$
 = $6.22 \times 10^{23} \text{ atoms}$

You have used 1 of 5 submissions

8. **Feedback.** After a learner selects **Check**, all problems return a green check mark or a red X.
9. **Correct answer.** Most problems require that you specify a single correct answer.
10. **Explanation.** You can include an explanation that appears when a learner selects **Show Answer**.
11. **Reset.** Learners can select **Reset** to clear any input that has not yet been submitted, and try again to answer the question.
 - If the learner has already submitted an answer, selecting **Reset** clears the submission and, if the problem includes a Python script to randomize variables and the randomization setting is **On Reset**, changes the values the learner sees in the problem.
 - If the number of **Maximum Attempts** that was set for this problem has been reached, **Reset** is not visible.
12. **Hide Answer.**



13. **Grading.** You can specify whether a group of problems is graded. If a group of problems is graded, an icon of a pen and a piece of paper appears or that assignment in the course navigation pane.
14. **Due date.** The date that the problem is due. A problem that is past due does not offer a **Check** option. It also does not accept answers or provide feedback.

Note: Problems can be **open** or **closed**. Closed problems do not have a **Check** option. Learners can still see questions, solutions, and revealed explanations, but they cannot check their work, submit responses, or change an earlier score.

There are also some attributes of problems that are not immediately visible. You can set these attributes in Studio.

- **Accessible Label.** In the problem text, you can identify the text that is, specifically, the question that learners need to answer. The text that is labeled as the question is used by screen readers, reports, and Insights. For more information, see [The Simple Editor](#).
- **Randomization.** In certain types of problems, you can include a Python script to randomize the values that are presented to learners. You use this setting to define when values are randomized. For more information, see [Randomization](#).
- **Weight.** Different problems in a particular problem set can be given different weights.

7.4.4 The Studio View of a Problem

All problems are written in XML. However, Studio offers two interfaces for editing problem components: the simple editor and the advanced editor.

- The simple editor allows you to edit problems visually, without having to work with XML.
- The advanced editor converts the problem to edX's XML standard and allows you to edit that XML directly.

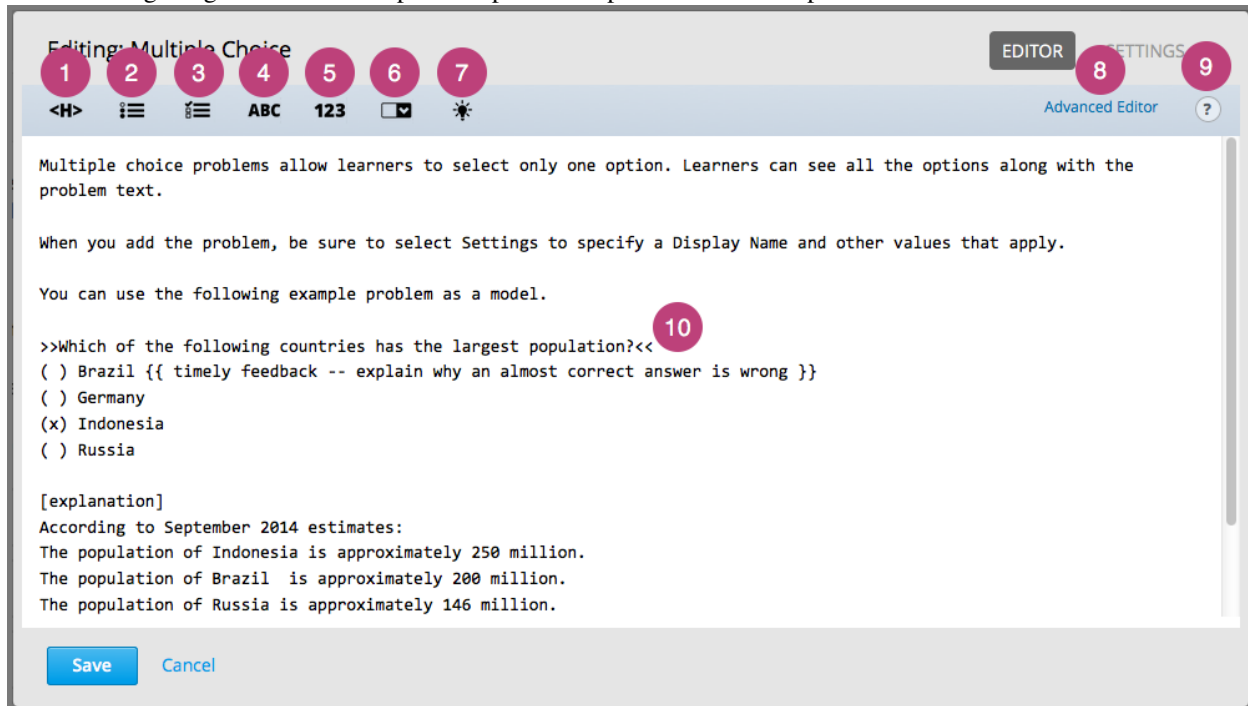
You can switch at any time from the simple editor to the advanced editor by selecting **Advanced Editor** from the simple editor's toolbar. However, after you save a problem in the advanced editor, you cannot open it again in the simple editor.

The Simple Editor

When you select the following problem types, the simple editor opens with a preformatted example problem.

- *Checkbox Problem*: In checkbox problems, learners select one or more options from a list of possible answers.
- *Dropdown Problem*: In dropdown problems, learners select one answer from a dropdown list.
- *Multiple Choice Problem*: Multiple choice problems require learners to select one answer from a list of choices that appear below the problem text.
- *Numerical Input Problem*: Numerical input problems require answers that include only integers, fractions, and a few common constants and operators.
- *Text Input Problem*: In text input problems, learners enter a short text answer.

The following image shows an example multiple choice problem in the simple editor.



The simple editor includes a toolbar with options that provide the required formatting for different types of problems. When you select an option from the toolbar, formatted sample text appears in the simple editor. Alternatively, you can apply formatting to your own text by selecting the text and then one of the toolbar options.

Descriptions of the toolbar options follow.

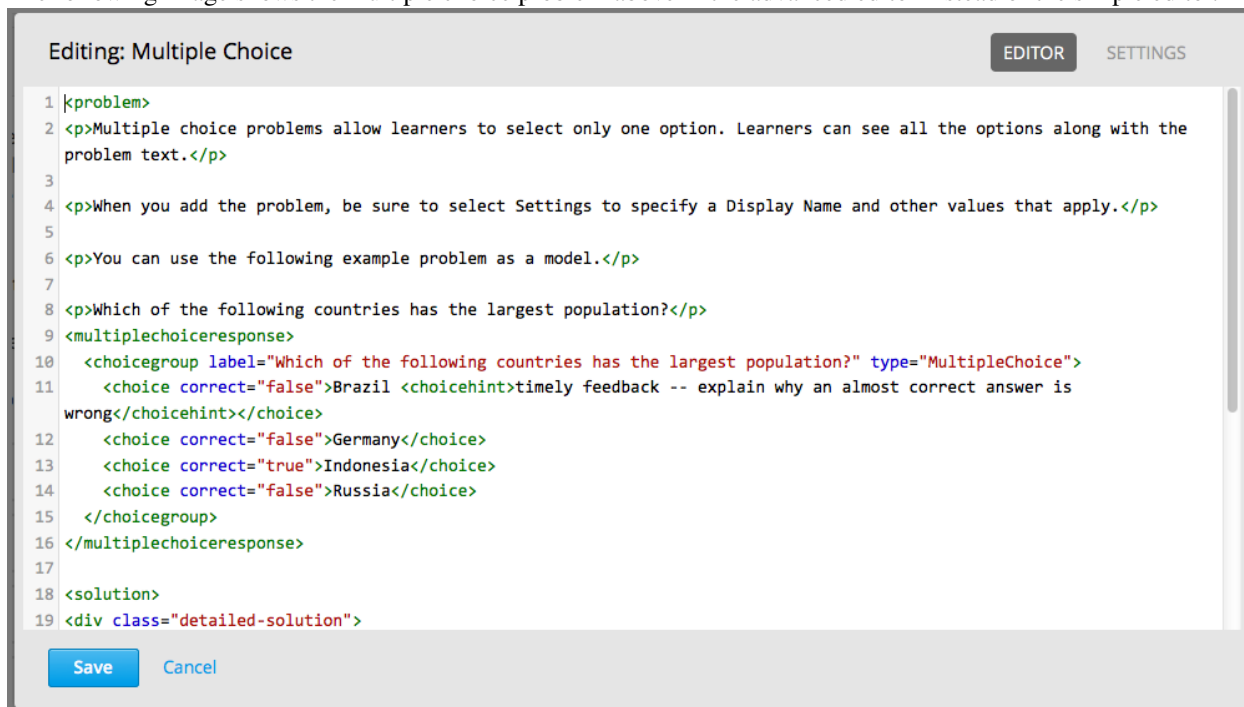
1. **Heading**: Formats text as a title or heading.
2. **Multiple Choice**: Identifies text as an answer option for a multiple choice problem.
3. **Checkboxes**: Identifies text as an answer option for a checkboxes problem.
4. **Text Input**: Identifies text as the correct answer for a text input problem.
5. **Numerical Input**: Identifies the correct answer, with an optional tolerance, for a numerical input problem.
6. **Dropdown**: Identifies a comma-separated list as correct and incorrect answer options for a dropdown problem.
7. **Explanation**: Formats text as an explanation that appears after learners select **Show Answer**.
8. Opens the problem in the advanced editor.

9. Opens a list of formatting hints.
10. **Accessible Label:** Identifies the part of the problem text that is the specific question that learners will answer by selecting the options that follow, or by entering a text or numeric response. The toolbar does not have an option that provides this formatting, so you type two angle brackets on either side of the question text pointing inward. For example, `>>Is this the question text?<<`.
 - Screen readers read all of the text that you supply for the problem, and then repeat the text that you identify with this formatting immediately before reading the answer choices for the problem.
 - The *Student Answer Distribution* report uses the text with this formatting to identify each problem.
 - Insights also uses the text with this formatting to identify each problem. For more information, see [Using edX Insights](#).

The Advanced Editor

The advanced editor opens a problem in XML. Templates for problems such as drag and drop and math expression input open directly in the advanced editor.

The following image shows the multiple choice problem above in the advanced editor instead of the simple editor.



The following problem templates open in the advanced editor.

- *Circuit Schematic Builder Problem* In circuit schematic problems, learners create and modify circuits on an interactive grid and submit computer-generated analyses of the circuits for grading.
- *Custom JavaScript Problem* With custom JavaScript problems, you can create a custom problem or tool that uses JavaScript and add it directly into Studio.
- *Drag and Drop Problem (Deprecated)* Drag and drop problems require learners to drag text or objects to a specific location on an image.
- *Image Mapped Input Problem* Image mapped input problems require learners to select a specific location on an image.

- *Math Expression Input Problems* Math expression input problems require learners to enter a mathematical expression as text, such as $e=m*c^2$.
- *Problem with Adaptive Hint* These problems can give learners feedback or hints based on their responses. Problems with adaptive hints can be text input or multiple choice problems.
- *Problem Written in LaTeX* This problem type allows you to convert problems that you previously wrote in LaTeX into the edX format. Note that this problem type is a prototype, and is not supported.
- *Write-Your-Own-Grader Problem* Custom Python-evaluated input (also called “write-your-own-grader” problems evaluate learners’ responses using an embedded Python script that you create. These problems can be of any type.

7.4.5 Problem Settings

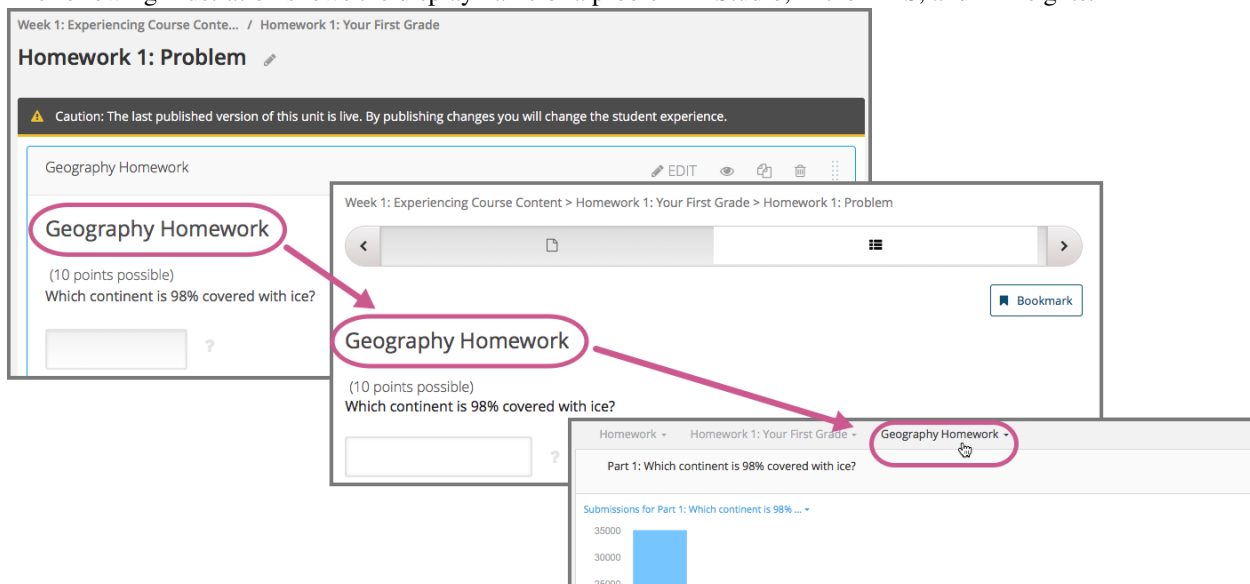
In addition to the text of the problem, problems that you create using a problem component have the following settings. To access these settings you select **Settings** in the component editor.

- *Display Name*
- *Maximum Attempts*
- *Problem Weight*
- *Randomization*
- *Show Answer*
- *Show Reset Button*
- *Timer Between Attempts*

Display Name

This setting indicates the name of your problem. This name appears as a heading above the problem in the LMS, and it identifies the problem for you in Insights.

The following illustration shows the display name of a problem in Studio, in the LMS, and in Insights.



Each problem type supplies a default display name that identifies the type of problem component added. Changing the default to a unique, descriptive display name can help you and your learners identify different problems quickly and

accurately. If you delete the default display name and do not enter your own identifying name, the platform supplies “problem” for you.

For more information about metrics for your course’s problem components, see [Using edX Insights](#).

Maximum Attempts

This setting specifies the number of times that a learner is allowed to attempt answering a problem. By default, the course-wide **Maximum Attempts** advanced setting is null, meaning that the maximum number of attempts for problems is unlimited. If the course-wide **Maximum Attempts** setting is changed to a specific number, the **Maximum Attempts** setting for individual problems defaults to that number, and cannot be set to unlimited.

Note: edX recommends setting **Maximum Attempts** to either unlimited or a very large number. Unlimited attempts allow for mastery learning and encourages risk taking and experimentation, both of which lead to improved learning outcomes. Allowing for unlimited attempts might be impossible in some courses, such as those where grading is primarily based on multiple choice problems.

Note: Only problems that have a **Maximum Attempts** setting of 1 or higher are included in the answer distribution computations used in edX Insights and the Student Answer Distribution report.

Problem Weight

Note: The LMS stores scores for all problems, but scores only count toward a learner’s final grade if they are in a subsection that is graded.

This setting specifies the total number of points possible for the problem. The problem weight appears next to the problem’s display name.

DROPDOWN PROBLEM (3 points possible)

This exercise first appeared in HarvardX's PH207x Health in Numbers: Quantitative Methods in Clinical & Public Health Research course, fall 2012.

What type of data are the following?

Age:

?

Age, rounded to the nearest year:

?

Life stage - infant, child, and adult:

?

By default, each response field, or “answer space”, in a problem component is worth one point. Any problem component can have multiple response fields. For example, the problem component above contains one dropdown problem that has three separate questions, and also has three response fields.

You can increase or decrease the weight for a problem component by entering a **Problem Weight**.

Computing Scores

The score that a learner earns for a problem is the result of the following formula.

$$\text{Score} = \text{Weight} \times (\text{Correct answers} / \text{Response fields})$$

- **Score** is the point score that the learner receives.
- **Weight** is the problem’s maximum possible point score.
- **Correct answers** is the number of response fields that contain correct answers.
- **Response fields** is the total number of response fields in the problem.

Examples

The following are some examples of computing scores.

Example 1

A problem’s **Weight** setting is left blank. The problem has two response fields. Because the problem has two response fields, the maximum score is 2.0 points.

If one response field contains a correct answer and the other response field contains an incorrect answer, the learner’s score is 1.0 out of 2 points.

Example 2

A problem's weight is set to 12. The problem has three response fields.

If a learner's response includes two correct answers and one incorrect answer, the learner's score is 8.0 out of 12 points.

Example 3

A problem's weight is set to 2. The problem has four response fields.

If a learner's response contains one correct answer and three incorrect answers, the learner's score is 0.5 out of 2 points.

Randomization

Note: The **Randomization** setting serves a different purpose from “problem randomization”. The **Randomization** setting affects how numeric values are randomized within a single problem and requires the inclusion of a Python script. Problem randomization offers different problems or problem versions to different learners. For more information, see [Problem Randomization](#).

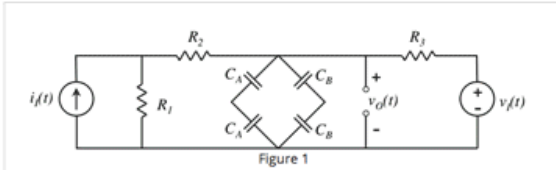
For problems that include a Python script to generate numbers randomly, this setting specifies how frequently the values in the problem change: each time a different learner accesses the problem, each time a single learner tries to answer the problem, both, or never.

Note: This setting should only be set to an option other than **Never** for problems that are configured to do random number generation.

For example, in this problem, the highlighted values change each time a learner submits an answer to the problem.

Q1 (6 points possible)

The step response of a circuit is its response to a step input, $u(t)$. Knowing the step response of a linear circuit is extremely valuable as we can figure out the circuit's stability. In this problem we will analyze the circuit in Figure 1 for the output voltage, $v_O(t)$ given an initial condition. Then you will find the output response of two input steps—a current input, $i_I(t)$, and a voltage step, $v_I(t)$.



The element values are as follows: $R_1 = 2\text{k}\Omega$, $R_2 = 2\text{k}\Omega$, $R_3 = 6\text{k}\Omega$, $C_A = 1\mu\text{F}$, and $C_B = 0.5\mu\text{F}$.

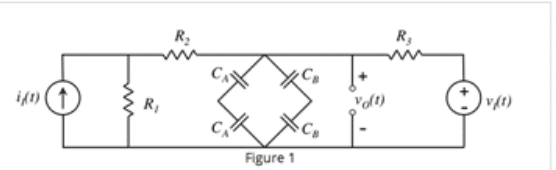
To begin we note that the capacitor bridge composed of four capacitors can be replaced with one capacitor, C_{TOT} . What is the value of C_{TOT} (in μF)?

First we consider the circuit in Figure 1 when $i_I(t) = 0\text{A}$, $v_I(t) = 0\text{V}$, and $v_O(0) = 2\text{V}$. What is the time constant, τ (in ms) of the output voltage?

What is the output voltage $v_O(t)$ at time $t = 0.25\text{ms}$?

Q1 (6 points possible)

The step response of a circuit is its response to a step input, $u(t)$. Knowing the step response of a linear circuit is extremely valuable as we can figure out the circuit's stability. In this problem we will analyze the circuit in Figure 1 for the output voltage, $v_O(t)$ given an initial condition. Then you will find the output response of two input steps—a current input, $i_I(t)$, and a voltage step, $v_I(t)$.



The element values are as follows: $R_1 = 1\text{k}\Omega$, $R_2 = 1\text{k}\Omega$, $R_3 = 2\text{k}\Omega$, $C_A = 0.5\mu\text{F}$, and $C_B = 1.5\mu\text{F}$.

To begin we note that the capacitor bridge composed of four capacitors can be replaced with one capacitor, C_{TOT} . What is the value of C_{TOT} (in μF)?

First we consider the circuit in Figure 1 when $i_I(t) = 0\text{A}$, $v_I(t) = 0\text{V}$, and $v_O(0) = 1\text{V}$. What is the time constant, τ (in ms) of the output voltage?

What is the output voltage $v_O(t)$ at time $t = 0.3\text{ms}$?

If you want to randomize numeric values in a problem, you complete both of these steps.

- Make sure that you edit your problem to include a Python script that randomly generates numbers.
- Select an option other than **Never** for the **Randomization** setting.

The edX Platform has a 20-seed maximum for randomization. This means that learners see up to 20 different problem variants for every problem that has **Randomization** set to an option other than **Never**. It also means that every answer for the 20 different variants is reported by the Answer Distribution report and edX Insights. Limiting the number of variants to a maximum of 20 allows for better analysis of learner submissions by allowing you to detect common incorrect answers and usage patterns for such answers.

For more information, see [Student Answer Distribution](#) in this guide, or [Review Answers to Graded Problems](#) or [Review Answers to Ungraded Problems](#) in *Using edX Insights*.

Important: Whenever you choose an option other than **Never** for a problem, the computations for the Answer Distribution report and edX Insights include up to 20 variants for the problem, even if the problem was not actually configured to include randomly generated values. This can make data collected for problems that cannot include randomly generated values, (including, but not limited to, all multiple choice, checkboxes, dropdown, and text input problems), extremely difficult to interpret.

You can choose the following options for the **Randomization** setting.

Option	Description
Always	Learners see a different version of the problem each time they select Check.
On Reset	Learners see a different version of the problem each time they select Reset.
Never	All learners see the same version of the problem. For most courses, this option is supplied by default. Select this option for every problem in your course that does not include a Python script to generate random numbers.
Per Student	Individual learners see the same version of the problem each time they look at it, but that version is different from the version that other learners see.

Show Answer

This setting defines when learners are shown the answers to a problem and has the following options

Always	Always show the answer when the learner selects the Show Answer button.
Answered	Show the answer after the learner tries to answer the problem. If the problem can be, and is, reset, the answer is not shown until the learner tries the problem again. (When a learner answers a problem, the problem is considered to be both attempted and answered. When the problem is reset, the problem is still attempted, but not yet answered.)
Attempted	Show the answer after the learner tries to answer the problem. If the problem can be, and is, reset, the answer continues to show. (When a learner answers a problem, the problem is considered to be both attempted and answered. When the problem is reset, the problem is still attempted, but not yet answered.)
Closed	Show the answer after the learner has used up all his attempts to answer the problem or the due date has passed.
Finished	Show the answer after the learner has answered the problem correctly, the learner has no attempts remaining, or the problem due date has passed.
Correct or Past Due	Show the answer after the learner has answered the problem correctly or the problem due date has passed.
Past Due	Show the answer after the due date for the problem has passed.
Never	Never show the answer. In this case, a Show Answer button does not appear next to the problem in Studio or in the LMS.

Show Reset Button

This setting defines whether a **Reset** button is visible on the problem.

Learners can select **Reset** to clear any input that has not yet been submitted, and try again to answer the problem.

If the learner has already submitted an answer, selecting **Reset** clears the submission and, if the problem contains randomized variables and randomization is set to **On Reset**, changes the values in the problem.

If the number of Maximum Attempts that was set for this problem has been reached, the **Reset** button is not visible.

This problem-level setting overrides the course-level **Show Reset Button for Problems** setting.

Timer Between Attempts

This setting specifies the number of seconds that a learner must wait between submissions for a problem that allows multiple attempts. If the value is 0, the learner can attempt the problem again immediately after an incorrect attempt.

Adding required wait time between attempts can help to prevent learners from simply guessing when multiple attempts are allowed.

If a learner attempts a problem again before the required time has elapsed, she sees a message below the problem indicating the remaining wait time. The format of the message is, “You must wait at least {n} seconds between submissions. {n} seconds remaining.”

7.4.6 Modifying a Released Problem

Warning: Be careful when you modify problems after they have been released. Changes that you make to published problems can affect the learner experience in the course and analysis of course data.

After a learner submits a response to a problem, the LMS stores that response, the score that the learner received, and the maximum score for the problem. For problems with a **Maximum Attempts** setting greater than one, the LMS updates these values each time the learner submits a new response to a problem. However, if you change a problem or its attributes, existing learner information for that problem is not automatically updated.

For example, you release a problem and specify that its answer is 3. After some learner have submitted responses, you notice that the answer should be 2 instead of 3. When you update the problem with the correct answer, the LMS does not update scores for learners who originally answered 2 for the problem and received the wrong score.

For another example, you change the number of response fields to three. Learners who submitted answers before the change have a score of 0, 1, or 2 out of 2.0 for that problem. Learners who submitted answers after the change have scores of 0, 1, 2, or 3 out of 3.0 for the same problem.

If you change the weight setting for the problem in Studio, however, existing scores update when the learner's **Progress** page is refreshed. In a live section, learners will see the effect of these changes.

Workarounds

If you have to modify a released problem in a way that affects grading, you have two options to ensure that every learner has the opportunity to submit a new response and be regraded. Note that both options require you to ask your learners to go back and resubmit answers to a problem.

- In the problem component that you changed, increase the number of attempts for the problem, then ask all your learners to redo the problem.
- Delete the entire problem component in Studio and create a new Problem component with the content and settings that you want, then ask all your learners to complete the new problem. (If the revisions you must make are minor, duplicate the problem component before you delete it and revise the copy.)

For information about how to review and adjust learner grades in the LMS, see [Learner Grades and Grading](#).

7.4.7 Multiple Problems in One Component

You might want to create a problem that has more than one response type. For example, you might want to create a numerical input problem and then include a multiple choice problem about that numerical input problem. Or, you might want a learner to be able to check the answers to many problems at one time. To do this, you can include multiple problems inside a single problem component. The problems can be different types.

Note: You cannot use a [Custom JavaScript Problem](#) in a component that contains more than one problem. Each custom JavaScript problem must be in its own component.

To create multiple problems in one component, create a new Blank Advanced problem component, and then add the XML for each problem in the component editor. You only need to include the XML for the problem and its answers. You do not have to include the code for other elements, such as the **Check** button.

Elements such as the **Check**, **Show Answer**, and **Reset** buttons, as well as the settings that you select for the problem component, apply to all of the problems in that component. Thus, if you set the maximum number of attempts to 3, the learner has three attempts to answer the entire set of problems in the component as a whole rather than three attempts

to answer each problem individually. If a learner selects **Check**, the LMS scores all of the problems in the component at once. If a learner selects **Show Answer**, the answers for all the problems in the component appear.

7.4.8 Adding Feedback and Hints to a Problem

You can add feedback, hints, or both to the following problem types.

- *Checkbox Problem*
- *Dropdown Problem*
- *Multiple Choice Problem*
- *Numerical Input Problem*
- *Text Input Problem*

By using hints and feedback, you can provide learners with guidance and help as they work on problems.

Feedback in Response to Attempted Answers

You can add feedback that is displayed to learners when they submit an answer.

For example, the following multiple choice problem provides feedback in response to the selected option when the learner selects **Check**. In this case, feedback is given for an incorrect answer.

MULTIPLE CHOICE WITH HINTS AND FEEDBACK (1 point possible)

You can provide feedback for each option in a multiple choice problem.

You can also add hints for learners.

Be sure to select Settings to specify a Display Name and other values that apply.

Use the following example problem as a model.

Which of the following is a vegetable?

- ☐ apple
- ☒ pumpkin **✗**
- ☐ potato
- ☐ tomato

Incorrect: A pumpkin is the fertilized ovary of a squash plant and contains seeds, meaning it is a fruit.

Check

Hint

Best Practices for Providing Feedback

The immediacy of the feedback available to learners is a key advantage of online instruction and difficult to do in a traditional classroom environment.

You can target feedback for common incorrect answers to the misconceptions that are common for the level of the learner (for example, elementary, middle, high school, college).

In addition, you can create feedback that provides some guidance to the learner about how to arrive at the correct answer. This is especially important in text input and numeric input problems, because without such guidance, learners might not be able to proceed.

You should also include feedback for the correct answer to reinforce why the answer is correct. Especially in questions where learners are able to guess, such as multiple choice and dropdown problems, the feedback should provide a reason why the selection is correct.

General Hints to a Problem

You can add one or more hints that are displayed to learners. When you add hints, the **Hint** button is automatically displayed to learners. Learners can access the hints by selecting **Hint** beneath the problem. A learner can view multiple hints by selecting **Hint** multiple times.

For example, in the following multiple choice problem, the learner selects **Hint** before attempting the answer.

MULTIPLE CHOICE WITH HINTS AND FEEDBACK

☐ Which of the following is an example of a vegetable?

- ☐ apple
- ☐ pumpkin
- ☐ potato
- ☐ tomato

Hint (1 of 2): A fruit is the fertilized ovary from a flower.

The hint indicates that it is the first of two hints. The learner selects **Hint** a second time.

MULTIPLE CHOICE WITH HINTS AND FEEDBACK

● Which of the following is an example of a vegetable?

- ☐ apple
- ☐ pumpkin
- ☐ potato
- ☐ tomato

Hint (2 of 2): A fruit contains seeds of the plant.

Best Practices for Providing Hints

To ensure that your hints can assist learners with varying backgrounds and levels of understanding, you should provide multiple hints with different levels of detail.

For example, the first hint can orient the learner to the problem and help those struggling to better understand what is being asked.

The second hint can then take the learner further towards the answer.

In problems that are not graded, the third and final hint can explain the solution for learners who are still confused.

Create Problems with Feedback and Hints

You create problems with feedback and hints in Studio. Templates with feedback and hints configured are available to make creating your own problems easier.

While editing a unit, in the **Add New Component** panel, select **Problem**. In the list that opens, select the **Common Problem Types** tab. Templates for problems with feedback and hints are listed.

Common Problem Types	Advanced
Blank Common Problem	
Checkboxes	
Dropdown	
Multiple Choice	
Numerical Input	
Text Input	
Checkboxes with Hints and Feedback	
Dropdown with Hints and Feedback	
Multiple Choice with Hints and Feedback	
Numerical Input with Hints and Feedback	
Text Input with Hints and Feedback	
<input type="button" value="Cancel"/>	

Add the problem type you need to the unit, then edit the component. The exact syntax you use to configure hints and feedback depends on the problem type. See the topic for the problem type for more information.

- *Checkbox Problem*
- *Dropdown Problem*
- *Multiple Choice Problem*
- *Numerical Input Problem*
- *Text Input Problem*

7.4.9 Awarding Partial Credit for a Problem

You can configure the following problem types so that learners can receive partial credit for a problem if they submit an answer that is partly correct.

- *Checkbox*
- *Multiple Choice*
- *Numerical Input*
- *Write-Your-Own Grader*

By awarding partial credit for problems, you can motivate learners who have mastered some of the course content and provide a score that accurately demonstrates their progress.

For more information about configuring partial credit, see the topic for each problem type.

How Learners Receive Partial Credit

Learners receive partial credit when they submit an answer in the LMS.

In the following example, the course team configured a multiple choice problem to award 25% of the possible points (instead of 0 points) for one of the incorrect answer options. The learner selected this incorrect option, and received 25% of the possible points.

MULTIPLE CHOICE (1.25/5 points)

You can use the following example problem as a model.

Which of the following countries has the largest population?

☒ Brazil ✖

☐ Germany

☐ Indonesia

☐ Russia

CHECK

SHOW ANSWER

Partial Credit and Reporting on Learner Performance

When a learner receives partial credit for a problem, the LMS only adds the points that the learner earned to the grade. However, the LMS reports any problem for which a learner receives credit, in full or in part, as correct in the following ways.

- Events that the system generates when learners receive partial credit for a problem indicate that the answer was correct. Specifically, the `correctness` field has a value of `correct`.

For more information about events, see [Problem Interaction Events](#) in the *EdX Research Guide*.

- The **AnswerValue** in the *Student Answer Distribution* report is **1**, for correct.
- The edX Insights [insights:student performance reports](#) count the answer as correct.

Course teams can see that a learner received partial credit for a problem in the learner’s submission history. The submission history shows the score that the learner received out of the total available score, and the value in the correctness field is `partially-correct`. For more information, see [Learner Answer Submissions](#).

7.4.10 Problem Randomization

Presenting different learners with different problems or with different versions of the same problem is referred to as “problem randomization”.

You can provide different learners with different problems by using randomized content blocks, which randomly draw problems from pools of problems stored in content libraries. For more information, see [Randomized Content Blocks](#).

Note: Problem randomization is different from the **Randomization** setting in Studio. Problem randomization offers different problems or problem versions to different learners, whereas the **Randomization** setting controls when a Python script randomizes the variables within a single problem. For more information about the **Randomization** setting, see [Randomization](#).

Course Outline Terminology in Exported Files

Sections, subsections, units, and components have different names in the **Course Outline** view and in the list of files that you will see after you export your course and open the .xml files for editing. The following table lists the names of these elements in the **Course Outline** view and in a list of files.

Course Outline View	File List
Section	Chapter
Subsection	Sequential
Unit	Vertical
Component	Discussion, HTML, problem, or video

For example, when you want to find a specific section in your course, look in the **Chapter** directory when you open the list of files that your course contains. To find a unit, look in the **Vertical** directory.

Create Randomized Problems

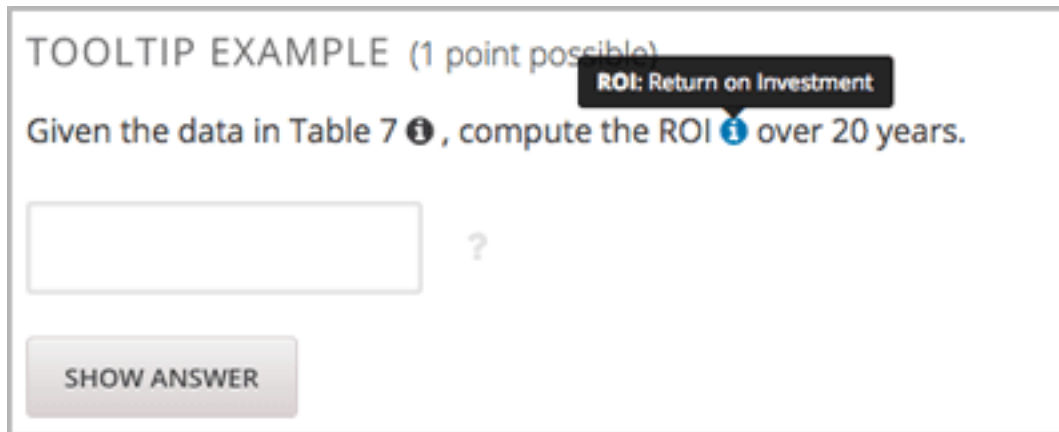
Note: Creating randomized problems by exporting your course and editing some of your course’s XML files is no longer supported.

You can provide different learners with different problems by using randomized content blocks, which randomly draw problems from pools of problems stored in content libraries. For more information, see [Randomized Content Blocks](#).

Adding Tooltips to a Problem

To help learners understand terminology or other aspects of a problem, you can add inline tooltips. Tooltips show text to learners when they move their cursors over a tooltip icon.

The following example problem includes two tooltips. The tooltip that provides a definition for “ROI” is being shown.



Note: For learners using a screen reader, the tooltip expands to make its associated text accessible when the screen reader focuses on the tooltip icon.

To add the tooltip, you wrap the text that you want to appear as the tooltip in the `clarification` element. For example, the following problem contains two tooltips.

```
<problem>
  <text>
    <p>Given the data in Table 7 <clarification>Table 7: "Example PV
      Installation Costs", Page 171 of Roberts textbook</clarification>,
      compute the ROI <clarification><strong>ROI</strong>: Return on
      Investment</clarification> over 20 years.
    </p>
    . . .
```

7.5 Working with Content Libraries

This section describes how to work with content libraries in Studio.

- *Content Libraries Overview*
- *Create a New Library*
- *Edit a Library*
- *Add Components to a Library*
- *View the Contents of a Library*
- *Edit Components in a Library*
- *Delete a Library*
- *Give Other Users Access to Your Library*
- *Exporting and Importing a Library*

7.5.1 Content Libraries Overview

In Studio, you can create a library to build a pool of components for use in randomized assignments in your courses. You can add HTML components, problems, and video components to a library. Peer assessment and discussion components are not supported in libraries.

Note: Content libraries are available only for courses that have course identifiers in this format: `{key type}:{org}+{course}+{run}`. For example, `course-v1:edX+DemoX+Demo_2015`. Your course identifier appears in the browser address bar as the final part of the URL when you open your course in Studio. For more details, see [Create a Course](#).

After creating a library and adding components to it, if you have [enabled content libraries](#) in your course, you can use these library components in randomized assignments in your course. You do this by adding a randomized content block to a course unit and specifying the name of the library from which the randomized content is to drawn. You also specify the number and type of problems that each learner is assigned. For information about randomized content blocks, see [Randomized Content Blocks](#).

Libraries have separate users and levels of access from courses. Initially, only the person who created the library has access. She can add other users to the library. For details, see [Give Other Users Access to Your Library](#). The libraries that you create or have access to are listed on the **Libraries** tab on the Studio Home page.

7.5.2 Create a New Library

Use [content libraries](#) to build a pool of components that can be used in randomized assignments in your courses.

To create a new library, follow these steps.

1. Log in to Studio.
2. Select **New Library**.
3. Enter the required information for your new library, then select **Create**.

Note: Enter new library information carefully. The values in these fields become part of the URL for your library, therefore the total number of characters in the **Library Name**, **Organization**, and **Library Code** fields must be 65 or fewer.

Create a New Library

Library Name *

The public display name for your library.

Organization *

The public organization name for your library. This cannot be changed.

Library Code *

The unique code that identifies this library. Note: This is part of your library URL, so no spaces or special characters are allowed. This cannot be changed.

- For **Library Name**, enter the public display name for your library. Choose a meaningful name that will help you and other course team members to identify the library. For example, “Level 200 Math Problems”. When you add a randomized content block to a course unit, you use the library name to specify this library as a source for the randomized assignment.
- For **Organization**, enter the identifier for your university. For example, enter HarvardX or MITx. Do not include spaces or special characters.

- For **Library Code**, enter an identifier for your library that is unique within your organization. This code becomes part of the URL for your library, so do not include spaces or special characters in the code.

4. Select **Create**.

You see the new library, to which you can now add components. For information about adding components to a library, see [Add Components to a Library](#).

After you create a library, you are automatically assigned an **Admin** role for the library. For information about adding other users to a library after you create it, see [Give Other Users Access to Your Library](#).

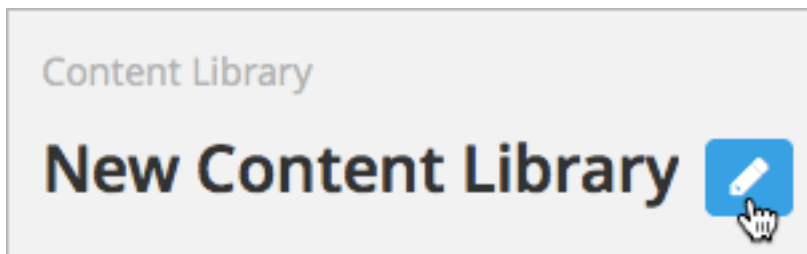
7.5.3 Edit a Library

After you create a library, the only change you can make to the initial library information is to the name. However, at any time, you can make changes to the components in your library, including adding or deleting components or editing the settings of components. For details about editing the contents of a library, see [Edit Components in a Library](#) and [Add Components to a Library](#).

To change the name of a library, follow these steps.

1. Log in to Studio.
2. Select **Libraries**, then select the library whose name you want to edit.
3. Select the **Edit** icon next to the library name.

The library name field becomes editable.



4. In the library name field, make edits or enter a new library name.
5. Select anywhere outside the library name field to save your changes.

For details about giving other users access to the library, see [Give Other Users Access to Your Library](#).

7.5.4 Add Components to a Library

To add new *components* to your library, follow these steps.

1. Log in to Studio.
2. Select **Libraries**, then select the library that you want to add components to.
3. Select **Add Component**, then select the component type that you want to add under **Add New Component**.

For more information about the types of components you can add to a library, see these topics.

- [Working with HTML Components](#)
- [Working with Problem Components](#)
- [Working with Video Components](#)

After you add a component to a library, you can edit its settings. These settings are retained when the component is selected from the library and used in a course.

When a component from the library is used in a randomized content block, you can further edit the component as it exists in the unit, without affecting the original version in the library. For details, refer to [Edit Components in a Library](#) and [Getting the Latest Version of Library Content](#).

7.5.5 View the Contents of a Library

To view the entire contents of a library in Studio, follow these steps.

1. Log in to Studio.
2. Select **Libraries**, then select the library whose components you want to view.
3. Optionally, select **Hide Previews** at the top right of the library page to collapse the component previews and see only the list of component display names. To return to the full preview of components in the library, select **Show Previews**.

The components in the library are shown in the order in which they were added, with the most recently added at the bottom. If your library has more than 10 components, additional components are shown on other pages.

The range of the components shown on the current page, and the total number of components, are shown at the top of the page.

You can navigate through the pages in the following ways.

- Use the < and > buttons at the top and bottom of the list to navigate to the previous and next pages.
- At the bottom of the page, you can edit the first number in the page range. Select the number to place your cursor in the field, then enter the page number you want to jump to.



To view the list of matching components in the library, see [View the Matching Components in a Randomized Content Block](#).

To view the randomized content that was assigned to a specific learner, see [Specific Student View](#).

7.5.6 Edit Components in a Library

After you have added components to a library, you can edit, duplicate, or delete them.

For step-by-step instructions for editing, duplicating, or deleting components, refer to the following topics.

- [Edit a Component](#)
- [Duplicate a Component](#)
- [Delete a Component](#)

Note: If you modify components in your library that are in use in a course, these updates in the “source” library are not reflected in the course unless you manually update the randomized content block in the course unit. For details about updating library components used in your course to match the latest version in the library, see [Getting the Latest Version of Library Content](#).

7.5.7 Delete a Library

You cannot delete a library. Instead, you can discontinue use of an unwanted library. To do so, first make sure that none of its components are in use in any courses, then delete all components in the library. You can also *edit the name of the library* to make it clear to other course team members that the library should not be used as a source of randomized assignment content in courses.

For details about deleting components in a library, see *Edit Components in a Library*.

7.5.8 Give Other Users Access to Your Library

When you create a library, you are automatically assigned an Admin role in that library.

You can give other Studio users access to your library. Depending on the level of access that you give them in the library, additional library users can view and use library content in courses, edit library content, or add and manage other library users. All users to whom you give library access must be registered with Studio and have an active account.

These are the levels of access for libraries.

- **User** – Users can view library content and can use library components in their courses, but they cannot edit the contents of a library.
- **Staff** – Staff can use library components in their courses. In addition, as content co-authors, they have full editing privileges in a library.
- **Admin** – Admins have full editing privileges for a library. In addition, they can add and remove other team members from library access. There must be at least one user with Admin privileges in a library.

Note: The levels of access for libraries are hierarchical. You can add new library members only with the **User** level of access, after which you can give them the **Staff** level of access. You can give the **Admin** level of access only to people who already have the **Staff** level of access.

Add a User to the Library

To grant a user initial **User** access to a library, follow these steps.

Note: Only library users with the **Admin** level of access can add users to the library.

1. Ensure that the new library member has an active Studio account.
2. On the Studio home page, select the **Libraries** tab and locate the library to which you are adding this user.
3. From the **Settings** menu select **User Access**.
4. On the **User Access** page, select **Add a New User**.
5. Enter the new user's email address, then select **ADD USER**.

The new user is added to the list of library members with the **User** level of access.

Remove a User from the Library

You can remove users from the library at any time, regardless of the level of access that they have.

To remove a user from the library, follow these steps.

1. In Studio, select the **Libraries** tab and locate your library.
2. From the **Settings** menu select **User Access**.
3. On the **User Access** page, locate the user that you want to remove.
4. Hover over the user's box and select the trash can icon.

You are prompted to confirm the deletion.

5. Select **Delete**.

The user is removed from the library.

Add Staff or Admin Access

The levels of access for libraries are hierarchical. You can add new library members only with the **User** level of access, after which you can give them the **Staff** level of access. You can give the **Admin** level of access only to people who already have the **Staff** level of access.

To give a library member a higher level of access to the library, follow these steps.

1. In Studio, select the **Libraries** tab and locate your library.
2. From the **Settings** menu select **User Access**.
3. On the **User Access** page, locate the user to whom you are giving additional privileges.
 - If he currently has **User** access, select **Add Staff Access**.
 - If he currently has **Staff** access, select **Add Admin Access**.

The user's display listing is updated to indicate the new level of access. In addition, their listing now includes a button to remove their current level of access and move them back to their previous level of access. For details about reducing a user's level of access to a library, see [Remove Staff or Admin Access](#).

Remove Staff or Admin Access

After you have granted users **Staff** or **Admin** access, you (or other **Admin** library users) can reduce their levels of access.

To remove **Staff** or **Admin** access from a library user, follow these steps.

1. In Studio, select the **Libraries** tab and locate your library.
2. From the **Settings** menu select **User Access**.
3. On the **User Access** page, locate the user whose access level you are changing.
 - If she currently has **Staff** access, select **Remove Staff Access**.
 - If she currently has **Admin** access, select **Remove Admin Access**.

The user's display listing is updated to indicate the new role.

Note: There must always be at least one Admin for a library. If there is only one user with the Admin role, you cannot remove him or her from the Admin role unless you first assign another user to the Admin role.

7.5.9 Exporting and Importing a Library

You can *export* and *import* a content library in Studio.

Warning: When you import a library, the imported library completely replaces the existing library and its contents. You cannot undo a library import. Before you proceed, we recommend that you export the current library, so that you have a backup copy of it.

Export a Library

There are several reasons why you might want to export your library.

- To save your work in progress
- To edit the XML in your library directly
- To create a backup copy of your library
- To share with another course team member

When you export your library, Studio creates a **.tar.gz** file (that is, a .tar file compressed using GNU Zip). This export file contains the problems in the library, including any customizations you made in the library to problem settings. The export does not include library settings such as user access permissions.

To export a library, follow these steps.

1. In Studio, select the **Libraries** tab.
2. Locate the library that you want to export.
3. From the **Tools** menu, select **Export**.
4. Select **Export Library Content** and specify where you want the file to be saved.

When the export process finishes, you can access the .tar.gz file on your computer.

Import a Library

You might want to import a library if you developed or updated library content outside of Studio, or if you want to overwrite a problematic or outdated version of the library.

Warning: When you import a library, the imported library completely replaces the existing library and its contents. You cannot undo a library import. Before you proceed, we recommend that you export the current library, so that you have a backup copy of it.

The library file that you import must be a .tar.gz file (that is, a .tar file compressed using GNU Zip). This .tar.gz file must contain a library.xml file.

To import a library, follow these steps.

1. In Studio, select the **Libraries** tab.
2. Locate the library to which you want to import the new library content.

3. From the **Tools** menu, select **Import**.
4. Select **Choose a File to Import** and select the .tar.gz file that you want to import.
5. Select **Replace my library with the selected file**.

Warning: The import process has five stages. During the first two stages (Uploading and Unpacking), do not navigate away from the **Library Import** page. Doing so causes the import process to end. You can leave the page only after the Unpacking stage completes. We recommend that you do not make important changes to the library until all stages of the import process have finished.

6. When the import process finishes, select **View Updated Library** to view the imported library.

Note: If your imported library includes changes to components that are in use in a course, the course does not reflect these library updates until you manually update the randomized content block in the course unit. For details about updating library components used in your course to match the latest version in the content library, see [Getting the Latest Version of Library Content](#).

Creating Exercises and Tools

Use the topics in this section to understand how to add exercises and tools to your course.

For information on how to develop your course content in the Studio Outline page, see *Developing Your Course*.

For information on building specific course component types, see *Adding Course Components*.

8.1 Exercises and Tools

You can add a wide variety of different types of exercises and tools to your course outline. By default, a core set of exercises is available for you to add to your course. There are also numerous additional exercises and tools that you can review and add to your course.

- *Levels of Support for Tools*
- *Introduction to Exercises and Tools*
- *General Exercises and Tools*
- *Image-Based Exercises and Tools*
- *Multiple Choice Exercises and Tools*
- *STEM Exercises and Tools*
- *Mobile-Ready Problem Types*

8.1.1 Levels of Support for Tools

The level of support that edX provides for each tool varies. The description of each exercise and tool in the following sections indicates the level of support designated for each tool: full, provisional, or no support. This table provides the definition for each level of support.

Level of Support	Description
Full support	Fully supported tools and features are available on edx.org, are fully tested, have user interfaces where applicable, and are documented in the official edX guides that are available on docs.edx.org.
Provisional support	Provisionally supported tools and features are available on edx.org, but might lack the robustness of functionality that your courses require. You should test provisionally supported tools thoroughly before using them in your course, especially in graded sections. Complete documentation might not be available for provisionally supported tools, or documentation might be available from sources other than the official edX guides.
Not supported	Exercises and tools with no support are not maintained by edX, and might be deprecated in the future. They are not recommended for use in courses due to non-compliance with one or more of the base requirements, such as testing, accessibility, internationalization, and documentation.

8.1.2 Introduction to Exercises and Tools

“Exercises and tools” is a general way to refer to the robust variety of content that you can integrate into an online course. You create the graded and ungraded assessments in your course with different exercises or problem types, while various tools deliver different types of course content. Software developers use the XBlock component architecture to contribute new exercises and tools to the Open edX platform and provide new and varied options for reaching learners.

- You might need to explicitly enable an exercise or tool that you want to use in your course. For more information, see [Enable Additional Exercises and Tools](#).
- After you enable an exercise or tool for use with your course, when you add a component to a unit, that exercise or tool might be listed as one of the **Advanced**, **HTML**, or **Problem** options.

The topics in this section describe different exercises and tools. Information about how to enable specific exercises and tools is provided, followed by examples and step-by-step instructions for how you use Studio to add components to your course. For many of the exercises and tools, when you add a component Studio presents a template for you to use as a starting point for your work. XML examples and descriptions of the attributes, tags, and elements that you can use in an XML editor are also provided.

8.1.3 General Exercises and Tools

Exercises and tools with a wide range of uses are listed alphabetically in this table.

Note: In addition to the following exercises and tools, Open edX offers the [Notes tool](#). The Notes tool allows learners to highlight and make notes about what they read in the course. This tool is not available for courses on edx.org.

Type	Description	Support
<i>Annotation Problem</i>	Annotation problems ask learners to respond to questions about a specific block of text. The question appears above the text when the learner moves the cursor to the highlighted text so that learners can think about the question as they read.	Provisional support
<i>Calculator Tool</i>	The calculator tool is available for every course through the course advanced settings. When the calculator tool is enabled, it appears on every unit page. Learners can enter input that includes Greek letters, trigonometric functions, and scientific or e notation in addition to common operators.	Provisional support
<i>Completion Tool</i>	This tool allows learners to mark sections of course content as completed. It helps learners to track their progress through sections of the course (including for ungraded activities such as reading text, watching video, or participating in course discussions), and gives them a way to indicate to both themselves and course staff that they completed the required activities.	Full support
<i>Conditional Module</i>	You can create a conditional module to control versions of content that groups of learners see. For example, learners who answer “Yes” to a poll question then see a different block of text from the learners who answer “No” to that question.	Provisional support
<i>Custom JavaScript Problem</i>	Custom JavaScript display and grading problems (also called custom JavaScript problems or JS input problems) allow you to create a custom problem or tool that uses JavaScript and then add the problem or tool directly into Studio.	Full support
<i>External Grader</i>	An external grader is a service that receives learner responses to a problem, processes those responses, and returns feedback and a problem grade to the edX platform. You build and deploy an external grader separately from the edX platform. An external grader is particularly useful for software programming courses where learners are asked to submit complex code.	Provisional support
<i>Google Calendar Tool</i>	You can embed a Google calendar in your course so that learners see the calendar in the course body. You can use a Google calendar to share quiz dates, office hours, or other schedules of interest to learners.	Full support
<i>Google Drive Files Tool</i>	You can embed a Google Drive file, such as a document, spreadsheet, or image, in your course so that learners see the file in the course body.	Full support
<i>Google Instant Hangout Tool</i>	You can add the ability for learners to participate in instant hangouts directly from your course. With instant hangouts, learners can interact through live video and voice, share screens and watch videos together, and collaborate on documents.	Provisional support
<i>Iframe Tool</i>	With the iframe tool, you can integrate ungraded exercises and tools from any Internet site into an HTML component in your course.	Provisional support
<i>LTI Component</i>	LTI components allow you to add an external learning application or non- PDF textbook to Studio.	Full support
<i>Office Mix Tool</i>	You can embed interactive lessons created from PowerPoint files so that learners can experience them directly in the course body.	Full support
<i>Open Response Assessments</i>	In open response assessments, learners receive feedback on written responses of varying lengths as well as image files that the learners upload. Open response assessments include self assessment and peer assessment.	Full support
<i>Oppia Exploration Tool</i>	You can embed Oppia explorations in your course so that learners can interact with them directly in the course body.	Full support
<i>Peer Instruction Tool</i>	This tool offers the experience of the Peer Instruction learning system within your online course.	Full support
<i>Poll Tool</i>	You can include polls in your course to gather learners’ opinions on various questions. You can use the Poll Tool in Studio.	Full support
<i>Poll Tool for OLX</i>	You can run polls in your course so that your learners can share opinions on different questions. You can only add this type of poll to a course by using OLX. Support for this tool in Studio is not available. For more information, see the EdX Open Learning XML Guide .	Provisional support
<i>Problem with Adaptive Hint</i>	A problem with an adaptive hint evaluates a learner’s response, then gives the learner feedback or a hint based on that response so that the learner is more likely to answer correctly on the next attempt. These problems can be text input or multiple choice problems.	Provisional support
8.1. Exercises and Tools		197
<i>Problem Written in LaTeX</i>	If you have a problem that is already written in LaTeX, you can use this problem type to easily convert your code into XML.	No support

8.1.4 Image-Based Exercises and Tools

Exercises and tools that involve image files are listed alphabetically in this table.

Type	Description	Support
<i>Drag and Drop Problem</i>	In drag and drop problems, learners respond to a question by dragging text or objects to a specific location on an image.	Full support; mobile-ready
<i>Full Screen Image Tool</i>	The full screen image tool allows a learner to enlarge an image in the whole browser window. This is useful when the image contains a large amount of detail and text that is easier to view in context when enlarged.	Full support
<i>Image Mapped Input Problem</i>	In an image mapped input problem, learners click inside a defined area in an image. You define this area by including coordinates in the body of the problem.	Provisional support
<i>Zooming Image Tool</i>	Zooming images allow you to enlarge sections of an image so that learners can see the section in detail.	Full support

8.1.5 Multiple Choice Exercises and Tools

Exercises and tools that provide ways for learners to select from several options are listed alphabetically in this table.

Type	Description	Support
<i>Checkbox Problem</i>	In checkbox problems, the learner selects one or more options from a list of possible answers. The learner must select all the options that apply to answer the problem correctly.	Full support; mobile-ready
<i>Dropdown Problem</i>	Dropdown problems allow the learner to choose from a collection of answer options, presented as a dropdown list. Unlike multiple choice problems, whose answers are always visible directly below the question, dropdown problems don't show answer choices until the learner clicks the dropdown arrow.	Full support; mobile-ready
<i>Multiple Choice Problem</i>	In multiple choice problems, learners select one option from a list of answer options. Unlike with dropdown problems, whose answer choices don't appear until the learner clicks the drop-down arrow, answer choices for multiple choice problems are always visible directly below the question.	Full support; mobile-ready
<i>Multiple Choice and Numerical Input Problem</i>	You can create a problem that combines a multiple choice and numerical input problems. Students not only select a response from options that you provide, but also provide more specific information, if necessary.	Provisional support; mobile-ready

8.1.6 STEM Exercises and Tools

Exercises and tools that are most suitable for use in science, technology, engineering, or math courses are listed alphabetically in this table.

Type	Description	Support
<i>Chemical Equation Problem</i>	Chemical equation problems allow the learner to enter text that represents a chemical equation into a text box. The grader evaluates the learner's response by using a Python script that you create and embed in the problem.	Full support
<i>Circuit Schematic Builder Problem</i>	In circuit schematic builder problems, learners can arrange circuit elements such as voltage sources, capacitors, resistors, and MOSFETs on an interactive grid. They then submit a DC, AC, or transient analysis of their circuit to the system for grading.	Provisional support
<i>Gene Explorer Tool</i>	The gene explorer (GeneX) simulates the transcription, splicing, processing, and translation of a small hypothetical eukaryotic gene. GeneX allows learners to make specific mutations in a gene sequence, and it then calculates and displays the effects of the mutations on the mRNA and protein.	Provisional support
<i>Math Expression Input Problems</i>	The more complex of Studio's two types of math problems. In math expression input problems, learners enter mathematical expressions to answer a question. These problems can include unknown variables and more complex symbolic expressions. You can specify a correct answer either explicitly or by using a Python script.	Full support; mobile-ready
<i>Molecule Editor Tool</i>	The molecule editor allows learners to draw molecules that follow the rules for covalent bond formation and formal charge, even if the molecules are chemically impossible, are unstable, or do not exist in living systems.	No support
<i>Molecule Viewer Tool</i>	The molecule viewer allows you to create three-dimensional representations of molecules for learners to view.	No support
<i>Numerical Input Problem</i>	The simpler of Studio's two types of math problems. In numerical input problems, learners enter numbers or specific and relatively simple mathematical expressions to answer a question. These problems only allow integers and a few select constants. You can specify a margin of error, and you can specify a correct answer either explicitly or by using a Python script.	Full support; mobile-ready
<i>Periodic Table Tool</i>	An interactive periodic table of the elements shows detailed information about each element as the learner moves the mouse over the element.	No support
<i>Protex Protein Builder Tool</i>	The Protex protein builder asks learners to create specified protein shapes by stringing together amino acids.	No support

8.1.7 Mobile-Ready Problem Types

Learners can read and submit answers for the following types of problems while they use the edX mobile app.

- *Checkbox Problem*
- *Drag and Drop Problem*
- *Dropdown Problem*
- *Math Expression Input Problems*
- *Multiple Choice Problem*
- *Numerical Input Problem*
- *Text Input Problem*

Questions that have other problem types do not appear in the edX mobile app. Instead, a message appears with a link to open the applicable problem component in a web browser.

8.2 Enable Additional Exercises and Tools

Studio offers the same set of core exercises and tools for every course. You can expand the default set by enabling additional exercises and tools. After you enable an exercise or tool in Studio, you can add components of that type to your course.

To enable additional exercises and tools, follow these steps.

1. In Studio, select **Settings**, and then **Advanced Settings**.
2. Locate the **Advanced Module List** field. This field lists any exercises and tools that have been added to your course.
3. If the **Advanced Module List** field is empty, place your cursor between the brackets ([]).
If the list already contains one or more keys, place your cursor after the first bracket ([).
4. Enter the key for the exercise or tool that you want to add.
5. Add quotation marks (" ") before and after the key.
If you are adding the key to a list of keys, follow the closing quotation mark with a comma character (,).
6. Review your entry to verify that the key is accurate and that it is surrounded by quotation marks. If there is a list of keys, they must be comma separated.
 - In this example, the key for the annotation problem tool is the only value in the list.

```
[ "annotatable" ]
```

- In this example, the key for the annotation problem tool is added at the beginning of a list of other keys.

```
[ "annotatable",  
  "word_cloud",  
  "split_test"  
]
```

7. Select **Save Changes**.

Studio checks the syntax of your entry and reformats your entry to add line feeds and indentation. A message lets you know whether your changes were saved successfully.

8.3 Annotation Problem

Note: EdX offers provisional support for this problem type.

In an annotation problem, you highlight specific text inside a larger text block and then ask questions about that text. The questions appear when learners move their cursors over the highlighted text. The questions also appear in a section below the text block, along with space for learners' responses.

Instructions[Collapse Instructions ↑](#)

Annotation Exercise, Hour 12 (to be done after the Hour 12 Question Set has been completed). Carefully read the following text and answer the accompanying question. To see the question while you read the text, hover your mouse over the highlighted selection in the text below.

Guided Discussion[Hide Annotations](#)

This exercise first appeared in HarvardX's CB22x: The Ancient Greek Hero course, spring 2013.

| 122 And they [= the Golden Generation of humankind] are superhumans [daimones]. They exist because of the Will of Zeus. | 123 They are the good, the earthbound [epi-khthonioi], the guardians of mortal humans. | 124 They guard acts of justice [dikē] and they guard against wretched acts of evil. | 125 Enveloped in mist, they roam everywhere throughout the earth. | 126 They are givers of prosperity. And they had this as a privilege [geras], a kingly one [basilēion].

QUESTION 1 (2/2 points)**Annotation Exercise**[Return to Annotation ↑](#)

| 124 They guard acts of justice [dikē] and they guard against wretched acts of evil.

Hesiodic poetry declares that heroes are protectors of justice. Is this declaration consistent with what we have read in Homeric poetry?

Type your response below:

In your response to this question, which tag below do you choose?

This declaration in Hesiodic poetry is inconsistent with Homeric poetry, since we see that heroes in the Iliad and Odyssey do in fact engage in unjust as well as just actions.



This declaration in Hesiodic poetry is consistent with Homeric poetry, since there is no real contradiction here between the two kinds of poetry.

We cannot be sure whether this declaration in Hesiodic poetry is consistent or inconsistent with Homeric poetry, where the actions of heroes are not evaluated in terms of injustice or justice.

Answer: This declaration in Hesiodic poetry is consistent with Homeric poetry, since there is no real contradiction here between the two kinds of poetry.

If you answered "This declaration in Hesiodic poetry is inconsistent with Homeric poetry, since we see that heroes in the Iliad and Odyssey do in fact engage in unjust as well as just actions," you would be missing the point. The heroes of the Iliad and Odyssey are still alive when they are engaged in their actions. By contrast, the heroes of the Golden Age are not of this world when they are protecting justice. Enveloped in mist and roaming throughout the earth, the heroes of the Golden Age are pictured as otherworldly spirits. This picture corresponds to the idea of cult heroes, not to the idea of epic heroes. If you answered "We

- [Enable Annotation Problems](#)
- [Create an Annotation Problem](#)

8.3.1 Enable Annotation Problems

Before you can add annotation problems to your course, you must enable annotation problems in Studio.

To enable annotation problems in Studio, you add the "annotatable" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

8.3.2 Create an Annotation Problem

To create an annotation problem, you add the **Instructions** and **Guided Discussion** segments of the problem, and then the **Annotation problem** segment of the problem.

Add Instructions and Guided Discussion

To add the **Instructions** and **Guided Discussion** segments of the problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Advanced**.
2. In the list of problem types, select **Annotation**.
3. In the component that appears, select **Edit**.
4. In the component editor, replace the example code with your own code.
5. Select **Save**.

Add Annotation Problem

To add the **Annotation problem** segment of the problem, follow these steps.

1. Under the annotation component, create a new blank advanced problem component.
2. Paste the following code in the advanced problem component, replacing placeholders with your own information.

```
<problem>
  <annotationresponse>
    <annotationinput>
      <text>PLACEHOLDER: Text of annotation</text>
      <comment>PLACEHOLDER: Text of question</comment>
      <comment_prompt>PLACEHOLDER: Type your response below:</comment_prompt>
      <tag_prompt>PLACEHOLDER: In your response to this question, which tag below do you c
    <options>
      <option choice="incorrect">PLACEHOLDER: Incorrect answer (to make this option a corr
      <option choice="correct">PLACEHOLDER: Correct answer (to make this option an incorre
      <option choice="partially-correct">PLACEHOLDER: Partially correct answer (to make th
    </options>
  </annotationinput>
</annotationresponse>
```

```
<solution>
  <p>PLACEHOLDER: Detailed explanation of solution</p>
</solution>
</problem>
```

3. Select **Save**.

8.4 Calculator Tool

Note: EdX offers provisional support for this tool.

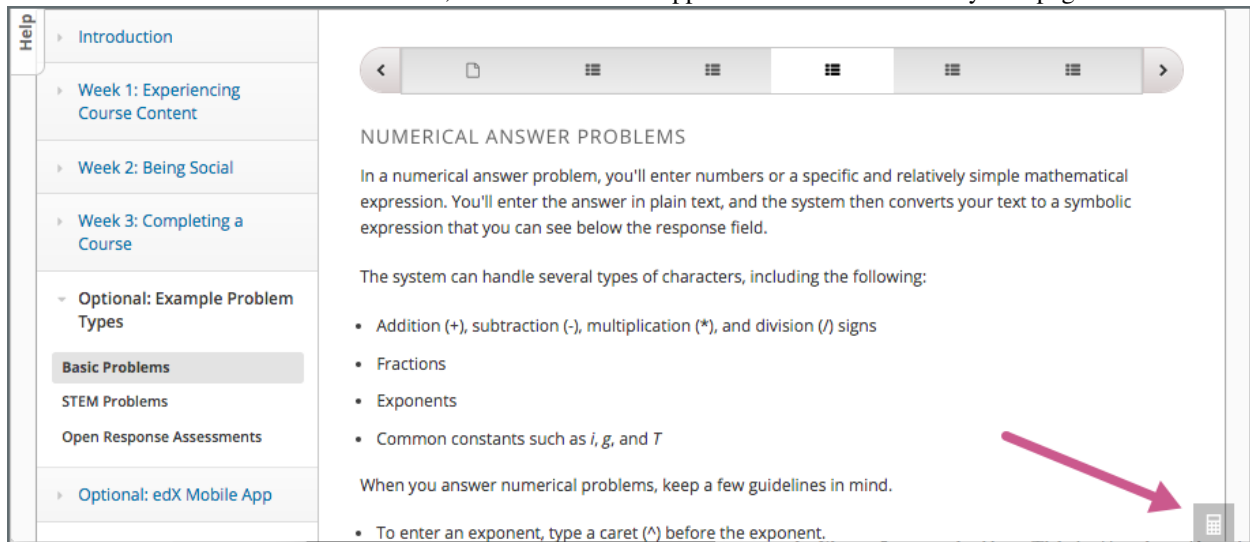
- *Overview*
- *Enable the Calculator Tool*

8.4.1 Overview


Learners can use the edX calculator tool to perform simple and complex calculations. Learners can enter input including numbers, operators, Greek letters, affixes, trigonometric functions, and more.

The calculator is available for every edX course, but it is not visible by default. To make the calculator visible, you must enable it in the course advanced settings.

When the calculator is visible in a course, the calculator icon appears at the bottom of every unit page.



When learners select the calculator icon, the calculator opens along the lower edge of the browser window.

The calculator includes an information page that learners can use if they have questions about entering input in the calculator. Learners access the calculator's information page by selecting the  icon next to the input field.

edX: De

For detailed information, see [Entering Mathematical and Scientific Expressions in the edX Guide for Students](#).

Tips:
 Use parentheses () to make expressions clear. You can use parentheses inside other parentheses.
 Do not use spaces in expressions.
 For constants, indicate multiplication explicitly (example: 5*c).
 For affixes, type the number and affix without a space (example: 5c).
 For functions, type the name of the function, then the expression in parentheses.

To Use	Type	Examples
Numbers	Integers Fractions Decimals	2520 2/3 3.14, .98
Operators	+ - * / (add, subtract, multiply, divide) ^ (raise to a power) (add a subscript) (parallel resistors)	$x + (2*y)/x - 1$ $x^{(n+1)}$ $v_{IN} + v_{OUT}$ $1 2$
Greek letters	Name of letter	alpha lambda
Constants	c, e, g, i, j, k, pi, q, T	20*c 418*T
Affixes	Percent sign (%) and metric affixes (d, c, m, u, n, p, k, M, G, T)	20% 20c 418T
Basic functions	abs, exp, fact or factorial, ln, log2, log10, sqrt	abs(x+y) sqrt(x^2-y)
Trigonometric functions	sin, cos, tan, sec, csc, cot, arcsin, sinh, arsinh, etc.	sin(4x+y) arcsch(4x+y)
Scientific notation	10^ and the exponent	10^-9
e notation	1e and the exponent	1e-9

Specific and relatively simple mathematical system then converts your text to a symbolic

g the following:

(/) signs

es in mind.

it.

licitly: rather than 4*i*, enter 4 * *i*.

neant to get you familiar with the edX system

Calculator interface with a close button (X) highlighted by a red arrow.

Learners close the calculator by selecting the X.

8.4.2 Enable the Calculator Tool

To enable the calculator tool, follow these steps.

1. In Studio, on the **Settings** menu, select **Advanced Settings**.
2. In the **Show Calculator** field, change *false* to *true*.
3. Select **Save Changes**.

8.5 Checkbox Problem

Note: EdX offers full support for this problem type.

- *Overview*
- *Analyzing Performance on Checkbox Problems*
- *Creating a Checkbox Problem*
 - *Use the Simple Editor to Create a Checkbox Problem*
 - *Use the Advanced Editor to Edit a Checkbox Problem*
- *Using Feedback in a Checkbox Problem*
 - *Compound Feedback*
 - *Configure Feedback in the Simple Editor*
 - *Configure Feedback in the Advanced Editor*
- *Using Hints in a Checkbox Problem*
 - *Configure Hints in the Simple Editor*
 - *Configure Hints in the Advanced Editor*
- *Awarding Partial Credit in a Checkbox Problem*
 - *Using the Every Decision Counts Style*
 - *Using the Halves Style*
- *Checkbox Problem XML*
 - *Template*
 - *Tags*

8.5.1 Overview

In checkbox problems, learners select one or more options from a list of possible answers. To answer the problem correctly, a learner must select all of the options that are correct answers, and none of the options that are incorrect. The course team must set up each checkbox problem to have at least one correct answer.

This exercise first appeared in MITx's 14.73x The Challenge of Global Poverty course, spring 2013.

Learning about the benefits of preventative healthcare can be particularly difficult. Check all of the reasons below why this may be the case.

- ☐ A large amount of time passes between undertaking a preventative measure and seeing the result. ✓
- ☒ Non-immunized people will always fall sick.
- ☒ If others are immunized, fewer people will fall sick regardless of a particular individual's choice to get immunized or not. ✓
- ☐ Trust in healthcare professionals and government officials is fragile. ✓

✗

EXPLANATION

People who are not immunized against a disease may still not fall sick from the disease. If someone is trying to learn whether or not preventative measures against the disease have any impact, he or she may see these people and conclude, since they have remained healthy despite not being immunized, that immunizations have no effect. Consequently, he or she would tend to believe that immunization (or other preventative measures) have fewer benefits than they actually do.

CHECK HIDE ANSWER

Note: Make sure that all of the answer choices are unambiguous, and avoid trick questions. Checkbox problems with ambiguity can be frustrating to learners, especially if the problems have a limited number of attempts.

8.5.2 Analyzing Performance on Checkbox Problems

For the checkbox problems in your course, you can use edX Insights to review aggregated learner performance data and examine submitted answers. For more information, see [Using edX Insights](#).

8.5.3 Creating a Checkbox Problem

You can create checkbox problems in the simple editor or in the advanced editor. You can set up a problem in the simple editor, and then switch to the advanced editor to add more configuration options in XML. However, you cannot switch back to the simple editor from the advanced editor. Therefore, you might want to format the problem as completely as possible before you begin to use the advanced editor.

Use the Simple Editor to Create a Checkbox Problem

To use the *simple editor* to create a checkbox problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select one of the two checkbox problem templates.
 - From the list of **Common Problem Types**, select **Checkboxes**.
 - From the list of **Common Problems with Hints and Feedback**, select **Checkboxes with Hints and Feedback**. For more information, see *Use Feedback in a Checkbox Problem*.
 Studio adds the checkbox problem to the unit.
1. Select **Edit**. The simple editor opens.
2. Replace the sample problem text with your own text.
3. Determine the text that describes the question you want learners to answer, and surround that text with two pairs of angle brackets (`>>question<<`). This text identifies the question for screen readers, reports, and Insights.
4. Edit the text to place each answer option on a separate line.
5. Select the set of answer options, and then select **Checkboxes** from the toolbar. A pair of brackets appears next to each answer choice.
6. To identify each correct answer, add an **x** between the brackets for that option.
7. To provide an explanation, select the explanation text and then select **Explanation** from the toolbar. `[explanation]` appears before and after the explanation text.
8. Select **Settings** and provide an identifying **Display Name** for the problem.
9. Define additional settings for the problem. For more information, see *Problem Settings*.
10. Select **Save**.

For the example problem illustrated above, the following text displays in the problem component.

```
Learning about the benefits of preventative healthcare can be particularly
difficult. >>Check all of the reasons below why this may be the case.<<

[x] A large amount of time passes between undertaking a preventative measure and seeing the result.
[ ] Non-immunized people will always fall sick.
[x] If others are immunized, fewer people will fall sick regardless of a particular individual's cho
[x] Trust in healthcare professionals and government officials is fragile.
```

Use the Advanced Editor to Edit a Checkbox Problem

To use the *advanced editor* to edit a checkbox problem, follow these steps.

1. Follow the steps for creating the problem in the *simple editor*.
2. Select **Advanced Editor**, and then edit the XML to add the tags and attributes you want. An example follows.

```
<problem>
<p>Learning about the benefits of preventative healthcare can be particularly difficult. Check all of

<choiceresponse>
  <checkboxgroup label="Check all of the reasons below why this may be the case">
    <choice correct="true"><text>A large amount of time passes between undertaking a preventative me
    <choice correct="false"><text>Non-immunized people will always fall sick.</text></choice>
    <choice correct="true"><text>If others are immunized, fewer people will fall sick regardless of a
```

```
<choice correct="true"><text>Trust in healthcare professionals and government officials is fragil
</checkboxgroup>
</choiceresponse>

<solution>
  <div class="detailed-solution">
    <p>Explanation</p>
    <p>People who are not immunized against a disease may still not fall sick from the disease. If s
  </div>
</solution>
</problem>
```

8.5.4 Using Feedback in a Checkbox Problem

You can add feedback in a checkbox problem using the simple editor or the advanced editor. For an overview of feedback in problems, see [Adding Feedback and Hints to a Problem](#).

In checkbox problems, you can provide feedback for each option that a learner can select, with distinct feedback depending on whether or not the learner selects that option. This means that there are four possible types of feedback.

- The learner selects a correct option. This type of feedback should indicate why the option is correct.
- The learner does not select a correct option. This type of feedback should indicate that the learner missed checking this option and why it is correct.
- The learner selects an incorrect option. This type of feedback should indicate that the learner incorrectly checked this option and why it is incorrect
- The learner does not select an incorrect option. This type of feedback should reinforce why the learner correctly left this option unselected.

Compound Feedback

You can configure the checkbox problem to provide compound feedback. Compound feedback is feedback given for a specific combination of options. For example, if you have three possible option in the problem, you can define specific feedback for when a learner selects each combination of possible options.

- A
- B
- C
- A, B
- B, C
- A, C
- A, B, C

For problems with more than three options, providing specific feedback for each combination can become difficult. For such problems, you can define compound feedback for more likely combinations of option or for combinations of option that reflect common learner misunderstandings. If you do not define feedback for a combination that a learner selects, the learner receives feedback for the individual selections.

Configure Feedback in the Simple Editor

You can configure individual option and compound feedback in the *simple editor*. When you create a new checkbox problem, select the template **Checkboxes with Hints and Feedback**. This template has example feedback syntax that you can replace.

Configure Feedback for Individual Options

In the simple editor, you configure individual option feedback with the following syntax.

```
[x] answer {{ selected: Feedback when learner selects this option. },
{unselected: Feedback when the learner does not select this option.}}
```

Note: You can use S for selected and U for unselected.

For example, the following problem has feedback for each option.

```
>>Which of the following is an example of a fruit? Check all that apply.<<

[x] apple {{ selected: You are correct that an apple is a fruit because it
is the fertilized ovary that comes from an apple tree and contains seeds. },
{ unselected: Remember that an apple is also a fruit.}}

[x] pumpkin {{ selected: You are correct that a pumpkin is a fruit because it
is the fertilized ovary of a squash plant and contains seeds.}, { unselected:
Remember that a pumpkin is also a fruit.}}

[ ] potato {{ U: You are correct that a potato is a vegetable because it is
an edible part of a plant in tuber form.}, { S: A potato is a vegetable, not
a fruit, because it does not come from the flower on a plant or tree and does
not contain seeds.}}

[x] tomato {{ S: You are correct that a tomato is a fruit because it is the
fertilized ovary of a tomato plant and contains seeds. }, { U: Many people
mistakenly think a tomato is a vegetable. However, because a tomato is the
fertilized ovary of a tomato plant and contains seeds it is classified as a
fruit.}}
```

Configure Compound Feedback

In the simple editor, you configure compound feedback after the possible options, with the following syntax.

```
{{ ((Answer Combination)) Feedback when learner selects this combination of
options.}}
```

For example, the following compound feedback is used when learners select options **A, B, and D** or **A, B, C, and D**.

```
{{ ((A B D)) An apple, pumpkin, and tomato are all fruits as they are all the
fertilized ovaries of a plant and contain seeds. }}

{{ ((A B C D)) You are correct that an apple, pumpkin, and tomato are all
fruits as they are all the fertilized ovaries of a plant and contain seeds.
However, a potato is not a fruit as it is an edible part of a plant in tuber
form and is classified as a vegetable.  }}
```

Configure Feedback in the Advanced Editor

You can configure individual option and compound feedback in the *Advanced Editor*.

Configure Individual Option Feedback

In the advanced editor, you configure individual option feedback with the following syntax.

```
<choice correct="true">Choice label
  <choicehint selected="true">
    Feedback for when learner selects this answer.
  </choicehint>
  <choicehint selected="false">
    Feedback for when learner does not select this answer.
  </choicehint>
</choice>
```

For example, the following problem has feedback for each option.

```
<choiceresponse>
  <checkboxgroup label="Which of the following is an example
of a fruit? Check all that apply.">
    <choice correct="true">apple
      <choicehint selected="true">You are correct that an apple is a fruit
        because it is the fertilized ovary that comes from an apple tree and
        contains seeds.
      </choicehint>
      <choicehint selected="false">Remember that an apple is also a
        fruit.
      </choicehint>
    </choice>
    <choice correct="true">pumpkin
      <choicehint selected="true">You are correct that a pumpkin is a fruit
        because it is the fertilized ovary of a squash plant and contains
        seeds.
      </choicehint>
      <choicehint selected="false">Remember that a pumpkin is also a
        fruit.
      </choicehint>
    </choice>
    <choice correct="false">potato
      <choicehint selected="true">A potato is a vegetable, not a fruit,
        because it does not come from the flower on a plant or tree and does
        not contain seeds.
      </choicehint>
      <choicehint selected="false">You are correct that a potato is
        classified as a vegetable because it is an edible part of a plant in
        tuber form.
      </choicehint>
    </choice>
    <choice correct="true">tomato
      <choicehint selected="true">You are correct that a tomato is
        classified as a fruit because it is the fertilized ovary of a tomato
        plant and contains seeds.
      </choicehint>
      <choicehint selected="false">Many people mistakenly think a tomato is
        a vegetable. However, because a tomato is the fertilized ovary of a
        tomato plant and contains seeds it is classified as a fruit.
    </choice>
  </checkboxgroup>
</choiceresponse>
```

```

    </choicehint>
  </choice>
</checkboxgroup>
</choiceresponse>

```

Configure Compound Feedback

In the advanced editor, you define compound feedback in the `<compoundhint>` element within the `<checkboxgroup>` element.

```

<compoundhint value="Answer Combination">
  Feedback when learner selects this combination of answers.
</compoundhint>}}

```

For example, the following compound feedback is used when learners select options **A, B, and D** or **A, B, C, and D**.

```

<compoundhint value="A B D">An apple, pumpkin, and tomato are all fruits as
  they all are fertilized ovaries of a plant and contain seeds.
</compoundhint>
<compoundhint value="A B C D">You are correct that an apple, pumpkin, and
  tomato are all fruits as they all are fertilized ovaries of a plant and
  contain seeds. However, a potato is not a fruit as it is an edible part of
  a plant in tuber form and is classified as a vegetable.
</compoundhint>

```

8.5.5 Using Hints in a Checkbox Problem

You can add hints to a checkbox problem, using the simple editor or the advanced editor. For an overview of hints in problems, see *Adding Feedback and Hints to a Problem*.

Configure Hints in the Simple Editor

In the simple editor, you configure hints with the following syntax.

```

||Hint 1||
||Hint 2||
||Hint n||

```

Note: You can configure any number of hints. The learner views one hint at a time and views the next one by selecting **Hint** again.

For example, the following problem has two hints.

```

||A fruit is the fertilized ovary from a flower.||
||A fruit contains seeds of the plant.||

```

Configure Hints in the Advanced Editor

In the advanced editor, you configure each hint in the `<hint>` element within the `<demandhint>` element.

```
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
  <hint>Hint 3</hint>
</demandhint>
```

For example, the following XML shows two hints.

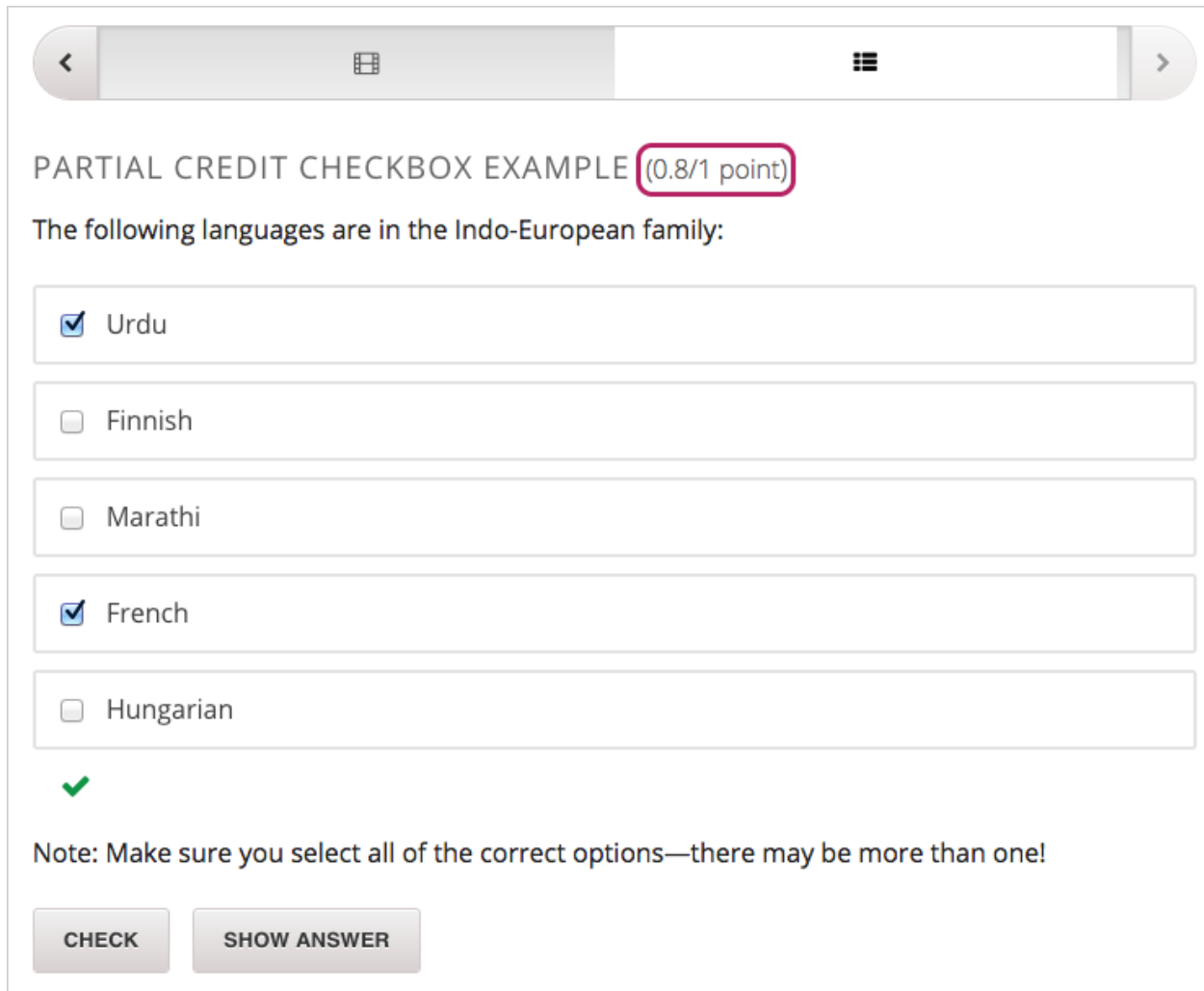
```
<demandhint>
  <hint>A fruit is the fertilized ovary from a flower.</hint>
  <hint>A fruit contains seeds of the plant.</hint>
</demandhint>
```

8.5.6 Awarding Partial Credit in a Checkbox Problem

You can configure a checkbox problem to award partial credit to learners who submit an answer that is partly correct. You must use the advanced editor to configure partial credit.

For an overview of partial credit in problems, see [Awarding Partial Credit for a Problem](#).

In the following example, the learner selected two of the three correct choices, and did not select any incorrect choices. The learner therefore had four out of five correct answers. Because the course team set this problem up to award partial credit for every correct answer selected and every incorrect answer left unselected (known as *every decision counts*), the learner earned 80% of the points for this problem.



PARTIAL CREDIT CHECKBOX EXAMPLE (0.8/1 point)

The following languages are in the Indo-European family:

☒ Urdu

☐ Finnish

☐ Marathi

☒ French

☐ Hungarian

✓

Note: Make sure you select all of the correct options—there may be more than one!

CHECK SHOW ANSWER

There are two ways to award partial credit in a checkbox problem.

- *Using the Every Decision Counts Style*
- *Using the Halves Style*

Using the Every Decision Counts Style

You can configure a checkbox problem so that the learner's response for every option is evaluated and scored. This is known as "every decision counts" (EDC).

With EDC, for each option the learner gets wrong, either by not selecting a correct option or selecting an incorrect option, the learner's score is reduced by $1/n$, where "n" is the number of options.

For example, if there are four options, each one is worth 25% of the total score. If a learner's response is wrong for one option, she receives 75% of the points for the problem.

The following table describes the learner's score for different submissions for EDC problems with a variety of correct answer options.

Learner's Selections	Correct Answers	Incorrect Answers	Score
A, B, C	A, B, D	C	75%
A	A, C, D	B	75%
A, C	A, D	B, C	50%
C, D		A, B, C, D	0%

Configure an EDC Checkbox Problem

To configure an EDC checkbox problem, you add the `partial_credit="EDC"` attribute to the `<choiceresponse>` element in the problem XML.

For example, the following XML shows the checkbox problem template after it is updated to provide partial credit.

```
<choiceresponse partial_credit="EDC">
  <checkboxgroup label="Which of the following is a fruit? Check all that apply.">
    <choice correct="true">apple</choice>
    <choice correct="true">pumpkin</choice>
    <choice correct="false">potato</choice>
    <choice correct="true">tomato</choice>
  </checkboxgroup>
</choiceresponse>
```

Using the Halves Style

You can configure a checkbox problem so that for every option that a learner gets wrong, either by not selecting a correct option or by selecting an incorrect option, half of the remaining points are deducted from the learner's score. This is known as scoring by "halves".

Note: By design, partial credit by halves requires the number of answer options to be more than twice the number of incorrect answers. In addition, partial credit is not given for more than two wrong answers, regardless of the total number of answer options. In other words, two wrong answers is scored at 25% only if there are at least 5 answer options. Three or more wrong answers is always scored at 0%, regardless of the number of total answer options.

Partial credit using the halves method is calculated as follows.

- If a learner makes no errors, she receives full credit for the problem.
- If a learner makes one error, she receives 50% of the possible points, as long as there are three or more choices in the problem. If a learner makes one error and there are only two choices in the problem, no credit is given.
- If a learner makes two errors, she receives 25% of the possible points, as long as there are five or more choices in the problem. If a learner makes two errors and there are only three choices or four choices in the problem, no credit is given.
- If a learner makes three errors, she receives no credit for the problem, regardless of how many answer options there are.

The following tables illustrate partial credit score using the halves method, for problems with an increasing number of total answer options.

Number of Incorrect Answers	Number of Answer Options	Credit Given (%)
0	2	100
1	2	0
2	2	0

Number of Incorrect Answers	Number of Answer Options	Credit Given (%)
0	3	100
1	3	0
2	3	0
3	3	0

Number of Incorrect Answers	Number of Answer Options	Credit Given (%)
0	4	100
1	4	50
2	4	0
3	4	0
4	4	0

Number of Incorrect Answers	Number of Answer Options	Credit Given (%)
0	5	100
1	5	50
2	5	25
3	5	0
4	5	0
5	5	0

Number of Incorrect Answers	Number of Answer Options	Credit Given (%)
0	7	100
1	7	50
2	7	25
3	7	0
4	7	0
5	7	0

Configure a Halves Checkbox Problem

To configure a halves checkbox problem, you add the `partial_credit="halves"` attribute to the `<choiceresponse>` element in the problem XML.

For example, the following XML shows the checkbox problem template updated to provide partial credit.

```
<choiceresponse partial_credit="halves">
  <checkboxgroup label="Which of the following is a fruit? Check all that apply.">
    <choice correct="true">apple</choice>
    <choice correct="true">pumpkin</choice>
    <choice correct="false">potato</choice>
    <choice correct="true">tomato</choice>
  </checkboxgroup>
</choiceresponse>
```

8.5.7 Checkbox Problem XML

Template

```
<problem>
<legend>Question text</legend>
<choiceresponse>
  <checkboxgroup label="label text">
    <choice correct="false">
```

```

    Answer option A (incorrect)
    <choicehint selected="true">
        Feedback for when learner selects this answer.
    </choicehint>
    <choicehint selected="false">
        Feedback for when learner does not select this answer.
    </choicehint>
</choice>
<choice correct="true">
    Answer option B (correct)
    <choicehint selected="true">
        Feedback for when learner selects this answer.
    </choicehint>
    <choicehint selected="false">
        Feedback for when learner does not select this answer.
    </choicehint>
</choice>
<choice correct="false">
    Answer option C (correct)
    <choicehint selected="true">
        Feedback for when learner selects this answer.
    </choicehint>
    <choicehint selected="false">
        Feedback for when learner does not select this answer.
    </choicehint>
</choice>
<compoundhint value="A B">
    Feedback when answers A and B are selected.
</compoundhint>
<compoundhint value="A C">
    Feedback when answers A and C are selected.
</compoundhint>
</checkboxgroup>
</choiceresponse>

<demandhint>
    <hint>Hint 1</hint>
    <hint>Hint 2</hint>
    <hint>Hint 3</hint>
</demandhint>

<solution>
    <div class="detailed-solution">
        <p>Solution or Explanation Heading</p>
        <p>Solution or explanation text</p>
    </div>
</solution>
</problem>

```

Tags

- `<choiceresponse>` (required): Specifies that the problem contains options for learners to choose from.
- `<checkboxgroup>` (required): Specifies that the problem is a checkbox problem.
- `<compoundhint>` (optional): Specifies feedback for a specific combination of answers.
- `<choice>` (required): Designates an answer option.

- `<demandhint>` (optional): Specifies hints for the learner.

Tag: `<choiceresponse>`

Specifies that the problem contains options for learners to choose from.

Attributes

Attribute	Description
<code>partial_credit</code> (optional)	Specifies the type of partial credit given. EDC or halves.

Children

`<checkboxgroup>`

Tag: `<checkboxgroup>`

Specifies that the problem is a checkbox problem.

Attributes

Attribute	Description
<code>label</code> (required)	Specifies the name of the response field.

Children

`<choice>` `<compoundhint>`

Tag: `<choice>`

Designates an answer option.

Attributes

Attribute	Description
<code>true</code> (at least one required)	Indicates a correct answer. For checkbox problems, one or more <code><choice></code> tags can contain a correct answer.
<code>false</code> (at least one required)	Indicates an incorrect answer.

Children

`<choicehint>`

Tag: `<choicehint>`

Specifies a hint for the answer option.

Attributes

Attribute	Description
<code>selected</code> (required)	<code>true</code> or <code>false</code> . Indicates if the hint is given when the answer option is selected, or when it is not selected.

Children

(none)

Tag: `<compoundhint>`

Designates feedback for a specific combination of answers.

Attributes

Attribute	Description
<code>value</code> (at least one required)	Indicates which combination of selected answers triggers this feedback.

Children

(none)

Tag: <demandhint>

Specifies hints available to the learner.

Children

<hint>

Tag: <hint>

Specifies a hint available to the learner.

Children

(none)

8.6 Chemical Equation Problem

Note: EdX offers full support for this problem type.

The chemical equation problem type allows the learner to enter text that represents a chemical equation into a text box. The system converts that text into a chemical equation below the text box. The grader evaluates the learner's response by using a Python script that you create and embed in the problem.

CHEMICAL EQUATION PROBLEM (1 point possible)

Some problems may ask for a particular chemical equation. Practice by writing out the following reaction in the box below.

$\text{H}_2\text{SO}_4 \longrightarrow \text{H}^+ + \text{HSO}_4^-$

Some tips:

- Use real element symbols.
- Create subscripts by using plain text.
- Create superscripts by using a caret (^).
- Create the reaction arrow (\longrightarrow) by using "->"

SOLUTION

To create this equation, enter the following:

$\text{H}_2\text{SO}_4 \rightarrow \text{H}^+ + \text{HSO}_4^-$

You have used 0 of 10 submissions

- [Create a Chemical Equation Problem](#)
- [Chemical Equation Problem XML](#)

Note: You can make a calculator available to your learners on every unit page. For more information, see [Calculator Tool](#).

8.6.1 Create a Chemical Equation Problem

Chemical equation problems use MathJax to create formulas. For more information about using MathJax in Studio, see [A Brief Introduction to MathJax in Studio](#).

To create the above chemical equation problem, follow these steps.

1. In the unit where you want to create the problem, select **Problem** under **Add New Component**, and then select the **Advanced** tab.

2. Select **Blank Advanced Problem**.
3. In the component that appears, select **Edit**.
4. In the component editor, paste the code from below.
5. Select **Save**.

Sample Chemical Equation Problem Code

```
<problem>
  <startouttext/>
  <p>Some problems may ask for a particular chemical equation. Practice by writing out the following
  \(\ \text{H}_2\text{SO}_4 \rightarrow \text{H}^+ + \text{HSO}_4^- \)

  <customresponse>
    <chemicalequationinput size="50" label="Enter the chemical equation"/>
    <answer type="loncapa/python">

if chemcalc.chemical_equations_equal(submission[0], 'H2SO4 -> H^+ + HSO4^-'):
    correct = ['correct']
else:
    correct = ['incorrect']

    </answer>
  </customresponse>
  <p>Some tips:</p>
  <ul>
    <li>Use real element symbols.</li>
    <li>Create subscripts by using plain text.</li>
    <li>Create superscripts by using a caret (^).</li>
    <li>Create the reaction arrow (\(\rightarrow\)) by using ">->".</li>
  </ul>

  <endouttext/>

  <solution>
  <div class="detailed-solution">
  <p>Solution</p>
  <p>To create this equation, enter the following:</p>
  <p>H2SO4 -> H^+ + HSO4^-</p>
  </div>
  </solution>
</problem>
```

8.6.2 Chemical Equation Problem XML

Template

```
<problem>
  <startouttext/>
  <p>Problem text</p>

  <customresponse>
    <chemicalequationinput size="NUMBER" label="LABEL TEXT"/>
```

```

<answer type="loncapa/python">

if chemcalc.chemical_equations_equal(submission[0], 'TEXT REPRESENTING CHEMICAL EQUATION'):
    correct = ['correct']
else:
    correct = ['incorrect']

</answer>
</customresponse>

<endouttext/>

<solution>
<div class="detailed-solution">
<p>Solution or Explanation Header</p>
<p>Solution or explanation text</p>
</div>
</solution>
</problem>

```

Tags

- `<customresponse>`: Indicates that this problem has a custom response.
- `<chemicalequationinput>`: Specifies that the answer to this problem is a chemical equation.
- `<answer type=loncapa/python>`: Contains the Python script that grades the problem.

Tag: `<customresponse>`

Indicates that this problem has a custom response. The `<customresponse>` tags must surround the `<chemicalequation>` tags.

Attributes

(none)

Children

- `<chemicalequationinput>`
- `<answer>`

Tag: `<chemicalequationinput>`

Indicates that the answer to this problem is a chemical equation and creates a response field where the learner enters an answer.

Attributes

Attribute	Description
size	Specifies the size of the response field, in characters.
label (required)	Contains the text of the principal question in the problem.

Children

(none)

Tag: `<answer>`

Contains the Python script that grades the problem.

Attributes

Attribute	Description
type (required)	Must be “loncapa/python”.

Children

(none)

8.7 Circuit Schematic Builder Problem

Note: EdX offers provisional support for this problem type.

In circuit schematic builder problems, students can arrange circuit elements such as voltage sources, capacitors, resistors, and MOSFETs on an interactive grid. They then submit a DC, AC, or transient analysis of their circuit to the system for grading.

This exercise first appeared in MITx's 6.002x: Circuits and Electronics course, spring 2012.

A circuit that combines two or more signals is called a *mixer*. In this lab, your goal is to build a mixer that combines the signals generated by two voltage sources, V1 and V2, where:

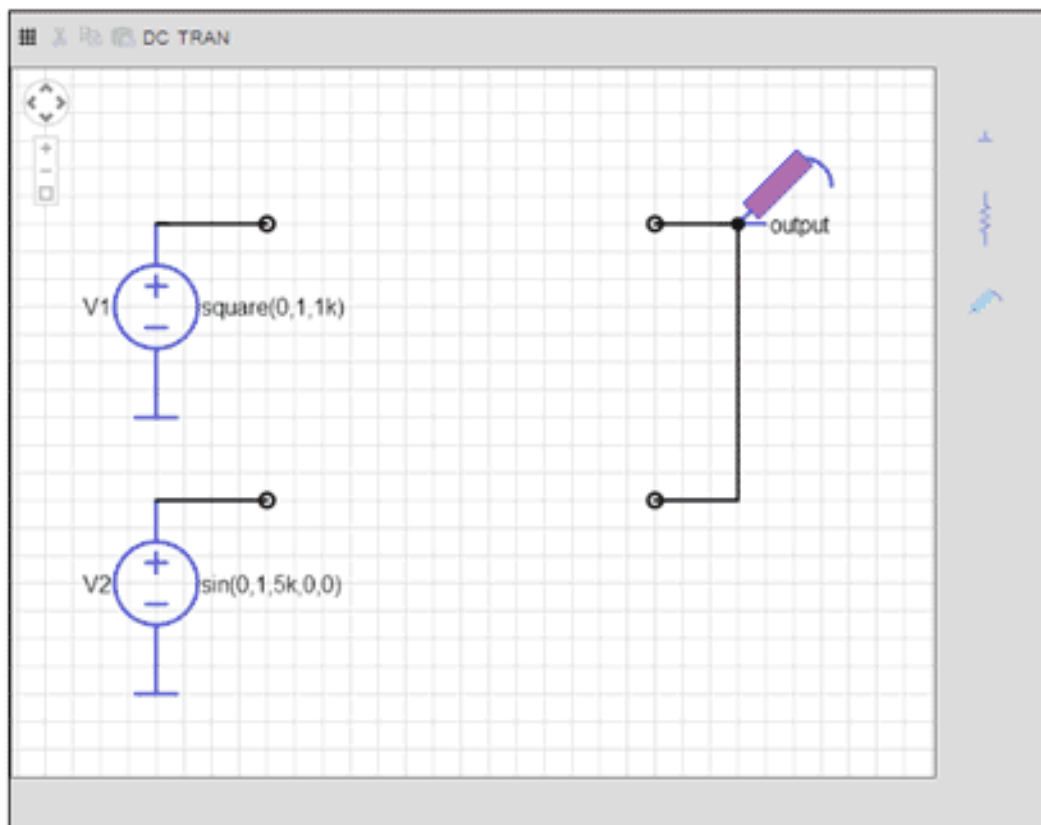
- V1 is a 1 kHz square wave that varies between 0V and +1V, and
- V2 is a 5 kHz sine wave that varies between -1V and +1V.

Please design a circuit that mixes V1 and V2 to produce Vout such that

$$V_{\text{out}} \approx \frac{1}{2} V_1 + \frac{1}{6} V_2.$$

The maximum value of the resulting output should be approximately 667mV and the minimum value should be approximately -167mV .

Enter your circuit below, using the appropriate configuration of resistors. Please do not modify the wiring or parameters of the voltage sources -- your goal is to take the signals they generate and combine them, not to change what is generated. Run a 5ms transient analysis to verify the correct operation of your circuit. We will be checking for the transient waveform at the "output" node.



8.7.1 Create a Circuit Schematic Builder Problem

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**, and then select **Advanced**.
2. Select **Circuit Schematic Builder**.
3. In the component that appears, select **Edit**.
4. In the component editor, replace the example code with your own code.
5. Select **Save**.

Problem Code

To create the problem in the image above, paste the following code into the advanced editor.

```
<problem>
  <p>Make a voltage divider that splits the provided voltage evenly.</p>
  <schematicresponse>
    <center>
      <schematic height="500" width="600" parts="g,r" analyses="dc"
        initial_value="[["v",[168,144,0],{"value":"dc(1)","_json_":0},["1","0"]],["r",[296,120,0],{"r":
        />
      </center>
      <answer type="loncapa/python">
        dc_value = "dc analysis not found"
        for response in submission[0]:
          if response[0] == 'dc':
            for node in response[1:]:
              dc_value = node['output']
        if dc_value == .5:
          correct = ['correct']
        else:
          correct = ['incorrect']
      </answer>
    </schematicresponse>
  </schematicresponse>
  <p>Make a high pass filter.</p>
  <center>
    <schematic height="500" width="600" parts="g,r,s,c" analyses="ac"
      submit_analyses="{\"ac\":[[\"NodeA\",1,9]]}"
      initial_value="[["v",[160,152,0],{"name":"v1","value":"sin(0,1,1,0,0)","_json_":0},["1","0"]],["w
      </center>
    <answer type="loncapa/python">
      ac_values = None
      for response in submission[0]:
        if response[0] == 'ac':
          for node in response[1:]:
            ac_values = node['NodeA']
      print "the ac analysis value:", ac_values
      if ac_values == None:
        correct = ['incorrect']
      elif ac_values[0][1] < ac_values[1][1]:
        correct = ['correct']
      else:
        correct = ['incorrect']
    </answer>
  </schematicresponse>
  <solution>
    <div class="detailed-solution">
```

```

    <p>Explanation</p>
    <p>A voltage divider that evenly divides the input voltage can be formed with two identical resistors in series.
    <p></p>
    <p>A simple high-pass filter without any further constraints can be formed by simply putting a capacitor in series with the input.
    <p></p>
  </div>
</solution>
</problem>

```

8.8 Completion Tool

Note: EdX offers full support for this tool.

The completion tool provides learners with a way to mark sections of the course as completed. It helps learners to track their progress through sections of the course, including for ungraded activities such as reading text, watching video, or participating in course discussions.

- [Overview](#)
- [Enable the Completion Tool](#)
- [Add a Completion Component](#)

8.8.1 Overview

The completion tool provides learners with a way to indicate both to themselves and to the course team that they have completed an activity.

The completion tool is itself a graded component and is therefore always included on the learner **Progress** page. However, depending on whether it is used in a graded or ungraded section of the course, it appears either as a part of the learner's final grade or as a practice score, respectively.

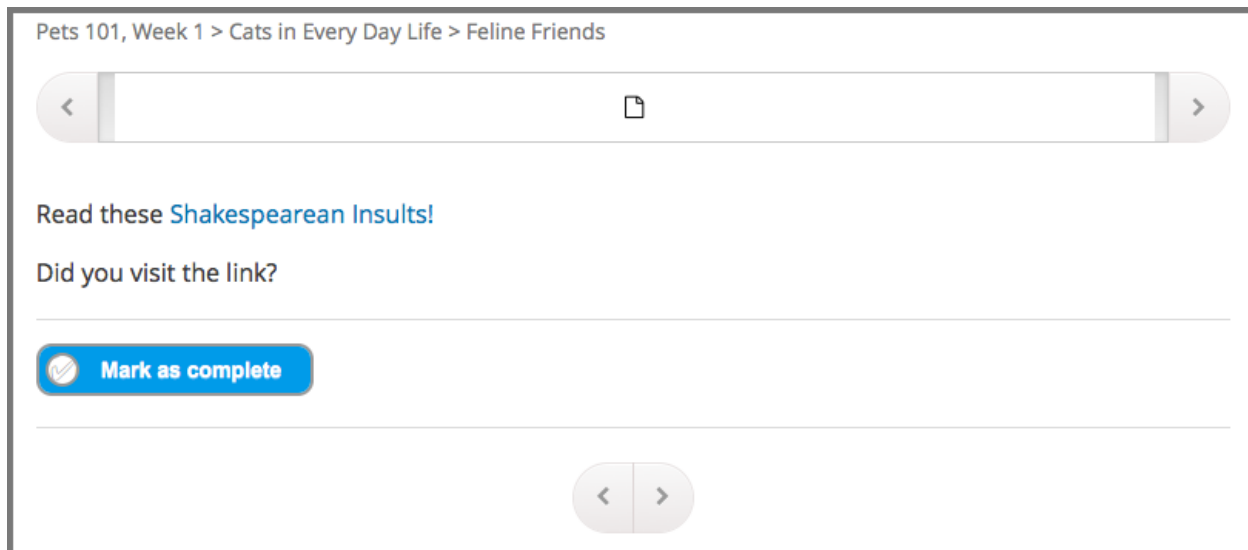
If you use the completion tool in an ungraded section of the course, the score for completing the activity that it is associated with is listed as a practice score on the **Progress** page. Practice scores are not included in the learner's final grade for the course.

You can also use the completion tool in graded sections of the course. If you do so, a score for completing the activity is included in learners' final grades. For example, if you include a completion component in a particular unit of the course content, learners who use the component to mark the unit as complete receive 1/1 points, while learners who do not mark the unit as complete receive 0/1 points. These scores are included in learners' final grades on the **Progress** page.

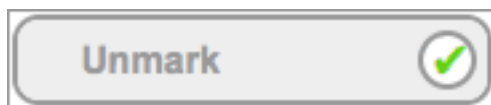
Note: EdX recommends using the completion tool primarily to track progress for ungraded activities such as reading assigned texts, watching videos, or participating in course discussions.

The Completion Control

When you add a completion component to a unit, learners see a control that is labeled **Mark as complete**. In this example, the completion component follows an HTML component.



After a learner selects this control, the label changes to **Unmark**. Learners who revisit their work in a unit and want to change the completion status can select this control as many times as needed.



8.8.2 Enable the Completion Tool

Before you can add a completion component to your course, you must enable the completion tool in Studio.

To enable the completion tool in Studio, add the "done" key to the **Advanced Module List** on the **Advanced Settings** page, then select **Save Changes**. (Be sure to include the quotation marks around the key value.) For more information, see *Enable Additional Exercises and Tools*.

8.8.3 Add a Completion Component

After you have enabled the completion tool in Studio, to add a completion component to a unit in a course, follow these steps.

1. In the course outline in Studio, locate the unit to which you want to add the completion component.
2. Under **Add New Component**, select **Advanced**.
3. Select **Completion**. The completion component is added to the unit.

Note: Select **Edit** in the completion component for information about the tool.

8.9 Conditional Module

Note: EdX offers provisional support for this problem type.

A conditional module controls the content that learners see after a response that they make meets a certain condition. For example, learners who answer “Yes” to a poll question see a different block of text from the learners who answered “No” to the same question.

8.9.1 Format description

The main tag of conditional module input is `conditional`.

```
<conditional> ... </conditional>
```

conditional can include any number of any Xmodule tags (html, video, poll, etc.) or show tags.

conditional Tag

The main container for a single instance of a conditional module. The following attributes can be specified for this tag.

```
sources - location id of required modules, separated by ';'
[message | ""] - message for case, where one or more are not passed. Here you can use variable {link}
[submitted] - map to `is_submitted` module method.
(pressing RESET button makes this function to return False.)

[correct] - map to `is_correct` module method
[attempted] - map to `is_attempted` module method
[poll_answer] - map to `poll_answer` module attribute
[voted] - map to `voted` module attribute
```

show Tag

SymLink to some set of Xmodules. The following attribute can be specified for this tag.

```
sources - location id of modules, separated by ';'

```

8.9.2 Examples

Example: conditional depends on poll

```
<conditional sources="i4x://MITx/0.000x/poll_question/first_real_poll_seq_with_reset" poll_answer="man"
message="{link} must be answered for this to become visible.">
  <html>
    <h3>You see this because your vote value for "First question" was "man"</h3>
  </html>
</conditional>
```

Example: conditional depends on poll (use <show> tag)

```
<conditional sources="i4x://MITx/0.000x/poll_question/first_real_poll_seq_with_reset" poll_answer="ma  
message="{link} must be answered for this to become visible.">  
  <html>  
    <show sources="i4x://MITx/0.000x/problem/test_1; i4x://MITx/0.000x/Video/Avi_resources; i4x:
```

```
</html>
</conditional>
```

Examples of conditional depends on problem

```
<conditional sources="i4x://MITx/0.000x/problem/Conditional:lec27_Q1" attempted="True">
  <html display_name="HTML for attempted problem">You see this because "lec27_Q1" was attempted.</html>
</conditional>
<conditional sources="i4x://MITx/0.000x/problem/Conditional:lec27_Q1" attempted="False">
  <html display_name="HTML for not attempted problem">You see this because "lec27_Q1" was not attempted.</html>
</conditional>
```

8.10 Custom JavaScript Problem

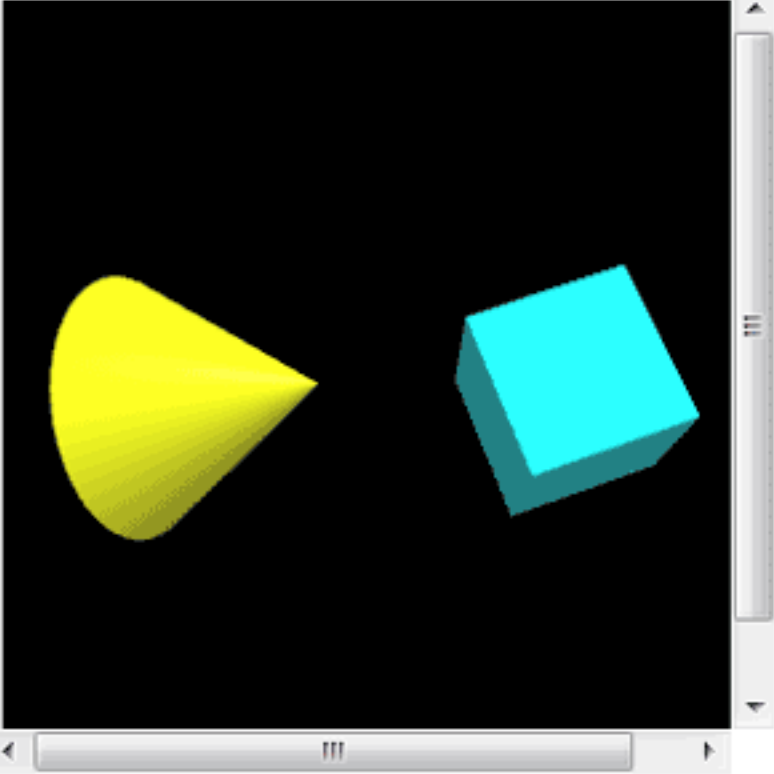
Note: EdX offers full support for this problem type.

Custom JavaScript display and grading problems (also called custom JavaScript problems or JS input problems) allow you to create a custom problem or tool that uses JavaScript and then add the problem or tool directly into Studio. When you create a JS input problem, Studio embeds the problem in an inline frame (an HTML iframe element) so that your learners can interact with it in the LMS. You can grade your learners' work using JavaScript and some basic Python, and the grading is integrated into the edX grading system.

The JS input problem that you create must use HTML, JavaScript, and cascading style sheets (CSS). You can use any application creation tool, such as the Google Web Toolkit (GWT), to create your JS input problem.

JAVASCRIPT INPUT EXAMPLE (1/1 points)

In the image below, click the cone.



✓

You have used 4 of 10 submissions

Caution:

- You cannot use a custom JavaScript problem in a component that contains more than one problem. Each custom JavaScript problem must be in its own component. See [Multiple Problems in One Component](#) for more information.
- The **Show Answer** button does not work for JS input problems. By default, the **Show Answer** option is set to **Never**. If you change this option in the problem component, a **Show Answer** button appears in the LMS, but the button does not work.

Note: You can make a calculator available to your learners on every unit page. For more information, see [Calculator Tool](#).

8.10.1 Create a Custom JavaScript Display and Grading Problem

1. Create your JavaScript application, and then upload all files associated with that application to the **Files & Uploads** page.
2. In the unit where you want to create the problem, under **Add New Component** select **Problem**, and then select **Advanced**.
3. Select **Custom JavaScript Display and Grading**.
4. In the component that appears, select **Edit**.
5. In the component editor, modify the example code according to your problem.

All problems have more than one element. Most problems conform to the same-origin policy (SOP), meaning that all elements have the same protocol, host, and port. For example, `http://store.company.com:81/subdirectory_1/JSInputElement.html` and `http://store.company.com:81/subdirectory_2/JSInputElement.js` have the same protocol (http), host (store.company.com), and port (81).

If any elements of your problem use a different protocol, host, or port, you need to bypass the SOP. For example, `https://info.company.com/JSInputElement2.html` uses a different protocol, host, and port. To bypass the SOP, change `sop="false"` in line 8 of the example code to `sop="true"`. For more information, see the same-origin policy page on the [Mozilla Developer Network](#) or on [Wikipedia](#).

6. If you want your problem to have a **Save** button, select **Settings**, and then set **Maximum Attempts** to a number larger than zero.
7. Select **Save**.

Recreate the Example Problem

To recreate the example problem above, you need the following files.

- webGLDemo.html
- webGLDemo.js
- webGLDemo.css
- three.min.js

To download these files in a .zip archive, go to <http://files.edx.org/JSInput.zip>.

Note: If you need to bypass the SOP, you also need the `jschannel.js` file, and your `webGLDemo.html` file will be slightly different. To download all of these files in a .zip archive, go to http://files.edx.org/JSInput_BypassSOP.zip.

1. Download and unpackage the files in either the `JSInput.zip` file or the `JSInput_BypassSOP.zip` file.
2. On the **Files & Uploads** page, upload all the files from the .zip file.
3. Create a new custom JavaScript display and grading problem component.
4. Select **Settings**, and then set **Maximum Attempts** to a number larger than zero.
5. In the problem component editor, replace the example code with the code below.
6. Select **Save**.

JavaScript Input Problem Code

```

<problem display_name="webGLDemo">
In the image below, click the cone.

<script type="loncapa/python">
import json
def vglcfn(e, ans):
    '''
    par is a dictionary containing two keys, "answer" and "state"
    The value of answer is the JSON string returned by getGrade
    The value of state is the JSON string returned by getState
    '''
    par = json.loads(ans)
    # We can use either the value of the answer key to grade
    answer = json.loads(par["answer"])
    return answer["cylinder"] and not answer["cube"]
    # Or we can use the value of the state key
    '''
    state = json.loads(par["state"])
    selectedObjects = state["selectedObjects"]
    return selectedObjects["cylinder"] and not selectedObjects["cube"]
    '''
</script>
<customresponse cfn="vglcfn">
    <jsinput
        gradefn="WebGLDemo.getGrade"
        get_statefn="WebGLDemo.getState"
        set_statefn="WebGLDemo.setState"
        width="400"
        height="400"
        html_file="/static/webGLDemo.html"
    />
</customresponse>
</problem>

```

Note: When you create this problem, keep the following in mind.

- The `webGLDemo.js` file defines the three JavaScript functions (**WebGLDemo.getGrade**, **WebGLDemo.getState**, and **WebGLDemo.setState**).
- The JavaScript input problem code uses **WebGLDemo.getGrade**, **WebGLDemo.getState**, and **WebGLDemo.setState** to grade, save, or restore a problem. These functions must be global in scope.
- **WebGLDemo.getState** and **WebGLDemo.setState** are optional. You only have to define these functions if you want to conserve the state of the problem.
- **Width** and **height** represent the dimensions of the iframe that holds the application.
- When the problem opens, the cone and the cube are both blue, or “unselected.” When you click either shape once, the shape becomes yellow, or “selected.” To unselect the shape, click it again. Continue clicking the shape to select and unselect it.
- The response is graded as correct if the cone is selected (yellow) when the user selects **Check**.
- Selecting **Check** or **Save** registers the problem’s current state.

8.10.2 JavaScript Input Problem XML

JSInput allows problem authors to turn stand-alone HTML files into problems that can be integrated into the edX platform. Since its aim is flexibility, it can be seen as the input and client-side equivalent of **CustomResponse**.

A JSInput exercise creates an iframe in a static HTML page, and passes the return value of author-specified functions to the enclosing response type (generally **CustomResponse**). JSInput can also store and retrieve state.

Template

The following is the basic format of a JSInput problem.

```
<problem>
  <script type="loncapa/python">
def all_true(exp, ans): return ans == "hi"
  </script>
  <customresponse cfn="all_true">
    <jsinput gradefn="gradefn"
      height="500"
      get_statefn="getstate"
      set_statefn="setstate"
      html_file="/static/jsinput.html"/>
  </customresponse>
</problem>
```

The accepted attributes are:

Attribute Name	Value Type	Required	Default
html_file	URL string	Yes	None
gradefn	Function name	Yes	<i>gradefn</i>
set_statefn	Function name	No	None
get_statefn	Function name	No	None
height	Integer	No	<i>500</i>
width	Integer	No	<i>400</i>

Required Attributes

- **html_file**

The **html_file** attribute specifies the HTML file that the iframe will point to. The HTML file must be located in the content directory.

The iframe is created using the sandbox attribute. Although pop-ups, scripts, and pointer locks are allowed, the iframe cannot access its parent's attributes.

The HTML file must contain a **gradefn** function that the JSInput file can access. To determine whether the **gradefn** function is accessible, in the console, make sure that **gradefn** returns the right thing. When JSInput uses the **gradefn** function, *gradefn* is called with *gradefn.call(obj)*, where **obj** is the object-part of **gradefn**. For example, if **gradefn** is **myprog.myfn**, JSInput calls **myprog.myfun.call(myprog)**. (This is to ensure “*this*” continues to refer to what *gradefn* expects.)

Aside from that, more or less anything goes. Note that currently there is no support for inheriting CSS or JavaScript from the parent (aside from the Chrome-only **seamless** attribute, which is set to True by default).

- **gradefn**

The **gradefn** attribute specifies the name of the function that will be called when a user selects **Check**, and that returns the learner's answer. Unless both the **get_statefn** and **set_statefn** attributes are also used, this answer is

passed as a string to the enclosing response type. In the **customresponse** example above, this means **cfn** will be passed this answer as **ans**.

If the **gradefn** function throws an exception when a learner attempts to submit a problem, the submission is aborted, and the learner receives a generic alert. The alert can be customized by making the exception name `Waitfor Exception`; in that case, the alert message will be the exception message.

Important: To make sure the learner’s latest answer is passed correctly, make sure that the **gradefn** function is not asynchronous. Additionally, make sure that the function returns promptly. Currently the learner has no indication that her answer is being calculated or produced.

Optional Attributes

- **set_statefn**

Sometimes a problem author will want information about a learner’s previous answers (“state”) to be saved and reloaded. If the attribute **set_statefn** is used, the function given as its value will be passed the state as a string argument whenever there is a state, and the learner returns to a problem. The function has the responsibility to then use this state appropriately.

The state that is passed is:

- The previous output of **gradefn** (i.e., the previous answer) if **get_statefn** is not defined.
- The previous output of **get_statefn** (see below) otherwise.

It is the responsibility of the iframe to do proper verification of the argument that it receives via **set_statefn**.

- **get_statefn**

Sometimes the state and the answer are quite different. For instance, a problem that involves using a javascript program that allows the learner to alter a molecule may grade based on the molecule’s hydrophobicity, but from the hydrophobicity it might be incapable of restoring the state. In that case, a *separate* state may be stored and loaded by **set_statefn**. Note that if **get_statefn** is defined, the answer (i.e., what is passed to the enclosing response type) will be a json string with the following format:

```
{
  answer: `[answer string]`
  state: `[state string]`
}
```

The enclosing response type must then parse this as json.

- **height** and **width**

The **height** and **width** attributes are straightforward: they specify the height and width of the iframe. Both are limited by the enclosing DOM elements, so for instance there is an implicit max-width of around 900.

In the future, JSInput may attempt to make these dimensions match the HTML file’s dimensions (up to the aforementioned limits), but currently it defaults to 500 and 400 for **height** and **width**, respectively.

8.11 Drag and Drop Problem

Note: EdX offers full support for this problem type.

In drag and drop problems, learners respond to a question by dragging text or images to a specific location on a background image. This section explains how to use drag and drop problems in your course.

- *Overview of Drag and Drop Problems*
- *Enabling Drag and Drop Problems*
- *Creating a Drag and Drop Problem*
- *Understanding the Drag and Drop Editing Controls*
- *Changing the Visual Style of a Drag and Drop Problem*

Note: This drag and drop problem type is intended as a replacement for an older drag and drop problem type. This drag and drop problem type includes significant improvements and you should use it for any new course development. For more information about the previous, deprecated drag and drop problem type, see [Drag and Drop Problem \(Deprecated\)](#).

8.11.1 Overview of Drag and Drop Problems

A drag and drop problem includes a background image and one or more draggable items that learners move into target zones on the background image. You can include as many draggable items and as many target zones as you need. You can include decoy items that do not have a target and you can include decoy targets that do not correspond to draggable items.

When learners view a drag and drop problem in the LMS, the problem includes a top section and a bottom section. Learners drag items from the top section on to the background image in the section below it.

The way that a learner selects, or grabs, an item depends on the type of browser that the learner uses. For example, a learner might click and hold on a draggable item with a mouse pointer to select it, drag the item to a target, and release the mouse pointer to drop the item on the target. A learner who accesses the problem on a mobile device with a touch screen might swipe an item from the top section into a target zone. A learner who uses a keyboard interface might use the navigation keys to select an item and then match it to a target zone.

Learners complete a drag and drop problem when each draggable item that matches a target zone is correctly placed on its zone. Draggable items can require that learners enter number input for problems.

Learners must match all items to their targets to complete a problem and receive any credit. If draggable items do not require number input, learners receive full credit for a drag and drop problem when it is complete. If draggable items require number input, learners receive partial credit for the items with correct input when the problem is complete.


The following image shows an example drag and drop problem.

Problem title — MATCH THE FRUITS WITH THEIR NAMES

Problem heading — Problem

Problem text — This problem shows pictures of two different types of fruit. Drag the labels onto the pictures to identify each fruit. You will not need all of the labels.

Draggable items — Peach Orange Apple

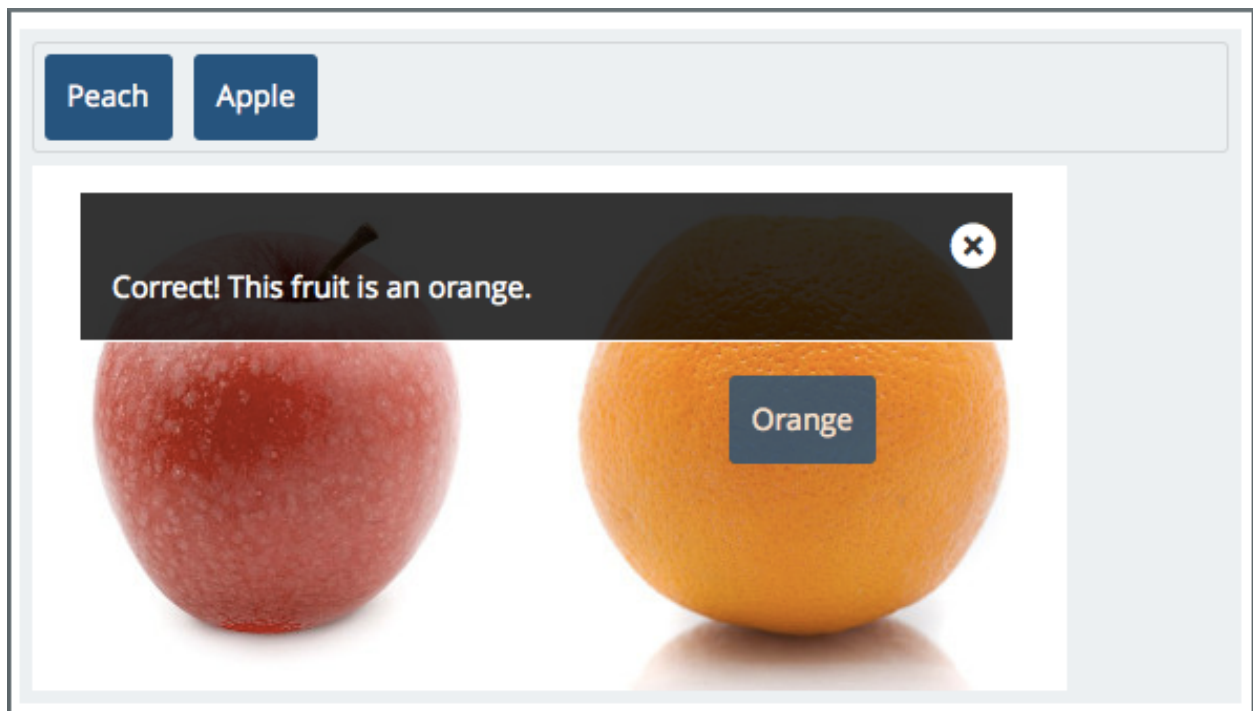
Background image — 

Keyboard Help

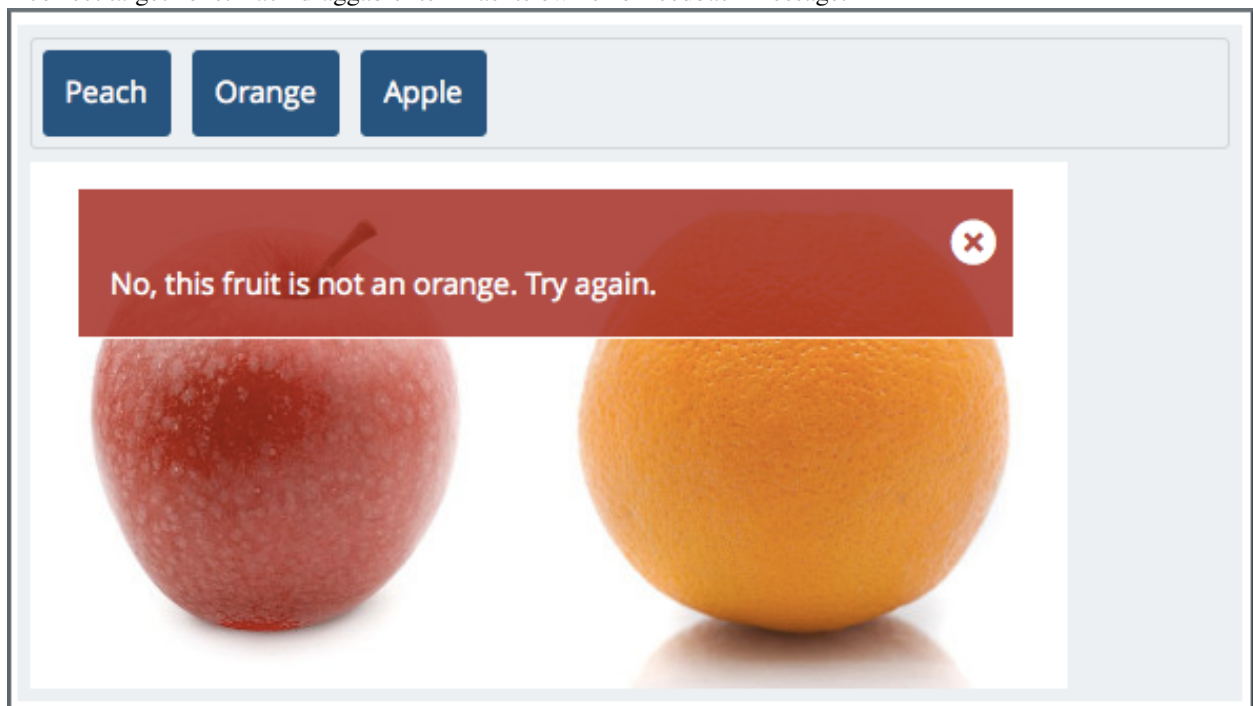
Introductory feedback — Feedback

Drag the fruit names onto the matching pictures of fruit.

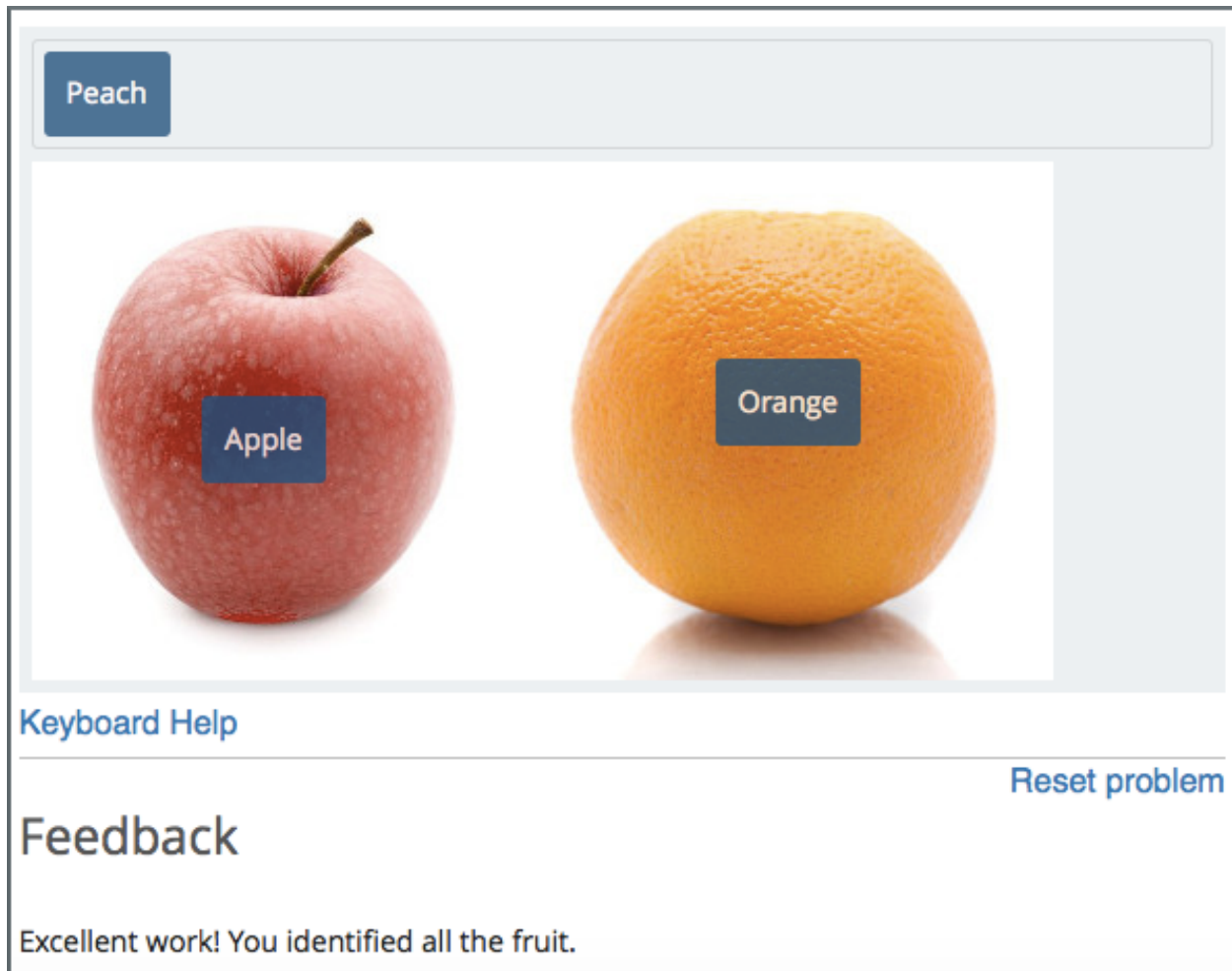
The following image shows the success feedback message that learners see when they match a draggable item with its target zone. Each draggable item has its own success feedback message.



The following image shows the error feedback message that learners see when they match a draggable item with an incorrect target zone. Each draggable item has its own error feedback message.



The following image shows a completed drag and drop problem. The final feedback message informs the learner that the problem is complete.



Understanding Background Images

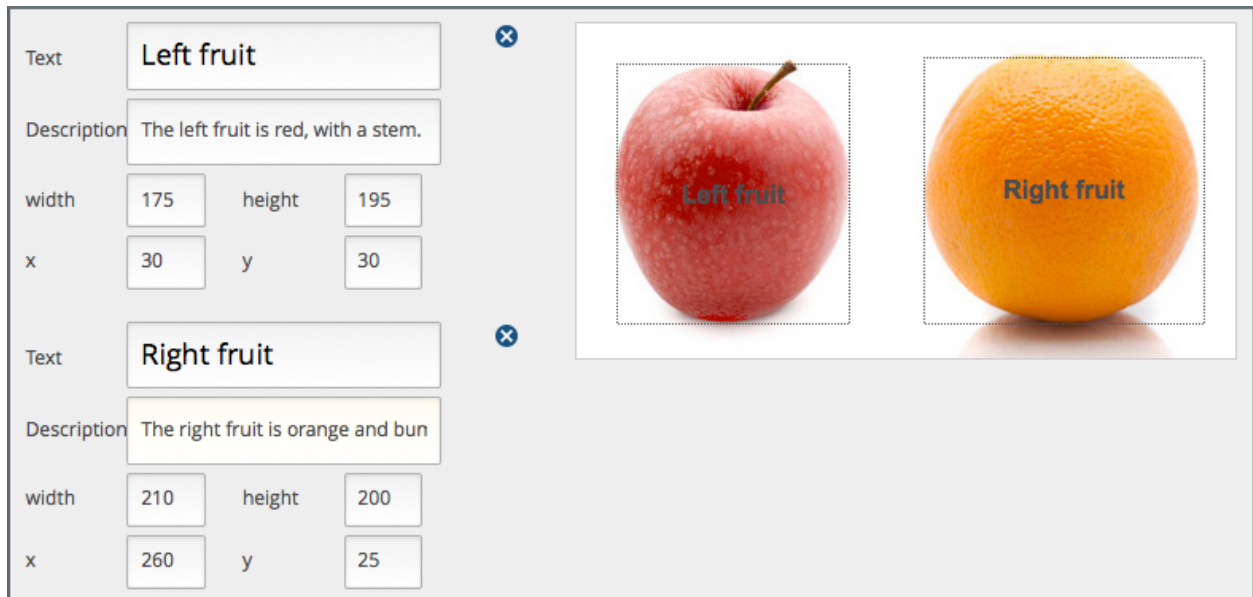
The background image for a drag and drop problem is the surface that learners drag items onto.

A target zone is a rectangular area on the background image. You can show or hide the borders of a zone for learners. You can add labels for zones or leave them unlabeled.

A background image must fit within the course screen. The LMS automatically scales images that are too wide. If you choose a background image that is extremely large, you should consider how it appears to learners after scaling. The width of the course screen depends on the device and browsing software that a learner uses.

You define a target zone by specifying its width, height, horizontal offset (x), and vertical offset (y). Each specification is in pixels. The horizontal offset is the distance between the left side of the background image and the left side of the target zone. The vertical offset is the distance between the top of the background image and the top of the target zone.

The following image shows a background image and target zones in the drag and drop problem editing dialog box. For more information about editing drag and drop problems, see [Creating a Drag and Drop Problem](#).



The screenshot displays the Eucalyptus interface for creating drag-and-drop problems. It shows two draggable items, each with a text label, a description, and pixel coordinates (width, height, x, y) for its target zone.

Left fruit

Description: The left fruit is red, with a stem.

width: 175, height: 195, x: 30, y: 30

Right fruit

Description: The right fruit is orange and bun

width: 210, height: 200, x: 260, y: 25

Note: The pixel coordinates that you use to specify the size and location of target zones are also used by common image editing software. You can open a background image in an image editing program to find the pixel coordinates of a target zone.

Understanding Draggable Items

A draggable item is a rectangle that contains either a label or an image. Learners grab draggable items from the top of a drag and drop problem and drag them to targets on the background image.

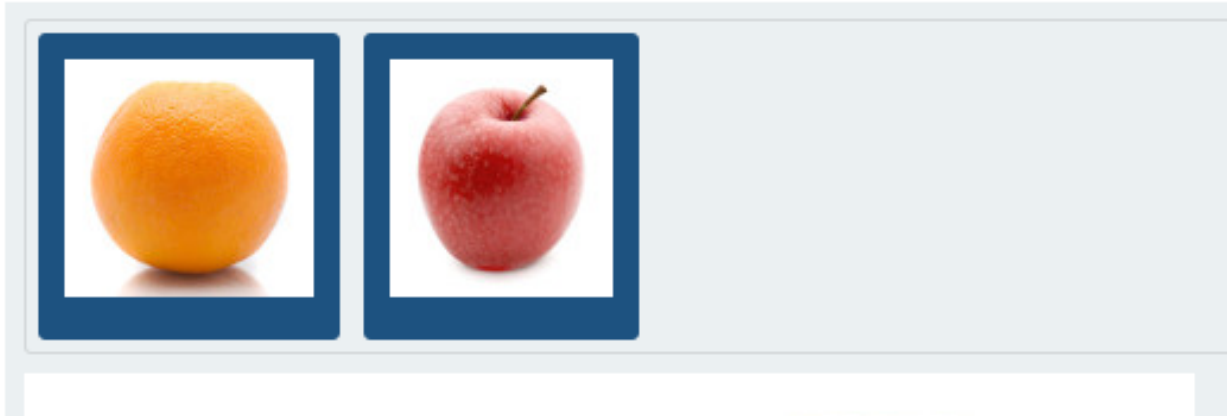
You can set the size of the rectangle for a draggable item as a percentage of the width of the problem. If you do not specify the size, the LMS sets it based on the length of the text in the label or the size of the image in it. You can set the background color and the label text color for the items in a problem.

Each draggable item can match one target zone on the background image. A draggable item can match none of the target zones.

Each item must have a text label to identify it in the drag and drop problem. If you include only a text label, that label appears in the draggable item. If you include both a text label and an image for an item, the image appears as its label.

Using Image Draggable Items

The following image shows draggable items with images. For examples of items with text, see *Overview of Drag and Drop Problems*.



Images for draggable items have alternate image descriptions. The alternate description explains the image content in text. If a learner cannot access the visual image content, the text description helps that learner to complete the problem.

Images for draggable items must fit within the top section of the problem. The LMS automatically scales large images to fit. If you use a large image in a draggable item, you should consider how that image appears after scaling.

Note: If an image file is unavailable, or cannot be displayed, the LMS displays the text description as the button label.

Using Number Input with Draggable Items

Draggable items can accept number input after they are correctly placed on matching target zones. You specify the number that learners must enter and an optional margin of error that will be accepted as correct. The margin of error is the range of values above or below the correct number that also qualify as correct.

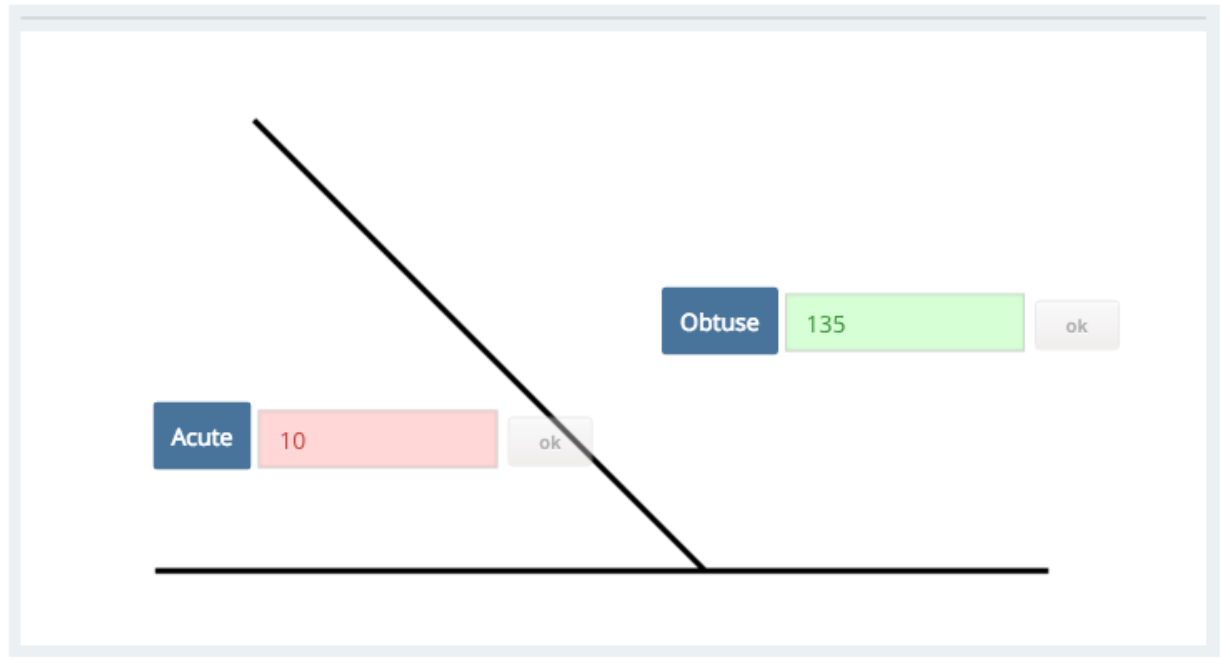
For example, if the target value is 5 and the margin of error is 1, 6, 5, and 4 are correct entries. In that example, 3, 7, and any other numbers are incorrect entries because they are outside of the margin of error.

You can specify the target number and the acceptable margin of error using whole numbers or fractional values to one decimal place. For example, the target value can be 5 or 5.5. The target value cannot be 5.55.

The following image shows draggable items that accept number input after they are dragged to the correct target zone. The number entry for one item is correct and the number entry of the other item is incorrect.

IDENTIFY ANGLES

Label the acute and obtuse angles in the diagram. Enter the approximate angle in degrees after you label it. Angle measurements within 15 degrees are considered correct.



8.11.2 Enabling Drag and Drop Problems

Before you can add drag and drop problems, you must enable the drag and drop problem type for your course.

To enable the drag and drop problem type, you add the "drag-and-drop-v2" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

After you enable the drag-and-drop-v2 problem type, **Drag and Drop** appears in the **Advanced** menu of the **Add New Component** screen.

Note: By default, your course includes a **Drag and Drop** problem type in the **Problem > Advanced** menu of the **Add New Component** screen. This is an older drag and drop problem type that has been replaced by the drag-and-drop-v2 advanced module in the **Advanced** menu of the **Add New Component** screen.

8.11.3 Creating a Drag and Drop Problem

You must enable the drag and drop problem type for your course before you can add a drag and drop problem. For more information, see [Enabling Drag and Drop Problems](#).

To create a drag and drop problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Advanced**.
2. From the list of advanced components, select **Drag and Drop**.

Studio adds the drag and drop problem to the unit.

3. Select **Edit**. The **Editing** dialog box opens.

Configure your drag and drop problem. For detailed information about individual controls in the **Editing** dialog box, see [Understanding the Drag and Drop Editing Controls](#).

The **Editing** dialog box includes multiple screens. Configure each screen and select **Continue**. On the final screen, select **Save** to exit the configuration dialog box and save your changes.

In particular, configure the aspects of the drag and drop problem described below.

- Edit the problem title, problem text, introductory feedback, and final feedback for the problem. For more information about how the text in these fields appears in a drag and drop problem, see [Overview of Drag and Drop Problems](#).
- Specify a background image in the **Background URL** field. Enter the URL of a file you have added to your course or the URL of an image on the web. For more information about working with course files, see [Adding Files to a Course](#). For more information about background images, see [Understanding Background Images](#).

Select **Change background** after you enter the URL for your background image.

If you specify the URL of an image on the web, make sure that you are legally authorized to use the image and that the image is available to learners around the world.

- Remove the target zones for the example drag and drop problem. Select **Add a zone** to add each target zone for your problem. For more information about target zones, see [Understanding Background Images](#).
- Remove the draggable items for the example drag and drop problem. Select **Add an item** to add draggable items for your problem. Select a matching target zone for each item in the **Zone** field. Add a label, success feedback text, and error feedback text. For more information about how the text in these fields appears, see [Overview of Drag and Drop Problems](#). For more information about draggable items, see [Understanding Draggable Items](#).

8.11.4 Understanding the Drag and Drop Editing Controls

The following table explains the controls in the **Editing** dialog box.

Control	Explanation
Problem title	The heading that appears above the drag and drop problem. For an example, see Overview of Drag and Drop Problems .
Show title	Controls whether the problem title appears above the problem in the LMS.
Maximum score	The total number of points that learners receive for completing the problem. If draggable items have number input, learners may receive partial credit for the item. If items do not have number input, learners receive the maximum score. For more information about scores and grading, see Establishing a Grading Policy For Your Course .
Problem text	Text that appears above the problem in the LMS. You can use this text to provide instructions or explain the problem. For an example, see Overview of Drag and Drop Problems .
Continued on next page	

Table 8.1 – continued from previous page

Control	Explanation
Show “Problem” heading	Controls whether the word Problem appears above the problem text.
Introductory Feedback	The text that appears in the feedback section of the problem before a learner begins.
Final Feedback	The text that appears in the feedback section of the problem after a learner matches all items to their target zones.
Background URL	The URL of the image that contains target zones for the problem. The URL can be relative to a file you add to your course or to a file on the web. For more information, see Understanding Background Images . You must select Change background when you enter a new URL in this field. If you do not select Change background , the new value will not be saved when you save other changes in the Editing dialog box.
Background description	A description of the background image. This description is used by learners who cannot access the visual image.
Display label names on the image	Controls whether the text for target zones appears on the background image in the LMS.
Display zone borders on the image	Controls whether the outlines of target zones appear on the background image in the LMS.
Zone Text	A name for a target zone. You select the name of a target zone in the configuration for draggable items.
Zone Description	Text that describes a target zone. This description is available to learners who cannot access the target zone visually.
Zone width	The horizontal size of a target zone in pixels.
Zone height	The vertical size of a target zone in pixels.
Zone X	The horizontal distance between the left edge of the background image and the left edge of a target zone.
Zone Y	The vertical distance between the top edge of the background image and the top edge of a target zone.
Add a zone	Adds a set of controls for a new zone to the Editing dialog box.
Background color	The color that appears behind the text or image label of a draggable item. You can specify the color using a hexadecimal color code (including the # character) or any other valid CSS color specification. For more information, see the W3C CSS color specification . This is an optional configuration. If you do not set the background color, the LMS will apply the default color to your draggable items.
Text color	The color of the text label for a draggable item. You can specify the color using a hexadecimal color code (including the # character) or any other valid CSS color specification. For more information, see the W3C CSS color specification . This is an optional configuration. If you do not set the background color, the LMS will apply the default color to your text.
Item Text	Controls the text that appears on the draggable item in the problem.

Continued on next page

Table 8.1 – continued from previous page

Control	Explanation
Item Zone	Controls the target zone that matches the draggable item. Learners must drag the item to the target zone that you select.
Item Image URL	(Optional) the URL of an image that appears on a draggable item. The image appears on the draggable item in the problem. The URL can be relative to a file you add to your course or to a file on the web.
Item Image description	Text that describes the image label for a draggable item. The description is used by learners who cannot access the visual image label.
Item Success Feedback	The text message that appears above the background image when a learner places a draggable item on its matching target zone. For an example, see Overview of Drag and Drop Problems . This is an optional configuration. If you do not enter a success feedback message, the LMS will not display one.
Item Error Feedback	The text message that appears above the background image when a learner places a draggable item on an incorrect matching target zone. For an example, see Overview of Drag and Drop Problems . This is an optional configuration. If you do not enter an error feedback message, the LMS will not display one.
Item Show advanced settings	Opens additional controls for configuring a draggable item.
Item Preferred width	The horizontal size of a draggable item as a percent of the problem width. The percent value must be a whole number between 0 and 100.
Item Optional numerical value	A number that learners must enter after they place a draggable item on the correct target zone. For more information, see Using Number Input with Draggable Items .
Item Margin \pm	Controls the range of numbers that are accepted as the correct number input for a draggable item. For more information, see Using Number Input with Draggable Items .
Add an item	Adds a set of controls for a new draggable item to the Editing dialog box.

8.11.5 Changing the Visual Style of a Drag and Drop Problem

You can change the visual appearance of drag and drop problems in your courses.

The **Background color** and **Text color** controls for the draggable items in a drag and drop problem set the appearance of items for an individual problem. You can choose colors for the background and text of items when you create or edit a drag and drop problem.

You can develop a Python programming language module and include a custom Cascading Style Sheet (CSS) file for drag and drop problems in your Open edX site. For more information, see [Styling Drag and Drop Problems](#).

8.12 Drag and Drop Problem (Deprecated)

Note: This drag and drop problem type has been replaced by a newer drag and drop problem type. The newer drag and drop problem type includes significant improvements and you should use it for any new course development. For more information about the replacement drag and drop problem type, see [Drag and Drop Problem](#).

Warning:

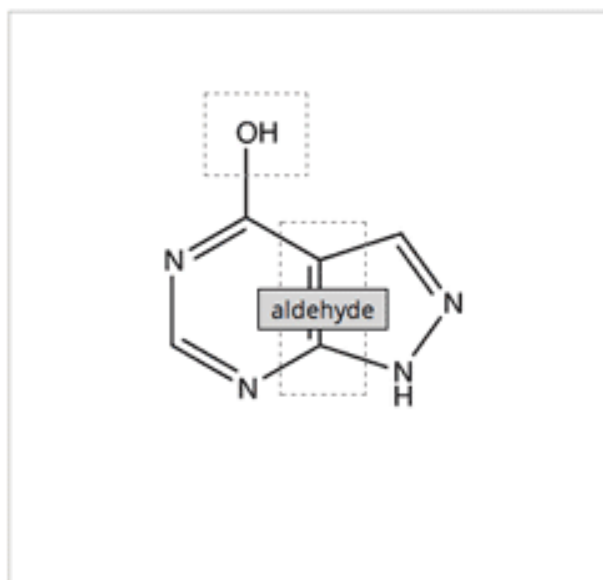
- **This deprecated drag and drop problem type is not accessible for learners with some disabilities, and it does not work correctly on mobile phones and other devices that use touch screen interfaces.** If you use this kind of problem, make sure that you include an alternative for learners who cannot access drag and drop problems, or leave these problems ungraded.
For more information about creating accessible content, see [Accessibility Best Practices for Developing Course Content](#).
- The **Show Answer** button does not work for drag and drop problems. By default, the **Show Answer** option is set to **Never**. If you change this option in the problem component, a **Show Answer** button appears in the LMS, but the button does not work.

Note: EdX offers provisional support for this problem type.

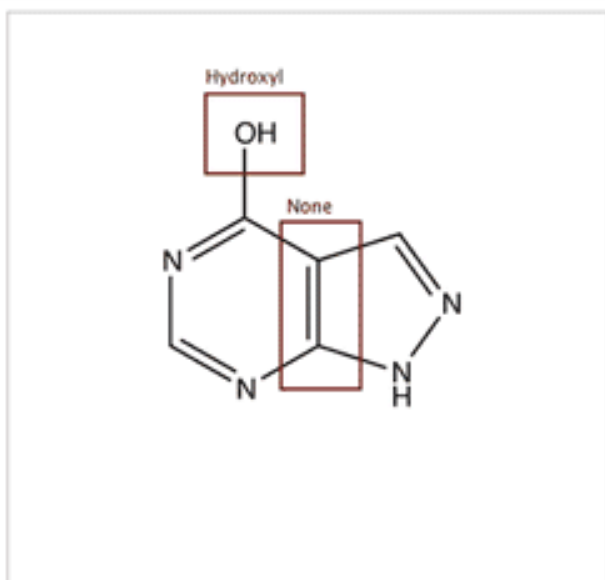
In drag and drop problems, learners respond to a question by dragging text or objects to a specific location on an image.

The following drag and drop exercise first appeared in MIT's 7.00x: Introduction to Biology - The Secret of Life course in March 2013.

You are shown one of many possible molecules. On the structure of allopurinol below, identify the functional groups that are present by dragging the functional group name listed onto the appropriate target boxes on the structure. If you want to change an answer, you have to drag off the name as well. You may need to scroll through the names of functional groups to see all options.



◀	methyl	hydroxyl	amino	carboxyl	aldehyde	phospha	▶
---	--------	----------	-------	----------	----------	---------	---



8.12.1 Creating a Drag and Drop Problem

To create a simple drag and drop problem in which learners drag labels onto an image, you upload the image that you want learners to drag labels onto, and then create a problem component.

1. On the **Files & Uploads** page, upload your image file. For more information about uploading files, see [Adding Files to a Course](#).
2. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
3. Click **Drag and Drop**.
4. In the component that appears, click **Edit**.
5. In the component editor, replace the example text with the text of your problem.
6. In the `<drag_and_drop_input>` tag, replace `https://studio.edx.org/c4x/edx/DemoX/asset/L9_buckets.png` with the URL of your image file on the **Files & Uploads** page (for example, `/static/Image.png`).
7. For at least one `<draggable>` tag, replace the text of the **label** attribute with the text of the label you want learners to drag. For example, if you want learners to drag the word “Iceland” onto your image, the new tag would resemble the following:

```
<draggable id="1" label="Iceland"/>
```
8. Repeat the previous step for all the labels that you want to use. Make sure that the **id** attribute is different for each `<draggable>` tag.
9. Determine the coordinates and radius of the correct area on the image.
10. Under `correct_answer = {`, add an entry for each label, using the following format. These values are in pixels:

```
'id': [[x coordinate, y coordinate], radius]
```

For example, if your image is 600 pixels wide and 400 pixels high, and you want your learners to drag the Iceland label to an area in the upper-left part of the image and drag a Sweden label near the lower-right part of your image, the code would resemble the following (where 2 is the ID for the Sweden label):

```
correct_answer = {  
    '1': [[50, 50], 75]  
    '2': [[550, 350], 75]}
```

Note: Make sure the code contains the closing curly brace `}`.

11. Click **Save**.

Sample Drag and Drop Problem Code

To create the drag and drop problem that appears in the image above, you download two files from edX, upload these files to the **Files & Uploads** page, and then add the code for the problem to a problem component.

1. Download the following files from edX:
 - Allopurinol.gif
 - AllopurinolAnswer.gif

To download both these files in a .zip archive, click <http://files.edx.org/DragAndDropProblemFiles.zip>.

1. Upload the Allopurinol.gif and AllopurinolAnswer.gif files to the **Files & Uploads** page.
2. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
3. Click **Drag and Drop**.
4. In the component that appears, click **Edit**.
5. In the component editor, replace the example code with the following code.
6. Click **Save**.

Problem Code:

```
<problem>
  <p> Allopurinol is a drug used to treat and prevent gout, a very painful form of arthritis. Once on
  <p> You are shown one of many possible molecules. On the structure of allopurinol below, identify t
  <customresponse>
    <drag_and_drop_input no_labels="true" one_per_target="true" target_outline="true" img="/static/A
      <draggable can_reuse="true" label="methyl" id="1"/>
      <draggable can_reuse="true" label="hydroxyl" id="2"/>
      <draggable can_reuse="true" label="amino" id="3"/>
      <draggable can_reuse="true" label="carboxyl" id="4"/>
      <draggable can_reuse="true" label="aldehyde" id="5"/>
      <draggable can_reuse="true" label="phosphate" id="6"/>
      <draggable can_reuse="true" label="sulfhydryl" id="7"/>
      <draggable can_reuse="true" label="phenyl" id="8"/>
      <draggable can_reuse="true" label="none" id="none"/>
      <target id="0" h="53" w="66" y="55.100006103515625" x="131.5"/>
      <target id="1" h="113" w="55" y="140.10000610351562" x="181.5"/>
    </drag_and_drop_input>
    <answer type="loncapa/python">
correct_answer = [
  {'draggables': ['2'], 'targets': ['0'], 'rule':'unordered_equal' },
  {'draggables': ['none'], 'targets': ['1'], 'rule':'unordered_equal' }]
if draganddrop.grade(submission[0], correct_answer):
  correct = ['correct']
else:
  correct = ['incorrect']
    </answer>
  </customresponse>
  <solution>
    
  </solution>
</problem>
```

8.12.2 Drag and Drop Problem XML

```
<problem>
  <customresponse>
    <p>Drag each word in the scrollbar to the bucket that matches the number of
    letters in the word.</p>
    <drag_and_drop_input img="https://studio.edx.org/c4x/edx/DemoX/asset/L9_buckets.png">
      <draggable id="1" label="a"/>
      <draggable id="2" label="bog"/>
      <draggable id="3" label="droll"/>
      <draggable id="4" label="oboe"/>
      <draggable id="5" label="swain"/>
    </drag_and_drop_input>
  </customresponse>
</problem>
```

```

<draggable id="6" label="in"/>
<draggable id="7" label="onyx"/>
<draggable id="8" label="of"/>
<draggable id="9" label="tap"/>
<draggable id="10" label="strop"/>
<draggable id="11" label="few"/>
</drag_and_drop_input>
<answer type="loncapa/python">
    correct_answer = {
        '1':      [[70, 150], 121],
        '6':      [[190, 150], 121],
        '8':      [[190, 150], 121],
        '2':      [[310, 150], 121],
        '9':      [[310, 150], 121],
        '11':     [[310, 150], 121],
        '4':      [[420, 150], 121],
        '7':      [[420, 150], 121],
        '3':      [[550, 150], 121],
        '5':      [[550, 150], 121],
        '10':     [[550, 150], 121]}
    if draganddrop.grade(submission[0], correct_answer):
        correct = ['correct']
    else:
        correct = ['incorrect']
</answer>
</customresponse>
</problem>

```

```

<problem>
<customresponse>
    <p>Label the hydrogen atoms connected with the left carbon atom.</p>
    <drag_and_drop_input img="https://studio.edx.org/c4x/edx/DemoX/asset/ethglycol.jpg"
    target_outline="true" one_per_target="true" no_labels="true"
    label_bg_color="rgb(222, 139, 238)">
        <draggable id="1" label="Hydrogen" />
        <draggable id="2" label="Hydrogen" />
        <target id="t1_o" x="10" y="67" w="100" h="100"/>
        <target id="t2" x="133" y="3" w="70" h="70"/>
        <target id="t3" x="2" y="384" w="70" h="70"/>
        <target id="t4" x="95" y="386" w="70" h="70"/>
        <target id="t5_c" x="94" y="293" w="91" h="91"/>
        <target id="t6_c" x="328" y="294" w="91" h="91"/>
        <target id="t7" x="393" y="463" w="70" h="70"/>
        <target id="t8" x="344" y="214" w="70" h="70"/>
        <target id="t9_o" x="445" y="162" w="100" h="100"/>
        <target id="t10" x="591" y="132" w="70" h="70"/>
    </drag_and_drop_input>
    <answer type="loncapa/python">
        correct_answer = [{
            'draggables': ['1', '2'],
            'targets': ['t2', 't3', 't4' ],
            'rule': 'anyof'
        }]
        if draganddrop.grade(submission[0], correct_answer):
            correct = ['correct']
        else:
            correct = ['incorrect']
    </answer>

```

```
</customresponse>
</problem>
```

Tags

- `<customresponse>`: Indicates that the problem is a custom response problem.
- `<drag_and_drop_input>`: Indicates the custom response problem is a drag and drop problem.
- `<draggable>`: Specifies a single object that a learner will drag onto the base image.
- `<target>`: Specifies the location on the base image where a draggable must be dropped.

Tag: `<drag_and_drop_input>`

Attributes

Attribute	Description
<code>img</code> (required)	Relative path to an image that will be the base image. All draggables can be dragged onto it.
<code>target_outline</code>	Specifies whether an outline (gray dashed line) should be drawn around targets (if they are specified). It can be either 'true' or 'false'. If not specified, the targets do not have outlines.
<code>one_per_target</code>	Specify whether to allow more than one draggable to be placed onto a single target. It can be either 'true' or 'false'. If not specified, the default value is 'true'.
<code>no_labels</code> (required)	The default is false. In default behavior, if label is not set, label is obtained from id. If <code>no_labels</code> is true, labels are not automatically populated from id, and one cannot set labels and obtain only icons.

Children

- `<draggable>`
- `<target>`

Tag: `<draggable>`

Specifies a single draggable object in a drag and drop problem.

A draggable is what the user must drag out of the slider and drop onto the base image. After a drag operation, if the center of the draggable is located outside the rectangular dimensions of the image, it will be returned to the slider.

For the grader to work, each draggable must have a unique ID.

Attributes

Attribute	Description
<code>id</code> (required)	Unique identifier of the draggable object.
<code>label</code> (optional)	Text label that the user sees.
<code>icon</code> (optional)	For draggables that are images, the relative path to the image file.
<code>can_reuse</code>	The default is false. If true, the same draggable can be used multiple times.

Children

(none)

Tag: `<target>`

Specifies the location on the base image where a learner must drop a draggable item. By design, if the center of a draggable lies within the target (i.e. in the rectangle defined by $[[x, y], [x + w, y + h]]$, it is within the target. Otherwise, it is outside.

If you specify at least one target, and a learner drops a draggable item on a location that is outside a target, the draggable item returns to the slider.

If you don't specify a target, a learner can drop a draggable item anywhere on the base image.

Attributes

Attribute	Description
id (required)	Unique identifier of the target object.
x	X-coordinate on the base image where the top left corner of the target will be positioned.
y	Y-coordinate on the base image where the top left corner of the target will be positioned.
w	Width of the target, in pixels.
h	Height of the target, in pixels.

Children

(none)

8.12.3 Targets on Draggables

Sometimes it is not enough to have targets only on the base image, and all of the draggables on these targets. If a complex problem exists where a draggable must become itself a target (or many targets), then the following extended syntax can be used.

```
...
<draggable {attribute list}>
  <target {attribute list} />
  <target {attribute list} />
  <target {attribute list} />
  ...
</draggable>
...
```

The attribute list in the tags above (`draggable` and `target`) is the same as for normal `draggable` and `target` tags. The only difference is when you will be specifying inner target position coordinates. Use the `x` and `y` attributes to set the offset of the inner target from the upper-left corner of the parent draggable (that contains the inner target).

Limitations of targets on draggables

- Currently there is a limitation to the level of nesting of targets.

Even though you can pile up a large number of draggables on targets that themselves are on draggables, the drag and drop problem will be graded only if there is a maximum of two levels of targets. The first level are the *base* targets. They are attached to the base image. The second level are the targets defined on draggables.

- Another limitation is that the target bounds are not checked against other targets.

You must make sure that there is no overlapping of targets. You should also ensure that targets on draggables are smaller than the actual parent draggable. Technically this is not necessary, but from the usability perspective it is desirable.

- You can have targets on draggables only in the case when there are base targets defined (base targets are attached to the base image).

If you do not have base targets, then you can only have a single level of nesting (draggables on the base image). In this case the client side will be reporting (x,y) positions of each draggable on the base image.

8.12.4 Correct answer format

For specifying answers for targets on draggables, see *Answer format for targets on draggables*.

There are two correct answer formats: short and long.

In short form, the correct answer is mapping of `draggable_id` to `target_id`:

```
correct_answer = {'grass': [[300, 200], 200], 'ant': [[500, 0], 200]}
correct_answer = {'name4': 't1', '7': 't2'}
```

In long form, the correct answer is list of dicts. Every dict has 3 keys: `draggables`, `targets` and `rule`. For example:

```
correct_answer = [
{
  'draggables': ['7', '8'],
  'targets': ['t5_c', 't6_c'],
  'rule': 'anyof'
},
{
  'draggables': ['1', '2'],
  'targets': ['t2_h', 't3_h', 't4_h', 't7_h', 't8_h', 't10_h'],
  'rule': 'anyof'
}]
```

“Draggables” is the list of draggable IDs. “Target” is the list of target IDs that draggables must be dragged to.

Caution: Draggables in dicts inside the `correct_answer` list must not intersect.

Wrong (for draggable id 7):

```
correct_answer = [
{
  'draggables': ['7', '8'],
  'targets': ['t5_c', 't6_c'],
  'rule': 'anyof'
},
{
  'draggables': ['7', '2'],
  'targets': ['t2_h', 't3_h', 't4_h', 't7_h', 't8_h', 't10_h'],
  'rule': 'anyof'
}]
```

The values for `rule` follow.

- `exact`: Targets for draggable IDs in `user_answer` are the same as targets from the correct answer. For example, for draggables 7 and 8, the user must drag 7 to target1 and 8 to target2 if the `correct_answer` is:

```
correct_answer = [
{
  'draggables': ['7', '8'],
  'targets': ['target1', 'target2'],
  'rule': 'exact'
}]
```

- `unordered_equal`: Allows draggables be dragged to targets unordered. For learners to drag 7 to target1 or target2 and 8 to target2 or target1 and 7 and 8 must be in different targets, then correct answer must be:

```
correct_answer = [
  {
    'draggables': ['7', '8'],
    'targets': ['target1', 'target2'],
    'rule': 'unordered_equal'
  }]
```

- **anyof**: Allows draggables to be dragged to any target. For learners to drag 7 and 8 to target1 or target2, any of these are correct with the *anyof* rule:

```
correct_answer = [
  {
    'draggables': ['7', '8'],
    'targets': ['target1', 'target2'],
    'rule': 'anyof'
  }]
```

If `can_reuse` is true, then you have draggables a,b,c and 10 targets. These will allow you to drag 4 a draggables to [target1, target4, target7, target10]; you do not need to write a four times. Also this will allow you to drag the b draggable to target2 or target5 for target5 and target2.:

```
correct_answer = [
  {
    'draggables': ['a'],
    'targets': ['target1', 'target4', 'target7', 'target10'],
    'rule': 'unordered_equal'
  },
  {
    'draggables': ['b'],
    'targets': ['target2', 'target5', 'target8'],
    'rule': 'anyof'
  },
  {
    'draggables': ['c'],
    'targets': ['target3', 'target6', 'target9'],
    'rule': 'unordered_equal'
  }]
```

Sometimes you want to allow learners to drag only two b draggables. In this case you should use the `anyof+number` or `unordered_equal+number` rule:

```
correct_answer = [
  {
    'draggables': ['a', 'a', 'a'],
    'targets': ['target1', 'target4', 'target7'],
    'rule': 'unordered_equal+number'
  },
  {
    'draggables': ['b', 'b'],
    'targets': ['target2', 'target5', 'target8'],
    'rule': 'anyof+number'
  },
  {
    'draggables': ['c'],
    'targets': ['target3', 'target6', 'target9'],
    'rule': 'unordered_equal'
  }]
```

When there are no multiple draggables per targets (`one_per_target="true"`), for the same number of draggables,

anyof is equal to unordered_equal.

If `can_reuse=true`, then you must use only the long form of the correct answer.

Answer format for targets on draggables

As with the cases described above, an answer must provide precise positioning for each draggable (on which targets it must reside). In the case when a draggable must be placed on a target that itself is on a draggable, then the answer must contain the chain of target-draggable-target.

For example, suppose we have three draggables - up, s, and p. Draggables s and p have targets on themselves. More specifically, p has three targets - 1, 2, and 3. The first requirement is that s and p are positioned on specific targets on the base image. The second requirement is that draggable up is positioned on specific targets of draggable p. Below is an excerpt from a problem:

```
<draggable id="up" icon="/static/images/images_list/lcao-mo/up.png" can_reuse="true" />

<draggable id="s" icon="/static/images/images_list/lcao-mo/orbital_single.png" label="s orbital" can_
  <target id="1" x="0" y="0" w="32" h="32"/>
</draggable>

<draggable id="p" icon="/static/images/images_list/lcao-mo/orbital_triple.png" can_reuse="true" label="p orbital" can_
  <target id="1" x="0" y="0" w="32" h="32"/>
  <target id="2" x="34" y="0" w="32" h="32"/>
  <target id="3" x="68" y="0" w="32" h="32"/>
</draggable>

...

correct_answer = [
  {
    'draggables': ['p'],
    'targets': ['p-left-target', 'p-right-target'],
    'rule': 'unordered_equal'
  },
  {
    'draggables': ['s'],
    'targets': ['s-left-target', 's-right-target'],
    'rule': 'unordered_equal'
  },
  {
    'draggables': ['up'],
    'targets': ['p-left-target[p][1]', 'p-left-target[p][2]', 'p-right-
      target[p][2]', 'p-right-target[p][3]', ],
    'rule': 'unordered_equal'
  }
]
```

Note that you must specify rules for all draggables, even if a draggable gets included in more than one chain.

8.12.5 Grading logic

1. The learner's answer and the correct answer are parsed to the same format.

```
group_id: group_draggables, group_targets, group_rule
```

`group_id` is ordinal number, for every dict in correct answer incremental `group_id` is assigned: 0, 1, 2, ...

Draggables from the user answer are added to the same `group_id` where identical draggables from the correct answer are, for example:

```
If correct_draggables[group_0] = [t1, t2] then
user_draggables[group_0] are all draggables t1 and t2 from the user answer:
[t1] or [t1, t2] or [t1, t2, t2] etc..
```

1. For every group from the user answer, for that group's draggables, if `number` is in the group rule, `set()` is applied. If `number` is not in rule, set is not applied:

```
set() : [t1, t2, t3, t3] -> [t1, t2, ,t3]
```

For every group, at this step, draggables lists are equal.

1. For every group, lists of targets are compared using the rule for that group.

Set and `+number` cases

`set()` and `+number` are needed only for the case of reusable draggables. For other cases there are no equal draggables in list, so `set()` does nothing.

- The `set()` operation allows you to create a rule for the case of “any number of the same draggable can be dragged to targets”:

```
{
  'draggables': ['draggable_1'],
  'targets': ['target3', 'target6', 'target9'],
  'rule': 'anyof'
}
```

- The `number` rule is used for the case of reusable draggables, when you want to fix number of draggable to drag. In this example only two instances of `draggable_1` are allowed to be dragged:

```
{
  'draggables': ['draggable_1', 'draggable_1'],
  'targets': ['target3', 'target6', 'target9'],
  'rule': 'anyof+number'
}
```

- Note, that in using rule `exact`, one does not need `number`, because you cannot recognize from the user interface which reusable draggable is on which target. For example:

```
{
  'draggables': ['draggable_1', 'draggable_1', 'draggable_2'],
  'targets': ['target3', 'target6', 'target9'],
  'rule': 'exact'
}
```

Correct handling of this example is to create different rules for `draggable_1` and `draggable_2`.

- For `unordered_equal` (or `exact`) you don't need `number` if you have only the same draggable in the group, as the target length will provide the constraint for the number of draggables:


```
{
  'draggables': ['draggable_1'],
  'targets': ['target3', 'target6', 'target9'],
  'rule': 'unordered_equal'
}
```

This means that only `draggable_1` can be dragged.

- But if you have more than one different reusable draggable in the list, you may use the number rule:

```
{
  'draggables': ['draggable_1', 'draggable_1', 'draggable_2'],
  'targets': ['target3', 'target6', 'target9'],
  'rule': 'unordered_equal+number'
}
```

If you do not use number, the draggables list will be set to `[draggable_1, draggable_2]`.

8.13 Dropdown Problem

Note: EdX offers full support for this problem type.

- *Overview*
- *Analyzing Performance on Dropdown Problems*
- *Creating a Dropdown Problem*
- *Using Feedback in a Dropdown Problem*
- *Using Hints in a Dropdown Problem*
- *Dropdown Problem XML*

8.13.1 Overview

Dropdown problems allow learners to choose from a collection of answer options that are presented in a dropdown list. Unlike *multiple choice* problems, which have answers that are always visible directly below the question, dropdown problems do not show answer choices until the learner clicks the dropdown arrow.

DROPDOWN PROBLEM (2/3 points)

This exercise first appeared in HarvardX's PH207x Health in Numbers: Quantitative Methods in Clinical & Public Health Research course, fall 2012.

What type of data are the following?

Age:

Continuous Continuous ✓

Age, rounded to the nearest year:

Nominal Discrete ✗

Life stage - infant, child, and adult:

Nominal Nominal ✓

8.13.2 Analyzing Performance on Dropdown Problems

For the dropdown problems in your course, you can use edX Insights to review aggregated learner performance data and examine submitted answers. For more information, see [Using edX Insights](#).

8.13.3 Creating a Dropdown Problem

You can create dropdown problems in the simple editor or in the advanced editor. You can set up a problem in the simple editor, and then switch to the advanced editor to add more configuration options in XML. However, you cannot switch back to the simple editor from the advanced editor. Therefore, you might want to format the problem as completely as possible before you begin to use the advanced editor.

Use the Simple Editor to Create a Dropdown Problem

To use the *simple editor* to create a dropdown problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select one of the two dropdown problem templates.
 - From the list of **Common Problem Types**, select **Dropdown**.
 - From the list of **Common Problems with Hints and Feedback**, select **Dropdown with Hints and Feedback**. For more information, see [Use Feedback in a Dropdown Problem](#).

Studio adds the problem to the unit.

1. Select **Edit**. The simple editor opens.
2. Replace the sample problem text with your own text.
3. Determine the text that describes the question you want learners to answer, and surround that text with two pairs of angle brackets (>>question<<). This text identifies the question for screen readers, reports, and Insights.
4. Edit your text to place all of the possible answers on the same line, separated by commas.
5. Select all of the answer options, and then select **Dropdown** from the toolbar. A double set of brackets ([[]]) appears to surround the answer options.
6. To identify the problem's answer, locate that answer inside the brackets and surround the correct answer with parentheses.
7. To provide an explanation, select the explanation text and then select **Explanation** from the toolbar. [explanation] appears before and after the explanation text.
8. Select **Settings** and provide an identifying **Display Name** for the problem.
9. Define additional settings for the problem. For more information, see [Problem Settings](#).
10. Select **Save**.

For the example problem illustrated above, the following text is displayed in the problem component.

```
>>What type of data are the following?<<

Age:
[[Nominal, Discrete, (Continuous)]]
Age, rounded to the nearest year:
[[Nominal, (Discrete), Continuous]]
Life stage - infant, child, and adult:
[[ (Nominal), Discrete, Continuous]]
```

Use the Advanced Editor to Edit a Dropdown Problem

To use the advanced editor to edit a dropdown problem, follow these steps.

1. Follow the steps for creating the problem in the [simple editor](#).
2. Select **Advanced Editor**, and then edit the XML to add the tags and attributes you want. An example follows.

Problem Code:

```
<problem>
<p>
  <em>This exercise first appeared in HarvardX's PH207x Health in Numbers:
  Quantitative Methods in Clinical & Public Health Research course, fall
  2012.</em>
</p>
<p>What type of data are the following?</p>
<p>Age:</p>
<optionresponse>
  <optioninput options="('Nominal','Discrete','Continuous') "
    correct="Continuous" label="Age"/>
</optionresponse>
<p>Age, rounded to the nearest year:</p>
<optionresponse>
  <optioninput options="('Nominal','Discrete','Continuous') "
    correct="Discrete" label="Age, rounded to the nearest year"/>
</optionresponse>
```

```
<p>Life stage - infant, child, and adult:</p>
<optionresponse>
  <optioninput options="('Nominal','Discrete','Continuous') "
    correct="Nominal" label="Life stage"/>
</optionresponse>
</problem>
```

8.13.4 Using Feedback in a Dropdown Problem

You can add feedback in a dropdown problem using the simple editor or the advanced editor. For an overview of feedback in problems, see [Adding Feedback and Hints to a Problem](#).

In dropdown problems, you can provide feedback for each option that a learner can select. Use the following guidelines when providing feedback.

- Use feedback for the incorrect answers to target common misperceptions and mistakes.
- Ensure feedback provides some guidance to the learner about how to arrive at the correct answer.
- Use feedback for the correct answer as an opportunity to reinforce why the answer is correct. Because learners are able to guess, ensure that feedback provides a reason why the answer is correct for learners who might have selected that answer by chance.

Configure Feedback in the Simple Editor

In the *simple editor*, you configure answer feedback with the following syntax. When you create a new dropdown problem, select the template **Dropdown with Hints and Feedback**. This template has example feedback syntax that you can replace.

```
Wrong Answer {{Feedback for learners who select this answer.}}
(Correct Answer) {{Feedback for learners who select this answer.}}
```

For example, the following problem has feedback for each possible answer.

```
>>A/an _____ is an example of a vegetable.<<

[[
  apple {{An apple is the fertilized ovary that comes from an apple tree and
    contains seeds classifying it as a fruit.}}
  pumpkin {{A pumpkin is the fertilized ovary of a squash plant and contains
    seeds classifying it as a fruit.}}
  (potato) {{A potato is an edible part of a plant in tuber form and is
    classified as a vegetable.}}
  tomato {{Many people mistakenly think a tomato is a vegetable. However,
    because a tomato is the fertilized ovary of a tomato plant and contains
    seeds it is classified as a fruit.}}
]]
```

Configure Feedback in the Advanced Editor

In the *advanced editor*, you configure answer feedback with the following syntax.

```
<option correct="False">
  Option Label
  <optionhint>
    Feedback for when learner selects this answer.
```

```
</optionhint>
</option>
```

For example, the following problem has feedback for each answer.

```
<optionresponse>
  <optioninput label="A/an _____ is an example of a vegetable.">
    <option correct="False">
      apple
      <optionhint>
        An apple is the fertilized ovary that comes from an apple tree and
        contains seeds classifying it as a fruit.
      </optionhint>
    </option>
    <option correct="False">
      pumpkin
      <optionhint>
        A pumpkin is the fertilized ovary of a squash plant and contains
        seeds classifying it as a fruit.
      </optionhint>
    </option>
    <option correct="True">
      potato
      <optionhint>
        A potato is an edible part of a plant in tuber form and is
        classified as a vegetable.
      </optionhint>
    </option>
    <option correct="False">
      tomato
      <optionhint>
        Many people mistakenly think a tomato is a vegetable. However,
        because a tomato is the fertilized ovary of a tomato plant and
        contains seeds it is classified as a fruit.
      </optionhint>
    </option>
  </optioninput>
</optionresponse>
```

Customize Feedback Labels

By default, the feedback labels shown to learners are **Correct** and **Incorrect**. If you do not define feedback labels, learners see these terms when they submit an answer, as in the following example.

DROPDOWN WITH HINTS AND FEEDBACK (1 point possible)

A/an _____ is an example of a vegetable.

apple

×

Incorrect:

An apple is the fertilized ovary that comes from an apple tree and contains seeds classifying it as a fruit.


Check

Hint

You can configure the problem to override the default labels. For example, you can configure a custom label for a specific wrong answer.

DROPDOWN WITH HINTS AND FEEDBACK (1 point possible)

A/an _____ is an example of a vegetable.

tomato 

Not Quite:
Many people mistakenly think a tomato is a vegetable. However, because a tomato is the fertilized ovary of a tomato plant and contains seeds it is classified as a fruit.

Check Hint

Note: The default labels **Correct** and **Incorrect** are displayed in the learner's requested language. If you provide custom labels, they are displayed to all users as you configure them and are not translated into different languages.

Customize Feedback Labels in the Simple Editor

In the *simple editor*, you configure custom feedback labels with the following syntax.

```
( ) Answer {{Label:: Feedback for learners who select this answer.}}
```

For example, the following feedback is configured to use a custom label.

```
( ) tomato {{Not Quite:: Many people mistakenly think a tomato is a vegetable. However, because a tomato is the fertilized ovary of a tomato plant and contains seeds, it is a fruit.}}
```

Customize Feedback Labels in the Advanced Editor

In the *advanced editor*, you configure custom feedback labels with the following syntax.

```
<option correct="False">
  Answer
  <optionhint label="Custom Label">
    Feedback for learners who select this answer.
  </optionhint>
</option>
```

For example, the following feedback is configured to use a custom label.

```
<option correct="False">
  tomato
  <optionhint label="Not Quite">
    Many people mistakenly think a tomato is a vegetable. However, because a tomato is the fertilized ovary of a tomato plant and contains seeds it is classified as a fruit.
  </optionhint>
</option>
```

8.13.5 Using Hints in a Dropdown Problem

You can use hints in a dropdown problem, using the simple editor or the advanced editor. For an overview of hints in problems, see *Adding Feedback and Hints to a Problem*.

Configure Hints in the Simple Editor

In the simple editor, you configure hints with the following syntax.

```
||Hint 1||
||Hint 2||
||Hint n||
```

Note: You can configure any number of hints. The learner views one hint at a time and views the next one by selecting **Hint** again.

For example, the following problem has two hints.

```
||A fruit is the fertilized ovary from a flower.||
||A fruit contains seeds of the plant.||
```

Configure Hints in the Advanced Editor

In the advanced editor, you configure each hint in the `<hint>` element within the `<demandhint>` element.

```
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
  <hint>Hint 3</hint>
</demandhint>
```

For example, the following XML shows two hints.

```
<demandhint>
  <hint>A fruit is the fertilized ovary from a flower.</hint>
  <hint>A fruit contains seeds of the plant.</hint>
</demandhint>
```

8.13.6 Dropdown Problem XML

Template

```
<problem>
<legend>Question text</legend>
<optionresponse>
  <option correct="False">
    Option Label
    <optionhint>
      Feedback for when learner selects this answer.
    </optionhint>
  </option>
  <option correct="True">
    Option Label
```

```

<optionhint>
  Feedback for when learner selects this answer.
</optionhint>
</option>
</optionresponse>
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
  <hint>Hint 3</hint>
</demandhint>
<solution>
  <div class="detailed-solution">
    <p>Explanation or Solution Header</p>
    <p>Explanation or solution text</p>
  </div>
</solution>
</problem>

```

Tags

- `<optionresponse>` (required): Indicates that the problem is a dropdown problem.
- `<option>` (required): Lists an answer option.
- `<demandhint>` (optional): Specifies hints for the learner.

Tag: `<optionresponse>`

Indicates that the problem is a dropdown problem.

Attributes

(none)

Children

`<option>`

Tag: `<option>`

Lists the answer options.

Attributes

Attribute	Description
<code>correct</code> (required)	Indicates whether an answer is correct. Possible values are “true” and “false”. Only one correct attribute can be set to “true”.

Children

`<optionhint>`

Tag: `<optionhint>`

Specifies a hint for the answer.

Tag: `<demandhint>`

Specifies hints available to the learner.

Children

`<hint>`

Tag: <hint>

Specifies a hint available to the learner.

Children

(none)

8.14 External Grader

Note: EdX offers provisional support for this tool.

- *Overview*
- *External Grader Example*
- *External Graders and XQueue*
- *The XQueue Interface*
- *Building an External Grader*
- *Create a Code Response Problem*

8.14.1 Overview

An external grader is a service that receives learner responses to a problem, processes those responses, and returns feedback and a problem grade to the edX platform. You build and deploy an external grader separately from the edX platform.

8.14.2 External Grader Example

An external grader is particularly useful for software programming courses where learners are asked to submit complex code. The grader can run tests that you define on that code and return results to a learner.

For example, you define a problem that requires learners to submit Python code, and create a set of tests that an external grader can run to verify the submissions. When a learner enters Python code for the problem and selects **Check**, the code is sent to the grader for testing. If the code passes all tests, the grader returns the score and a string indicating that the solution is correct.

```

12     for month in range(12):
13         month += 1
14         tempBalance -= lowestPayment
15         tempBalance += (annualInterestRate/12) * tempBalance
16     if tempBalance < 0.1 and tempBalance > -0.1:
17         break;
18     if tempBalance > 0:

```

✓ Correct

Test results

CORRECT [See full output](#)

[See full output](#)

The external grader can return a string with results, which the learner can see by selecting **See full output**. This can be particularly useful when the solution is not correct and you want to return information about the failed tests. For example:

[Hide output](#)

INCORRECT

✗ Test Case 1

balance = 320000; annualInterestRate = 0.2

Your output:

```

Lowest Payment: 29157.51

*** ERROR: Your numerical answer was not within the error margin of our answer.
First error found: expected 29157.09 +/- 0.2, got 29157.51. ***

```

Correct output:

```

Lowest Payment: 29157.09

```

8.14.3 External Graders and XQueue

The edX platform communicates with your external grader through XQueue. XQueue provides learners' input to the grader; it then receives results from the grader and returns them to learners.

Submissions are collected in XQueue, where they remain until the grader actively retrieves, or pulls, the next submission from the queue for grading.

The external grader polls the XQueue through a RESTful interface at a regular interval. When the external grader retrieves a submission, it runs the tests on it, then pushes the response back to XQueue through the RESTful interface.

XQueue then delivers the response to the edX Learning Management System.

For example code of an external grader that uses Pull mode, see the [Stanford- Online repository xqueue_pull_ref](#).

External Grader Workflow

The following steps describe the complete process of an external grader evaluating a problem.

1. The learner either enters code or attaches a file for a problem, then selects **Check**.
2. The external grader pulls the code from XQueue.
3. The external grader runs the tests that you created on the code.
4. The external grader returns the grade for the submission, as well as any results in a string, to XQueue.
5. The XQueue delivers the results to the edX Learning Management System.
6. The learner sees the problem results and the grade.

The XQueue Name

Your course will use a specific XQueue name. You use this name when you create problems in Studio.

EdX partners who are using external graders should use the base URL `https://xqueue.edx.org` as the XQueue name.

If you are an edX partner, contact your edX partner manager for more information. Because edX hosts many XQueues for different courses, you must use the exact XQueue name in your problems, as described in [Create a Code Response Problem](#).

8.14.4 The XQueue Interface

The learner submission sent from XQueue to the grader, and the response sent from the grader to XQueue, are JSON objects, as described below.

Note: XQueue does not send the learner ID to the external grader. Your grader cannot access IDs or associate learner IDs with submissions.

For the code for the XQueue interface, see the file `urls.py` in the [edX XQueue repository](#).

Inputs to the External Grader

The grader receives a submission as a JSON object that has the following keys:

- **xqueue_header:** A dictionary that contains information that is required for xqueue to link results to the corresponding submission.
- **xqueue_files:** A dictionary that contains a list of files that were submitted by the learner. The dictionary is structured such that the filename is the key and the location of the file is the value.
- **xqueue_body:** A dictionary that contains the actual submission as JSON.
 - **student_info:** A dictionary that contains the following information about the student in relation to this submission.
 - * **anonymous_student_id:** A string that contains an anonymized identifier of the student.

- * **submission_time**: A string that contains a timestamp with the time of submission (yyyymmddhh-mmss).
- * **random_seed**: An integer that contains the seed that was used to initialize the randomization script that may be attached to the problem.
- **student_response**: A string that contains the learner’s code submission. A learner can submit code by entering a string in the LMS or by attaching a file.
- **grader_payload**: An optional string that you can specify when you create the problem. For more information, see the section [Create a Code Response Problem](#).

For example:

```
{
  "xqueue_header": {
    "submission_id": 12,
    "submission_key": "280587728458c29e1e66ae0c54a806f4"
  }
  "xqueue_files": {
    "helloworld.c": "http://download.location.com/helloworld.c"
  }
  "xqueue_body":
  "{
    "student_info": {
      "anonymous_student_id": "106ecd878f4148a5cabb6bbb0979b730",
      "submission_time": "20160324104521",
      "random_seed": 334
    },
    "student_response": "def double(x):\n return 2*x\n",
    "grader_payload": "problem_2"
  }"
```

External Grader Responses

After running tests and recording results for a submission, the grader must return information by posting a JSON response. The JSON string contains a value that indicates whether the submission was correct, the score, and any message the tests create.

In the following example, the learner’s submission was correct, the score was 1, and the tests created a brief message.

```
{
  "correct": true,
  "score": 1,
  "msg": "<p>The code passed all tests.</p>"
}
```

8.14.5 Building an External Grader

The course team, not edX, is responsible for building and deploying the external grader.

In addition to creating tests that are specific to the problems you use in your course, there are four areas that you must plan for when you build an external grader:

- *Scale*
- *Security*

- *Reliability and Recovery*
- *Testing*

Scale

Your external grader must be able to scale to support the number of learners in your course.

Keep in mind that submissions will likely come in spikes, not in an even flow. For example, you should expect the load to be much greater than average in the hours before an exam is due. Therefore, you should verify that the external grader can process submissions from a majority of learners in a short period of time.

Security

Learners submit code that executes directly on a server that you are responsible for. It is possible that a learner will submit malicious code. Your system must protect against this and ensure that the external grader runs only code that is relevant to the course problems. How you implement these protections depends on the programming language you are using and your deployment architecture. You must ensure that malicious code will not damage your server.

Reliability and Recovery

After your course starts, many learners will submit code at any possible time, and expect to see results quickly. If your external grader is prone to failure or unexpected delays, the learner experience will be poor.

Therefore, you must ensure that your grader has high availability and can recover from errors. Before your course starts, you must have a plan to immediately notify the team responsible for operating your grader, as well as edX operations, when the grader fails. In collaboration with edX, you must develop a procedure to quickly identify the cause of failure, which can be your grader or edX's XQueue.

Contact your edX partner manager for more information.

If you know the grader will be unavailable at a certain time for maintenance, you should *add a course update*.

Testing

You should test your grader thoroughly before your course starts. Be sure to test incorrect code as well as correct code to ensure that the grader responds with appropriate scores and messages.

8.14.6 Create a Code Response Problem

You create a code response problem in edX Studio by adding a common blank problem, then editing the XML problem definition in the *advanced editor*.

See *Working with Problem Components* for more information.

Following is a basic example of the XML definition of a problem that uses an external grader:

```
<problem display_name="Problem 6">
  <text>
    <p>Write a program that prints "hello world".</p>
  </text>
  <coderesponse queue_name="my_course_queue">
    <textbox rows="10" cols="80" mode="python" tabsize="4"/>
    <codeparam>
      <initial_display>
```

```
        # students please write your program here
        print ""
    </initial_display>
    <answer_display>
        print "hello world"
    </answer_display>
    <grader_payload>
        {"output": "hello world", "max_length": 2}
    </grader_payload>
</codeparam>
</coderesponse>
</problem>
```

Note the following details about the XML definition.

- **queueName:** The value of the queueName attribute of the <coderesponse> element maps to an XQueue. Partners should contact their edX partner manager for more information. You must use this exact name in order for the problem to communicate with the correct XQueue.

Note: For edX partners, the base URL that graders must access is <https://xqueue.edx.org>.

- **Input Type:** In this example, the <textbox> element specifies the input type. When you use <textbox>, the learner enters code in a browser field when viewing the course unit. The other element you can use to specify the input type is <filesubmission>, which enables the learner to attach and submit a code file in the unit.
- **<grader_payload>:** You can use the <grader_payload> element to send information to the external grader in the form of a JSON object. For example, you can use <grader_payload> to tell the grader which tests to run for this problem.

8.15 Full Screen Image Tool

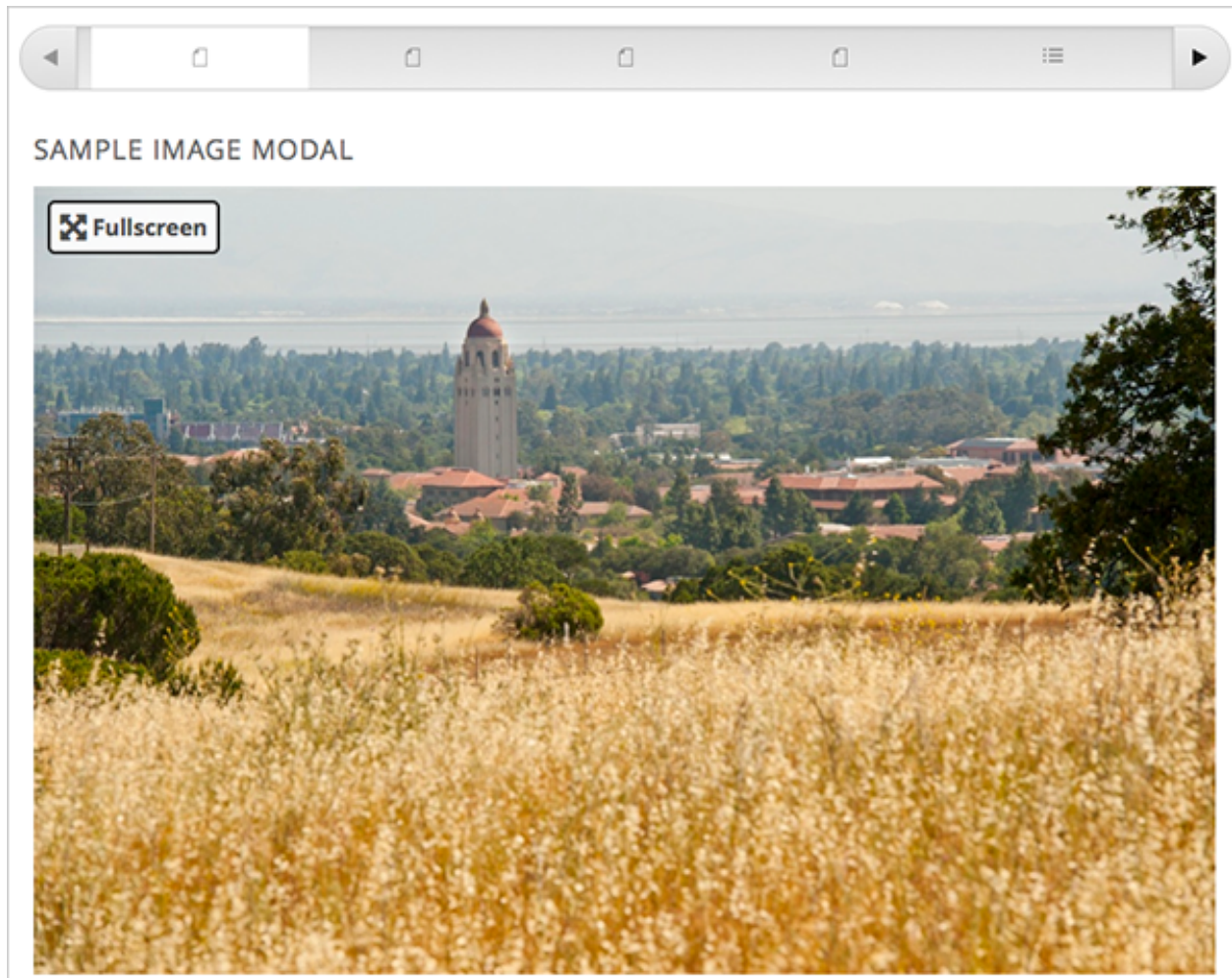
Note: EdX offers full support for this tool.

Some large images are difficult for learners to view in the courseware. The full screen image tool allows learners to enlarge the image, so they can see all the detail in context.

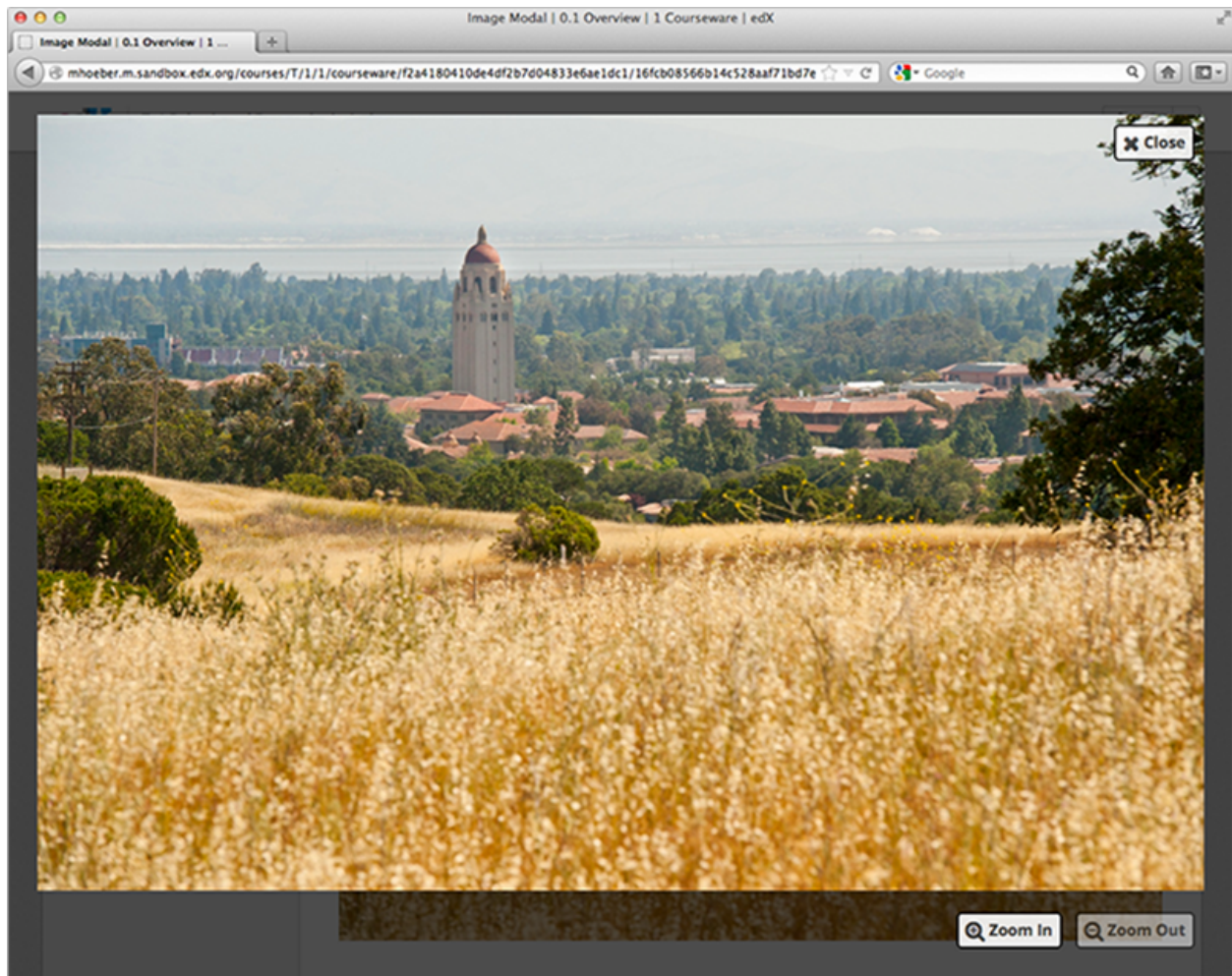
- *The Learner View of a Full Screen Image*
 - *Create a Full Screen Image*

8.15.1 The Learner View of a Full Screen Image

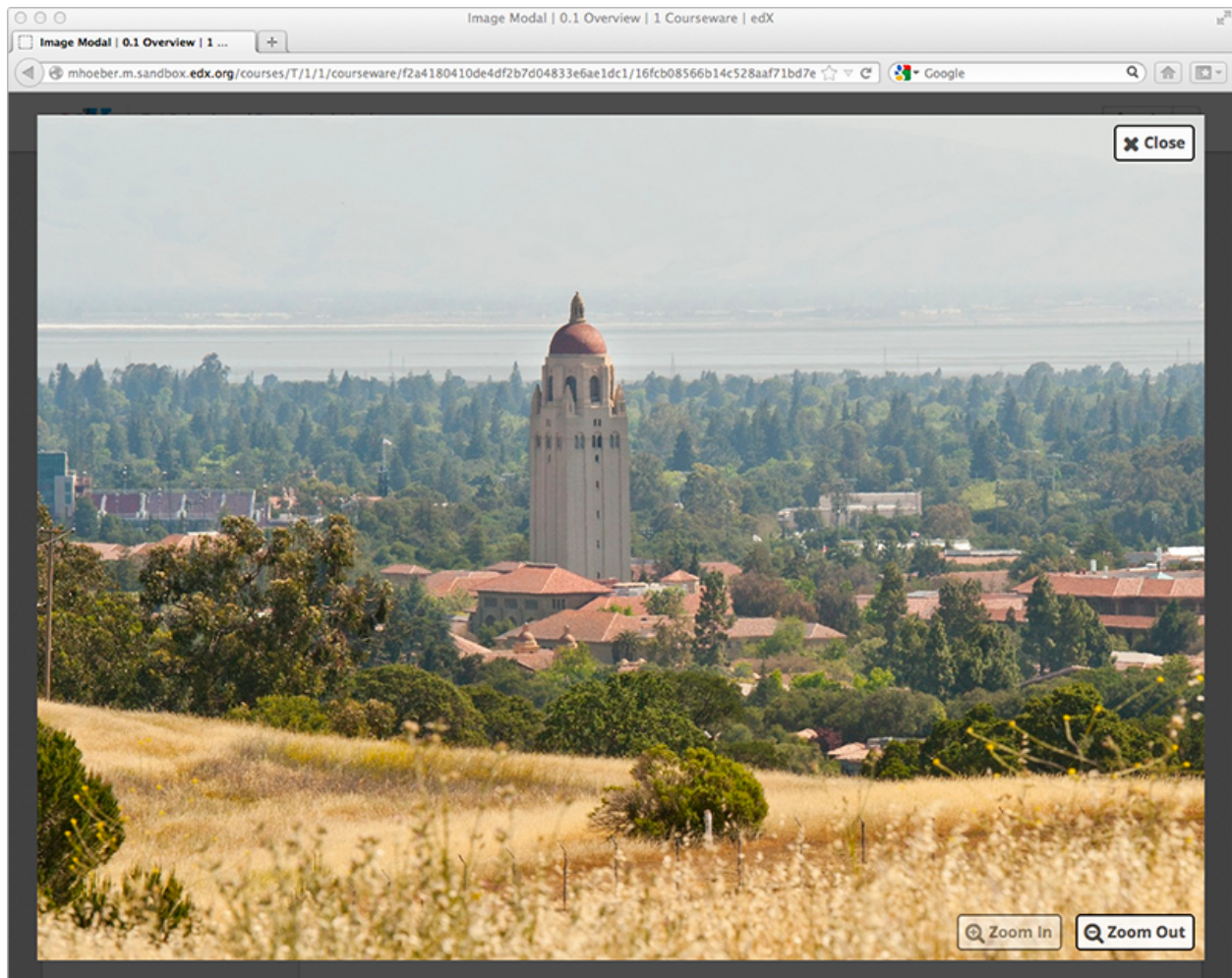
The learner sees the full screen image in a unit page. When the learner moves the cursor over the image, the **Fullscreen** option appears.



When the learner selects **Fullscreen**, the image opens and expands in the full browser window. **Close**, **Zoom In**, and **Zoom Out** options appear.



The learner can then zoom in on the image, and drag the image to view a specific part of it.



8.15.2 Create a Full Screen Image

1. Upload your image file to the **Files & Uploads** page. For more information, see [Adding Files to a Course](#).
2. Under **Add New Component**, select **HTML**, and then select **Full Screen Image Tool**.
3. In the new component that appears, select **Edit**.
4. In the component editor, replace the default title, remove the instructional paragraph, and add text as needed.
5. Select **HTML** from the toolbar to edit the HTML source code.

6. Scroll down in the file, and then replace the following placeholders with your own content.

- Replace the value of the `<a>` element's `href` attribute with the path to your image. Do not change the value of the class attribute. For example:

```
<a href="/static/Image1.jpg" class="modal-content">
```

- Replace the value of the `` element's `src` attribute with the path to your image. For example:

```

```

- Ensure that the value of the `href` and `src` attributes are the same, and that you do not change the class attribute. Your sample code should look like the following example.

```
<h3>Sample Image Modal</h3>
<a href="/static/Image1.jpg" class="modal-content">

</a>
```

Note: You can use this same HTML code in any HTML component, not just those components you created as full screen images.

7. Select **Save**.

8.16 Gene Explorer Tool

Note: EdX offers provisional support for this tool.

The gene explorer (GeneX), from the biology department at [UMB](#), simulates the transcription, splicing, processing, and translation of a small hypothetical eukaryotic gene. GeneX allows learners to make specific mutations in a gene sequence, and it then calculates and displays the effects of the mutations on the mRNA and protein.

Specifically, the gene explorer does the following:

1. Finds the promoter and terminator.
2. Reads the DNA sequence to produce the pre-mRNA.
3. Finds the splice sites.
4. Splices and tails the mRNA.
5. Finds the start codon.
6. Translates the mRNA.

The screenshot displays the 'GENE EDITOR (1 point possible)' interface. At the top, the DNA sequence is shown with a green 'Promoter' region and a red 'Terminator' region. Below this, the pre-mRNA sequence is displayed with exons and introns. A dialog box titled 'New DNA Sequence' is open, prompting the user to 'Enter new DNA Sequence'. The mature mRNA and protein sequence are shown at the bottom, with the protein sequence being 'N-MetProLeuSerAspValGluArgGlyPro-C'. The interface includes buttons for 'Reset DNA Sequence', 'Enter New DNA Sequence', and a 'Selected Base' dropdown.

For more information about the gene explorer, see [The Gene Explorer](#).

8.16.1 Gene Explorer Code

```
<problem>
<p>Make a single base pair substitution mutation in the gene below that results in a protein that is
<p>Note that a "single base pair substitution mutation" is when a single base is changed to another b
<script type="loncapa/python">
def genex_grader(expect,ans):
    if ans=="CORRECT": return True
    import json
    ans=json.loads(ans)
    return ans["genex_answer"]=="CORRECT"
</script>
<customresponse cfn="genex_grader">
<editageneinput width="818" height="1000" dna_sequence="TAAGGCTATAACCGAGATTGATGCCTTGTGCCGATAAGGTGTGTC
</customresponse>
</problem>
```

In this code:

- **width** and **height** specify the dimensions of the application, in pixels.
- **genex_dna_sequence** is the default DNA sequence that appears when the problem opens.
- **dna_sequence** contains the application's state and the learner's answer. This value must be the same as **genex_dna_sequence**.
- **genex_problem_number** specifies the number of the problem. This number is based on the five gene editor problems in the MITx 7.00x course—for example, if you want this problem to look like the second gene editor problem in the 7.00x course, you would set the **genex_problem_number** value to 2. The number must be 1, 2, 3, 4, or 5.

8.17 Google Calendar Tool

Note: EdX offers full support for this tool.

This topic describes how to embed Google Calendars in your course.

- *Overview*
- *Embedding a Google Calendar in Your Course*
 - *Enable the Google Calendars Tool*
 - *Make the Google Calendar Public and Obtain Its ID*
 - *Add a Google Calendar in the Course Body*
- *Editing Google Calendars*

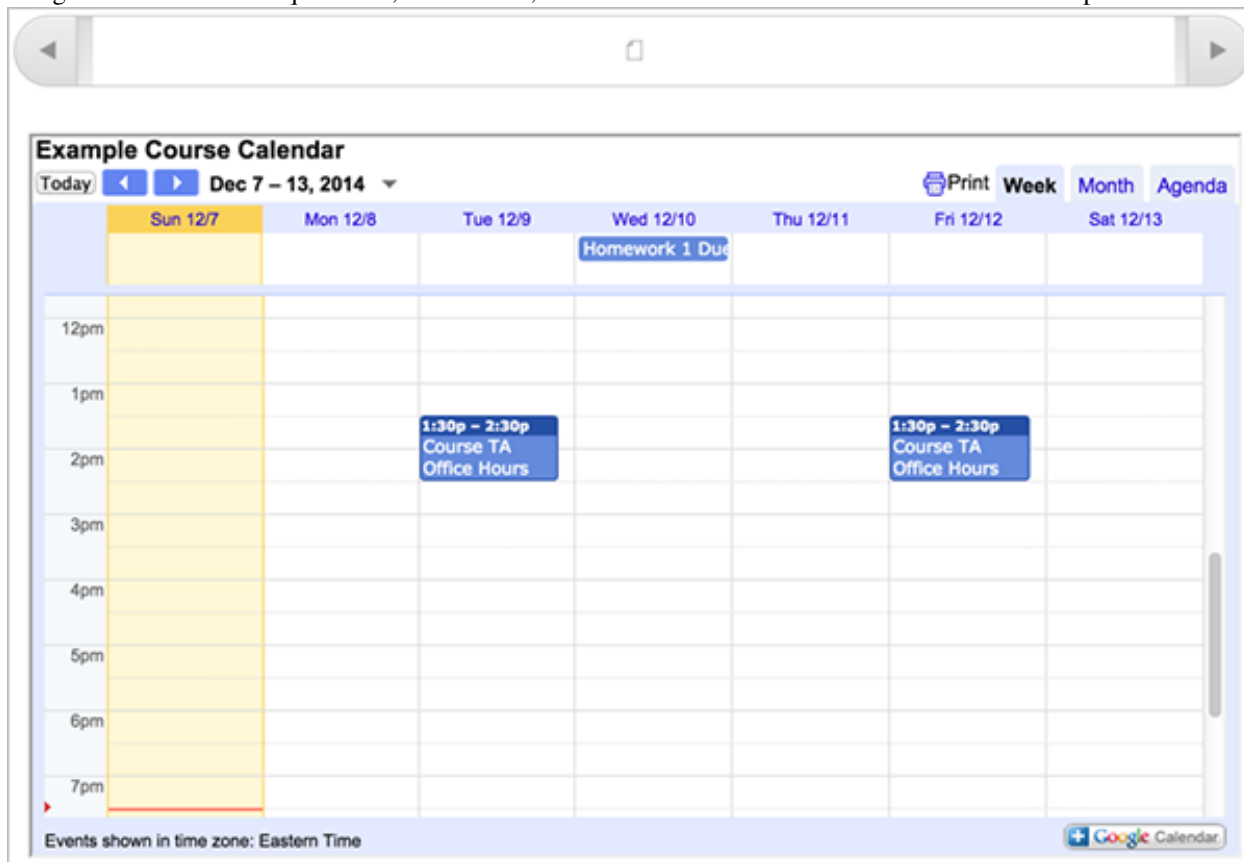
Before you make content from an external site available through your course, be sure to review the content to ensure that it is accessible to people with disabilities. For more information, see [Accessibility Best Practices for Developing Course Content](#).

You can also add Google Drive files, such as documents, spreadsheets, and images, to your course. For more information, see [Google Drive Files Tool](#).

Note: Google services are not available in some regions and countries. If Google services are not available in a learner's area, the learner might see an "image unavailable" message in the place of the Google Drive file or Google Calendar. EdX strongly suggests that you provide alternative resources for learners in these areas.

8.17.1 Overview

You can embed a Google Calendar in your course so that learners see the calendar in the course body. You can use a Google Calendar to share quiz dates, office hours, or other schedules of interest to learners. For example:



8.17.2 Embedding a Google Calendar in Your Course

To embed a Google Calendar in your course, follow these steps.

- *Enable the Google Calendars Tool*
- *Make the Google Calendar Public and Obtain Its ID*
- *Add a Google Calendar in the Course Body*

Enable the Google Calendars Tool

Before you can add Google Calendars to your course, you must enable the Google Calendars tool in Studio or OLX.

To enable the Google Calendars tool in Studio, you add the "google-calendar" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see *Enable Additional Exercises and Tools*.

Alternatively, you can use OLX to enable the Google Calendars tool.

Enable Google Calendars in OLX

To enable Google Calendars in your course, you edit the XML file that defines the course structure. You locate the course element's advanced-modules attribute, and add the string google-calendar to it.

For example, the following XML code enables Google Calendars in a course. It also enables Google Drive files.

```
<course advanced_modules=" [&quot;google-document&quot;;  
    &quot;google-calendar&quot;;] " display_name="Sample Course"  
    start="2014-01-01T00:00:00Z">  
    ...  
</course>
```

For more information, see *OLX Course Building Blocks* in the *EdX Open Learning XML Guide*.

Make the Google Calendar Public and Obtain Its ID

Before you can add a Google Calendar to your course, you must make the Calendar public and obtain its ID.

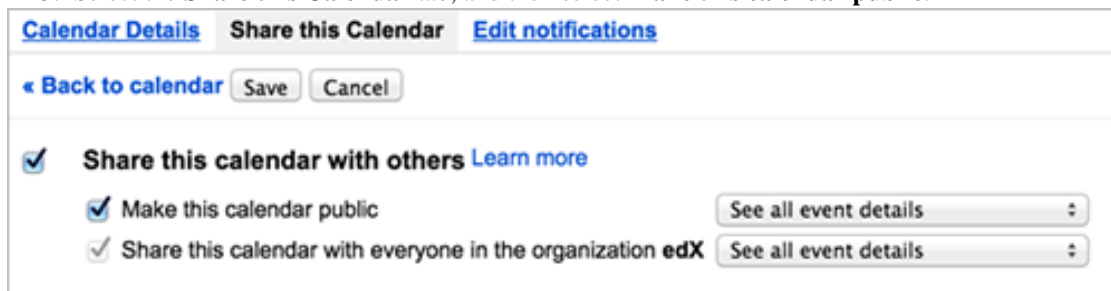
Important: The tasks described in this section rely on the use of third-party software. Because the software is subject to change by its owner, the steps provided here are intended as guidelines and not as an exact procedure.

Make the Google Calendar Public

1. Open the Google Calendar.
2. From the **Settings** menu, select **Settings**.
3. Select the **Calendars** tab.

You might have multiple calendars on the **Calendars** tab. Find the calendar that you want to share in your course.

4. In the row for the calendar to share, in the **Sharing** column, select **Edit Settings**.
5. Select the **Share this Calendar** tab, and then select **Make this calendar public**.

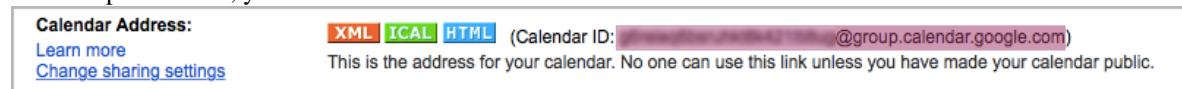


1. Select **Save**.

The **Calendar Settings** page closes, and you return to the **Calendars** tab. You continue by *obtaining the Google Calendar's ID*.

Obtain the Google Calendar ID

1. On the **Calendars** tab, select the name of the calendar.
2. Select the **Calendar Details** tab.
3. Next to the **Calendar Address** label, look to the right of the three colored **XML**, **ICAL**, and **HTML** buttons. In parentheses, you can see the calendar ID.



The calendar ID resembles the following text.

abcdefghijklmnop1234567890@group.calendar.google.com

Select and copy the calendar ID. You use this value to configure the Google Calendar component in your course.

Add a Google Calendar in the Course Body

To add a Google calendar in the course body, you create an advanced component in Studio or create a Google Calendar XBlock in OLX.

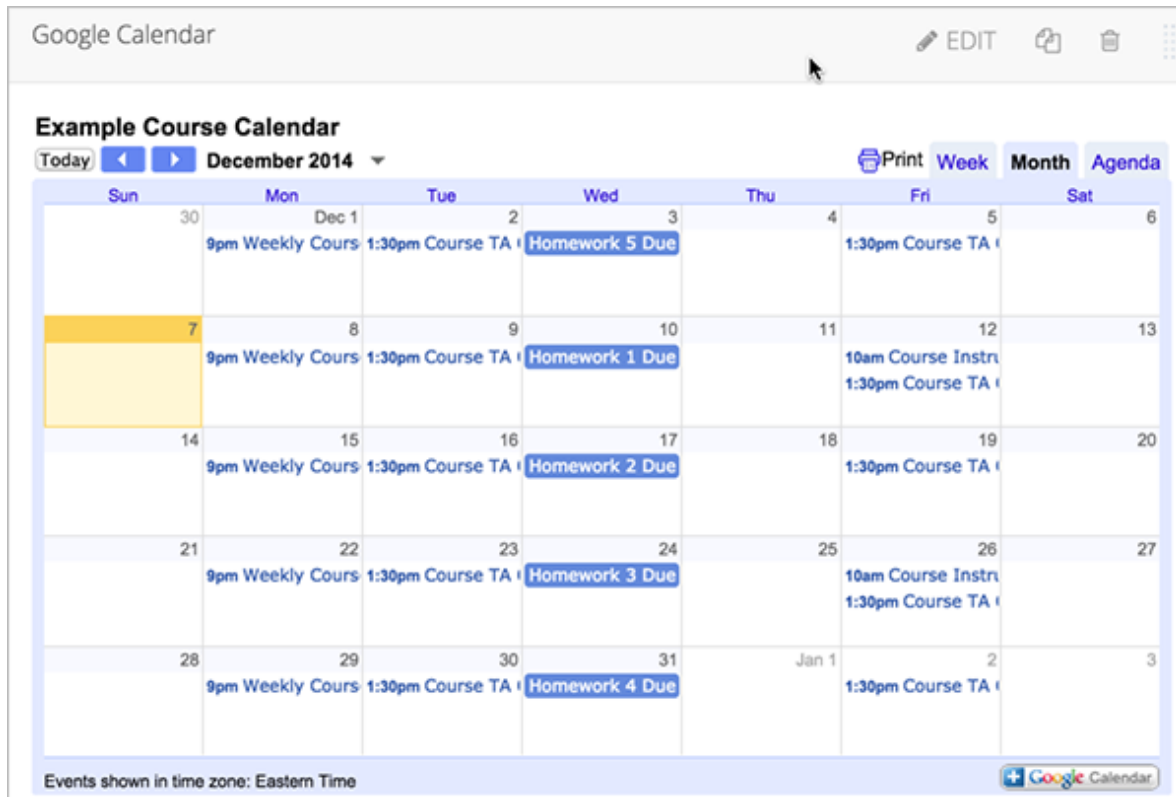
Add a Google Calendar Component in edX Studio

Make sure that you *enable Google Calendars* for your course before you add a Google Calendar component.

To add a Google Calendar component, follow these steps.

1. On the **Course Outline** page, open the unit where you want to add the Google Calendar component.
2. Under **Add New Component**, select **Advanced**, and then select **Google Calendar**.

The new component is added to the unit, with the default edX Google Calendar embedded.



3. In the new component, select **Edit**.

Editing: Google Calendar

Display Name

This name appears in the horizontal navigation at the top of the page.

Public Calendar ID

Google provides an ID for publicly available calendars. In the Google Calendar, open Settings and copy the ID from the Calendar Address section into this field. You can [learn more here](#).

Default View

The calendar view that students see by default. A student can change this view.

Save [Cancel](#)

4. In the **Display Name** field, type the name for the component.

5. In the **Public Calendar ID** field, paste the calendar ID you copied in the *Obtain the Google Calendar ID* task.
6. For the **Default View** field, select **Month**, **Week**, or **Agenda**.

This is the initial view that your learners have of the calendar. Each learner can change his or her view.

7. Select **Save**.

You can then *Preview Course Content* to see how the unit with the Google Calendar will appear to learners.

Add a Google Calendar XBlock in OLX

To add a Google Calendar XBlock in OLX, create the `google-calendar` element. You can embed this element in the `vertical` element, or you can embed this element in its own file that is referenced within the vertical. For more information, see *OLX Course Building Blocks* in the *EdX Open Learning XML Guide*.

An example follows.

```
<google-calendar url_name="4115e717366045eaae7764b2e1f25e4c"
  calendar_id="abcdefghijklmnop1234567890@group.calendar.google.com"
  default_view="1" display_name="Class Schedule"/>
```

The value of the `calendar_id` attribute is the calendar ID that you copied in the *Obtain the Google Calendar ID* task.

Note: The edX Learning Management System sets the height and width values for Google Calendars. If you add these attributes, the LMS overrides your changes.

8.17.3 Editing Google Calendars

When you make changes to a Google Calendar that is embedded in your course, learners see the updates immediately. You make changes to calendars with the Google user interface. You do not need to edit the Google Calendar component.

8.18 Google Drive Files Tool

Note: EdX offers full support for this tool.

This topic describes how to embed Google Drive files, such as documents, spreadsheets, and images, in your course.

- *Overview*
- *Embedding a Google Drive File in Your Course*
 - *Enable the Google Drive Files Tool*
 - *Publish the Google Drive File and Obtain the Embed Code*
 - *Add a Google Drive File to Your Course*
- *Editing Google Drive Files*

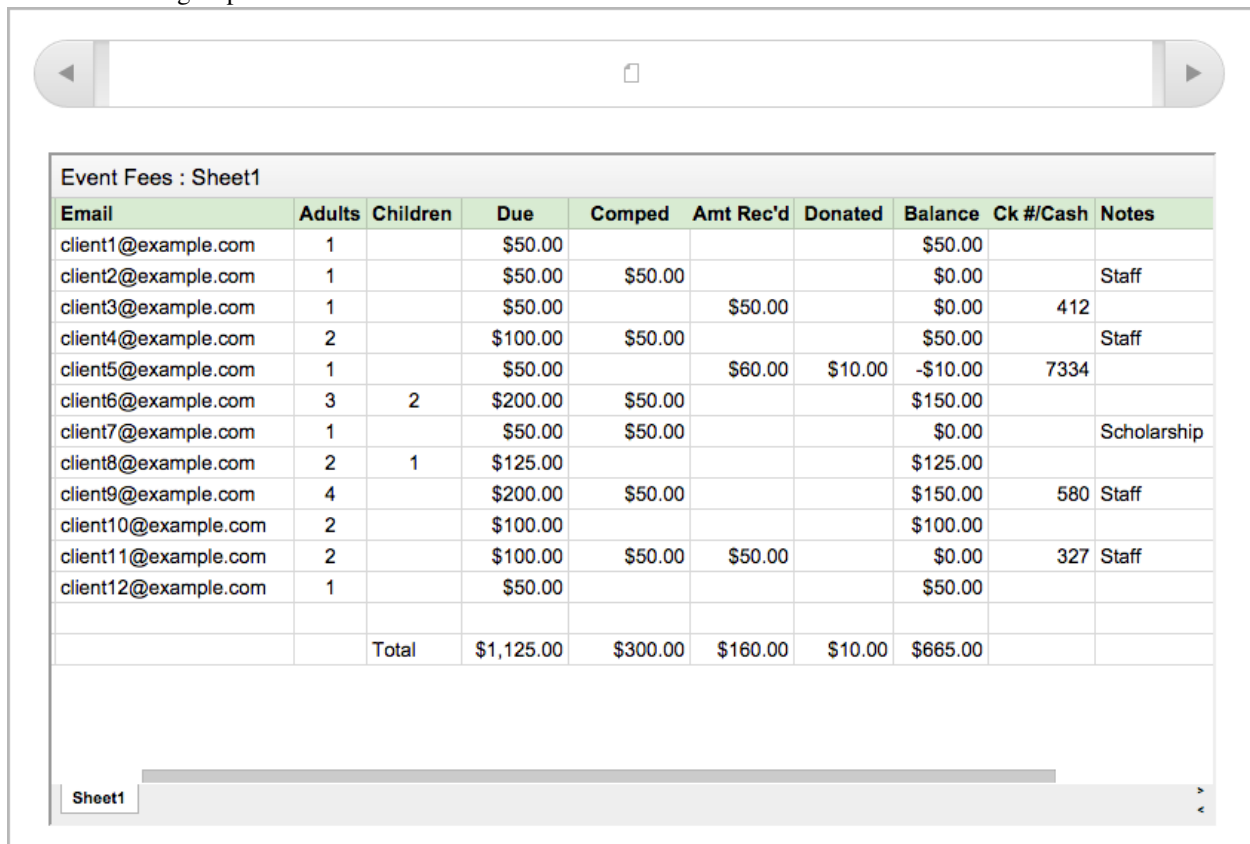
Before you make content from an external site available through your course, be sure to review the content to ensure that it is accessible to people with disabilities. For more information, see *Accessibility Best Practices for Developing Course Content*.

You can also use [Google calendars](#) in the course body. For more information, see [Google Calendar Tool](#).

Note: Google services are not available in some regions and countries. If Google services are not available in a learner's area, the learner might see an "image unavailable" message in the place of the Google Drive file or calendar. EdX strongly suggests that you provide alternative resources for learners in these areas.

8.18.1 Overview

You can embed a Google Drive file in your course so that learners see the file in the course body. For example, you can share a Google spreadsheet with learners.



Email	Adults	Children	Due	Comped	Amt Rec'd	Donated	Balance	Ck #/Cash	Notes
client1@example.com	1		\$50.00				\$50.00		
client2@example.com	1		\$50.00	\$50.00			\$0.00		Staff
client3@example.com	1		\$50.00		\$50.00		\$0.00	412	
client4@example.com	2		\$100.00	\$50.00			\$50.00		Staff
client5@example.com	1		\$50.00		\$60.00	\$10.00	-\$10.00	7334	
client6@example.com	3	2	\$200.00	\$50.00			\$150.00		
client7@example.com	1		\$50.00	\$50.00			\$0.00		Scholarship
client8@example.com	2	1	\$125.00				\$125.00		
client9@example.com	4		\$200.00	\$50.00			\$150.00	580	Staff
client10@example.com	2		\$100.00				\$100.00		
client11@example.com	2		\$100.00	\$50.00	\$50.00		\$0.00	327	Staff
client12@example.com	1		\$50.00				\$50.00		
		Total	\$1,125.00	\$300.00	\$160.00	\$10.00	\$665.00		

You can embed the following types of Google Drive files.

- Google Docs (text documents)
- Google Drawings (images)
- Google Forms (forms or surveys)
- Google Slides (presentations)
- Google Sheets (spreadsheets)

8.18.2 Embedding a Google Drive File in Your Course

To embed a Google Drive file in your course, follow these steps.

- *Enable the Google Drive Files Tool*
- *Publish the Google Drive File and Obtain the Embed Code*
- *Add a Google Drive File to Your Course*

Enable the Google Drive Files Tool

Before you can add Google Drive files to your course, you must enable the Google Drive tool in Studio or OLX.

To enable the Google Drive tool in Studio, you add the "google-document" key to the **Advanced Module List** on the **Advanced Settings** page. For more information, see *Enable Additional Exercises and Tools*.

Alternatively, you can use OLX to enable the Google Drive tool.

Enable Google Drive Files in OLX

To enable Google Drive files in your course, you edit the XML file that defines the course structure. You locate the course element's advanced-modules attribute, and add the string google-document to it.

For example, the following XML code enables Google Drive files in a course. It also enables Google calendars.

```
<course advanced_modules="['&quot;google-document&quot;;  
    &quot;google-calendar&quot;']" display_name="Sample Course"  
    start="2014-01-01T00:00:00Z">  
    ...  
</course>
```

For more information, see *OLX Course Building Blocks* in the *EdX Open Learning XML Guide*.

Publish the Google Drive File and Obtain the Embed Code

Before you can add a Google Drive file to your course, you must publish the file to the web and obtain the embed code for the file.

Important: The task described in this section relies on the use of third-party software. Because the software is subject to change by its owner, the steps provided here are intended as guidelines and not as an exact procedure.

1. Open the Google Drive file.
2. From the **File** menu, select **Publish to the web**.

×

Publish to the web

This document is not published to the web.

Make your content visible to anyone by publishing it to the web. You can link to or embed your document. [Learn more](#)

Link

Embed

Publish

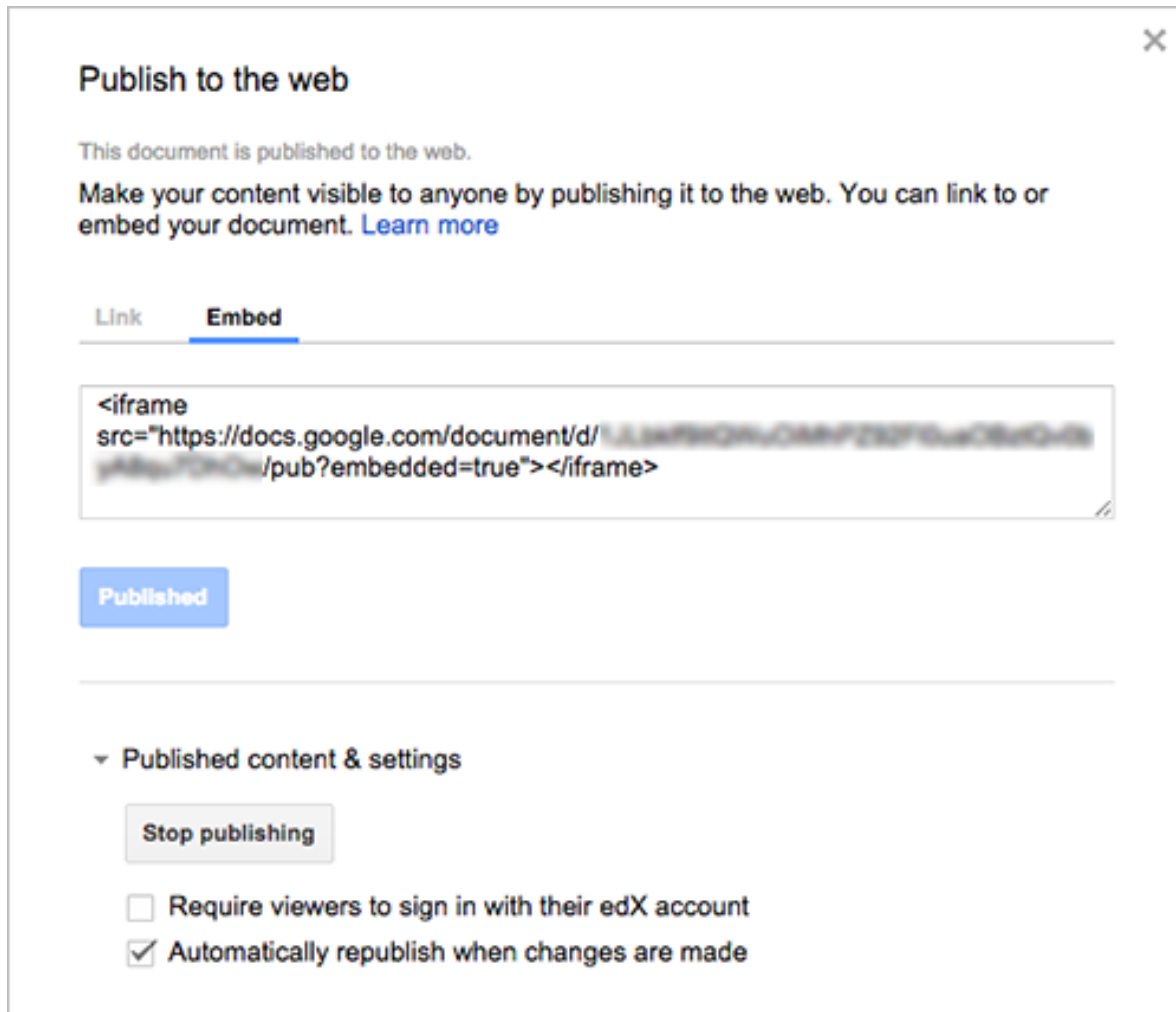
Published content & settings

Start publishing

☐ Require viewers to sign in with their edX account

☒ Automatically republish when changes are made

3. Select **Publish**, and then select **OK** to confirm the action.
4. Select the **Embed** tab.



5. Copy the complete string in the **Embed** field, including the `<iframe>` tags.

Note: Google images do not have an `<iframe>` tag. To embed an image, you copy the complete `img` tag.

You use that string to configure the Google Drive file component.

Add a Google Drive File to Your Course

To add a Google Drive file in the course body, you create an advanced component in Studio or create a Google Document XBlock in OLX.

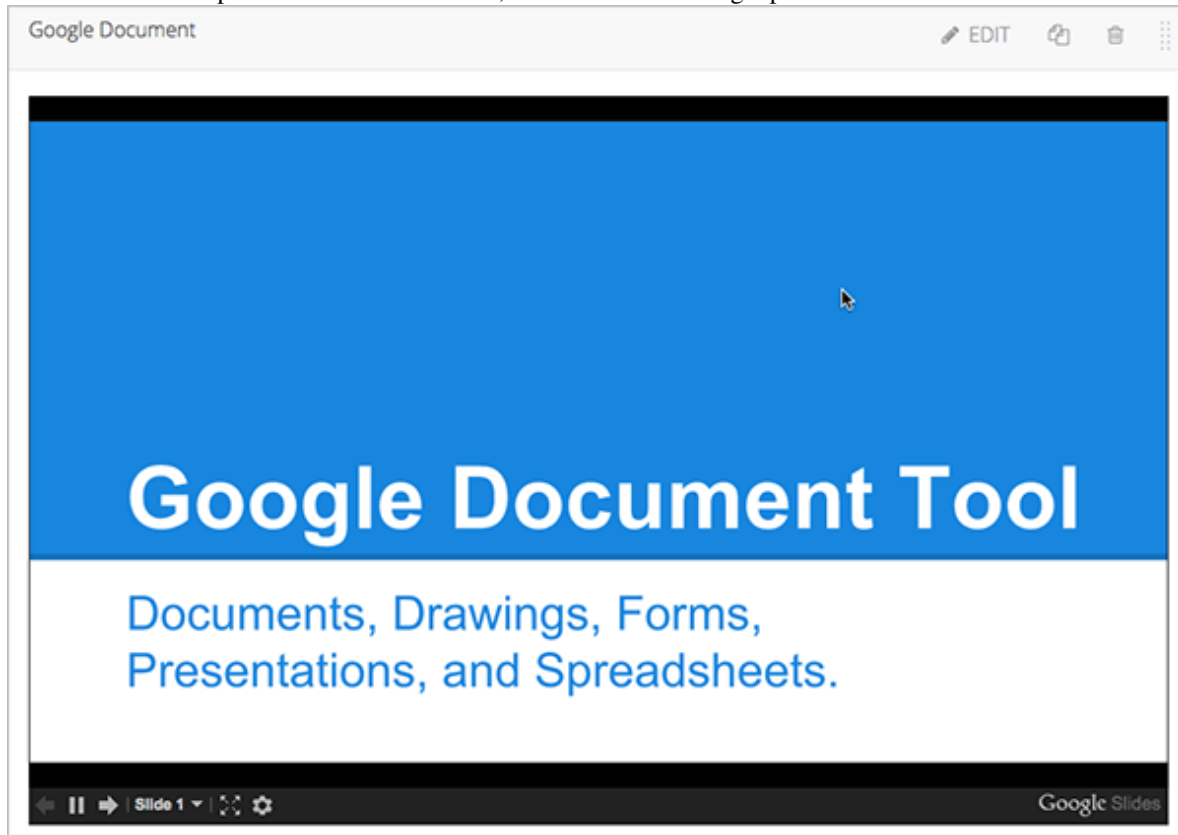
Add a Google Drive File Component in edX Studio

Ensure you *enable Google Drive files* before you add the component.

To add a Google Drive file component, follow these steps.

1. On the Course Outline page, open the unit where you want to add the Google Drive component.
2. Under **Add New Component**, select **Advanced**, and then select **Google Document**.

The new component is added to the unit, with the default Google presentation embedded.



3. In the new component, select **Edit**.

A screenshot of a dialog box titled 'Editing: Google Document'. It has two main sections. The first section is 'Display Name' with a text input field containing 'Google Document' and a small note below it: 'This name appears in the horizontal navigation at the top of the page.' The second section is 'Embed Code' with a text area containing an iframe code snippet: `<iframe src="https://docs.google.com/presentation/d/.../embed?"`. Below the text area is a note: 'Google provides an embed code for Drive documents. In the Google Drive document, from the File menu, select Publish to the Web. Modify settings as needed, click Publish, and copy the embed code into this field.' At the bottom of the dialog are two buttons: 'Save' and 'Cancel'.

4. In the **Display Name** field, enter the name for the component.

5. In the **Embed Code** field, paste the embed code that you copied in the *Obtain the Google Drive File Embed Code* task.

6. Select **Save**.

You can then *Preview Course Content* to see how the unit with the Google drive file will appear to learners.

Add a Google Drive File XBlock in OLX

To add a Google Drive file XBlock in OLX, you create the `google-document` element. You can embed the `google-document` element in the `vertical` element, or you can create the `google-document` element as a stand-alone file that you reference in the `vertical`.

For more information, see [OLX Course Building Blocks](#) in the *EdX Open Learning XML Guide*.

For example:

```
<google-document url_name="c5804436419148f68e2ee44abd396b12"
  embed_code="<iframe
  frameborder="0"; src="https://docs.google.com/spreadsheets/pub
  ?key=0AuZ_5O2JZpH5dGVUVDNGUE05aTFNcEl2Z0ZuTUNmWUE&output=html&widge
  t=true">>"; display_name="Google Document"/>
```

The value of the `embed_code` attribute is the embed code you copied in the *Obtain the Google Drive File Embed Code* task.

Note: The edX Learning Management System sets the height and width values for Google Drive files. If you add these attributes, the LMS overrides your changes.

8.18.3 Editing Google Drive Files

When you edit and save a Google Drive file that is embedded in your course, learners see the updates immediately. You make changes to files with the Google user interface. You do not need to edit the Google Document component.

8.19 Google Instant Hangout Tool

Note: EdX offers provisional support for this tool.

- *Overview*
- *Whitelisting Your Domain for Google Hangouts*
- *Instant Hangouts in Your Course*
- *The Learner Experience*
- *Limitations*
- *Create the Instant Hangout*

8.19.1 Overview

You can add the ability for learners to participate in instant hangouts directly from your course.

With instant hangouts, learners can:

- Interact through live video and voice.
- Share screens and watch videos together.
- Collaborate on documents.

For a full list of instant hangout features, see the [Google Hangouts page](#).

Note: Learners who want to participate in instant hangouts must have a Google account. You should note this in your course materials.

8.19.2 Whitelisting Your Domain for Google Hangouts

If you are running an Open edX site, you must ensure that Google whitelists the site's domain as a referer for Google Hangouts to work.

8.19.3 Instant Hangouts in Your Course

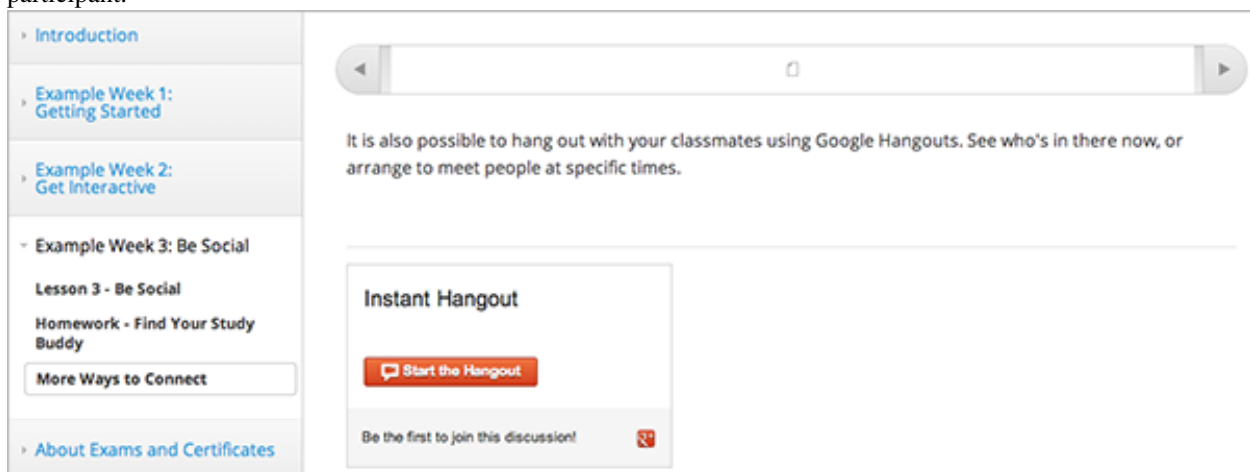
You can add one or more instant hangouts in your course. For example, you can add an instant hangout in the following places.

- In a page, to provide learners with a hangout for the entire course. See [Adding Pages to a Course](#) for more information.
- In an HTML component, to provide a hangout for learners working on that specific course unit. See [Working with HTML Components](#) for more information about creating HTML components.

An instant hangout is specific to the page it is opened from. For example, learners who join a hangout from one course unit interact among themselves, while learners who join a hangout from another unit interact in a different hangout.

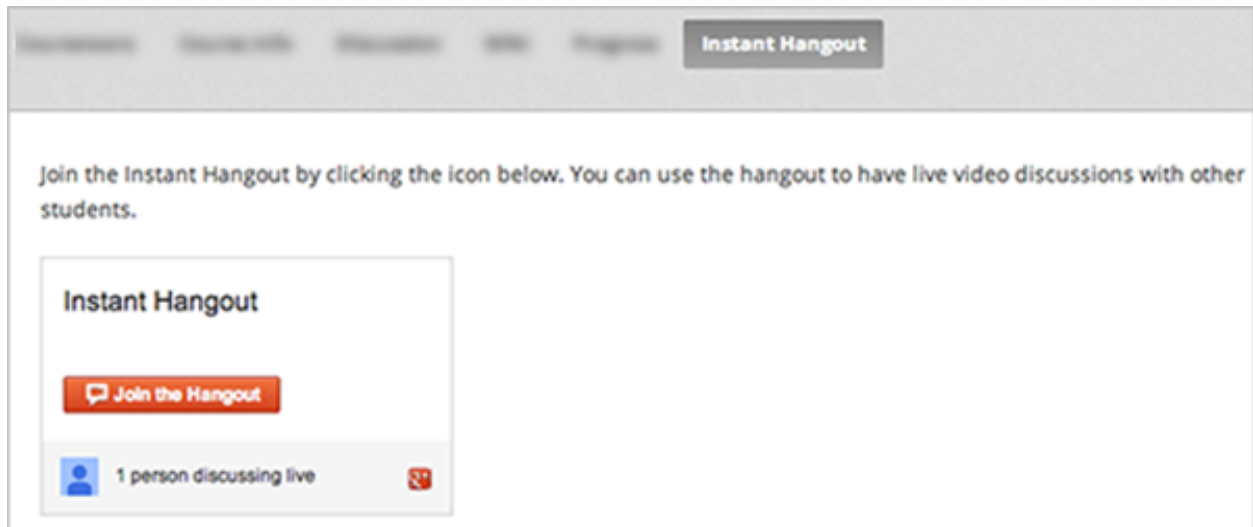
8.19.4 The Learner Experience

When you add the instant hangout to your course, a control for the hangout appears on that page. The following example shows the control in a course unit. The control shows that the learner can start the hangout and be the first participant.



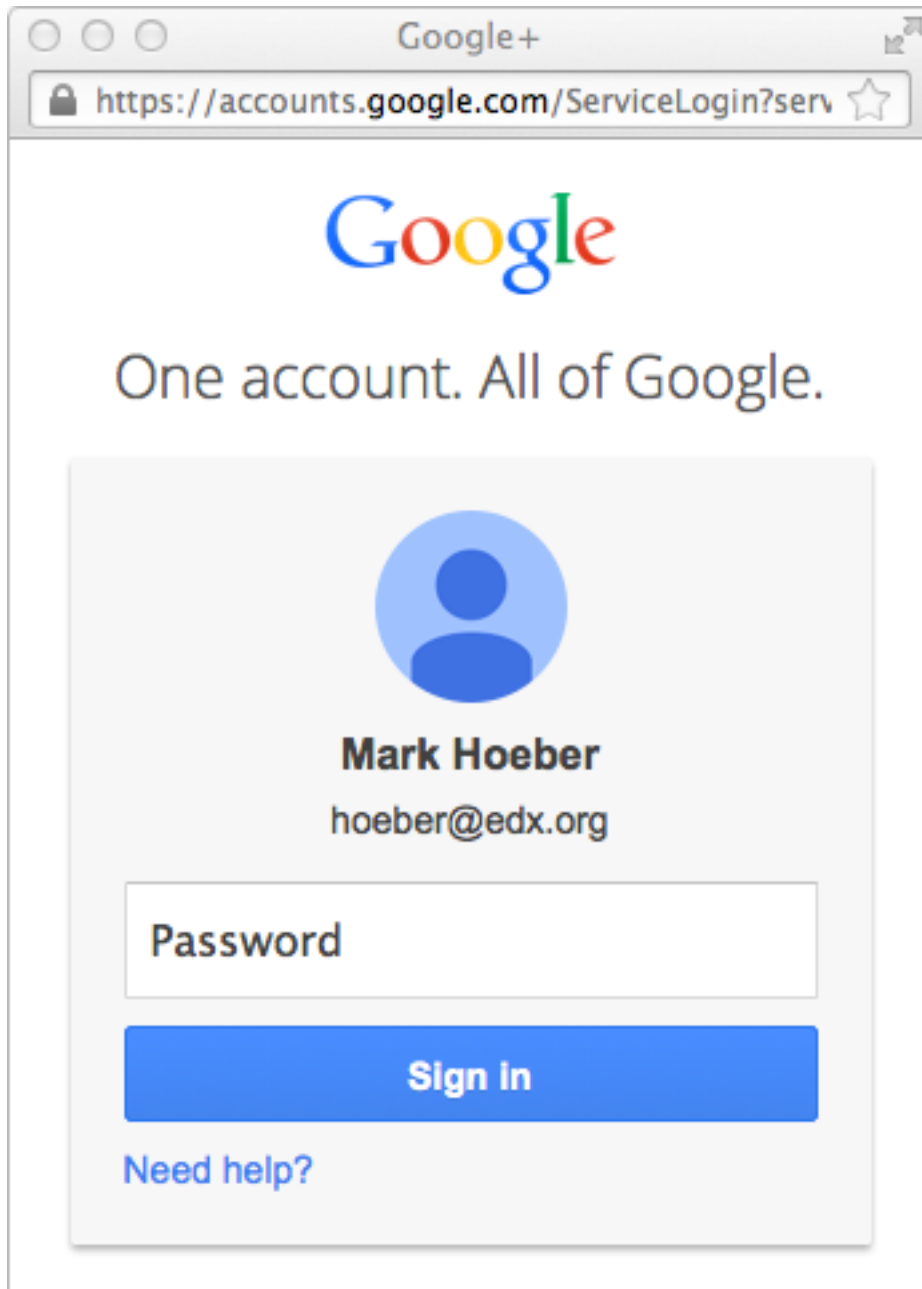
To start the hangout, the learner selects **Start the Hangout**. (After the first learner selects **Start the Hangout**, other learners see a **Join the Hangout** button.)

The following example shows the control in a page when a hangout has already started. The control has a **Join the Hangout** button, and shows that one other learner is already in the hangout.



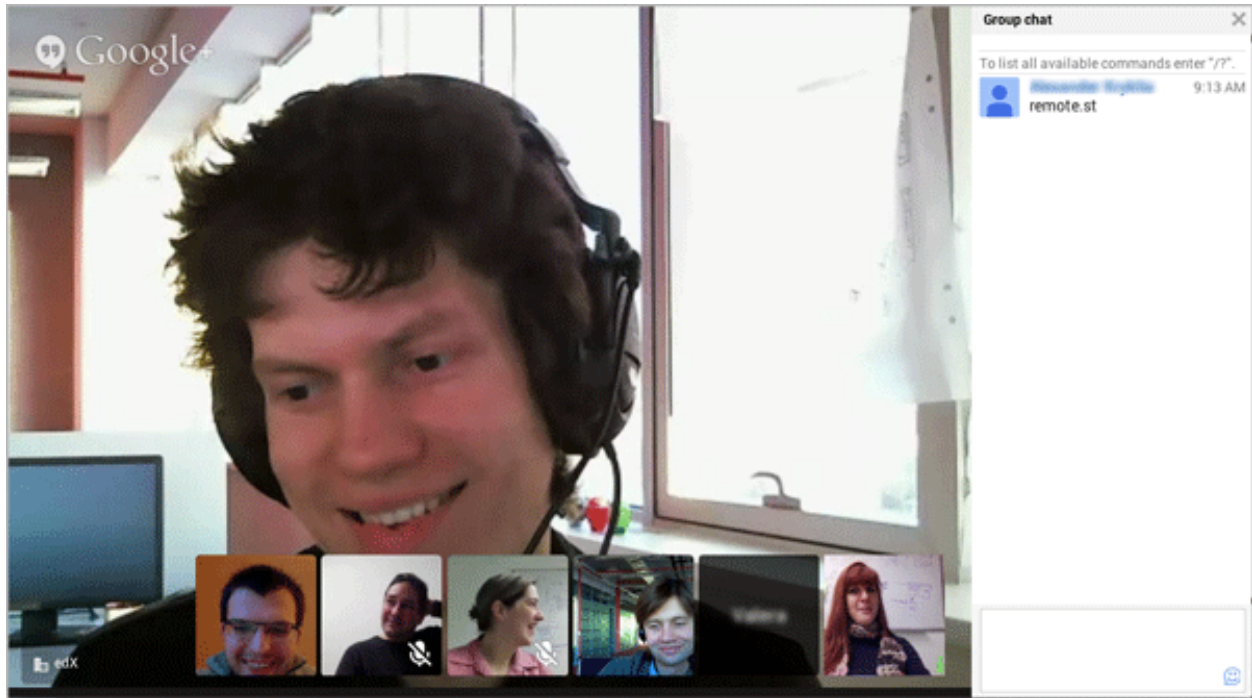
To join the hangout, the learner selects **Join the Hangout**.

If not already logged in, the learner is prompted to log in to Google:



Learners who do not have a Google account can create one from the login page.

After the learner has logged in to Google, the hangout opens in a separate browser window:



8.19.5 Limitations

Currently, only ten learners can join a single instant hangout. You should note this in your course materials.

Learners in hangouts that are started from different pages in your course are counted separately. So you can have ten learners participating in a hangout started from one unit, and ten other learners in a hangout started from a different unit.

8.19.6 Create the Instant Hangout

To create an instant hangout in your course, follow these steps.

1. Get the [instant hangout JavaScript file](#) from [GitHub](#).
2. Copy the text of this file into a text editor on your computer, and save the file as a JavaScript file. That is, when you save the file, change the extension from .txt to .js.

Note: Make sure that you copy the raw GitHub file, which does not contain formatting. Do not copy the formatted file. Any formatting will cause the JavaScript to not work correctly.

3. Upload the JavaScript file to the **Files & Uploads** page in your course. See [Adding Files to a Course](#) for more information.
4. In either a page or an HTML component, open the HTML editor.

Note: If you copy text from another source and paste it into the HTML editor, be sure to proofread the result carefully. Some applications automatically change quotation marks and apostrophes from the “straight” version to the “smart” or “curly” version. The HTML editor requires “straight” quotation marks and apostrophes.

5. On the first line, add the JavaScript file you uploaded in a `<script>` tag, making sure you use full opening and closing tags.

For example, if your JavaScript file is named `instanhangouts-0.1.0.js`, you enter the following script information.

```
<script src='/static/instanhangouts-0.1.0.js'></script>
```

6. After the `<script>` tag, add this tag.

```
<div class='instanhangouts' />
```

7. Add any additional text and tags that you want.

For example, the complete content could look like this example.

```
<p>Join an instant hangout by selecting the button below. You can use the  
hangout to have live video discussions with other learners.</p>  
<script  
src='/static/instanhangouts-0.1.0.js'></script>  
<div class='instanhangouts' />
```

8. Test the instant hangout in your course.

Updating the JavaScript File

Google periodically updates the instant hangouts JavaScript file. To receive update notifications, go to the [instant hangouts repository page](#), and then select **Watch** in the upper-right area of the page.

To use an updated JavaScript file in your course, we recommend that you copy the JavaScript from the repository into a file that has the same name as the file that you uploaded to your course. When you upload the new file, the new file replaces the previous file.

Warning: If you include version numbers in the file names of uploaded files, you will have to edit any HTML components or pages that include an instant hangout control every time that you update the JavaScript file.

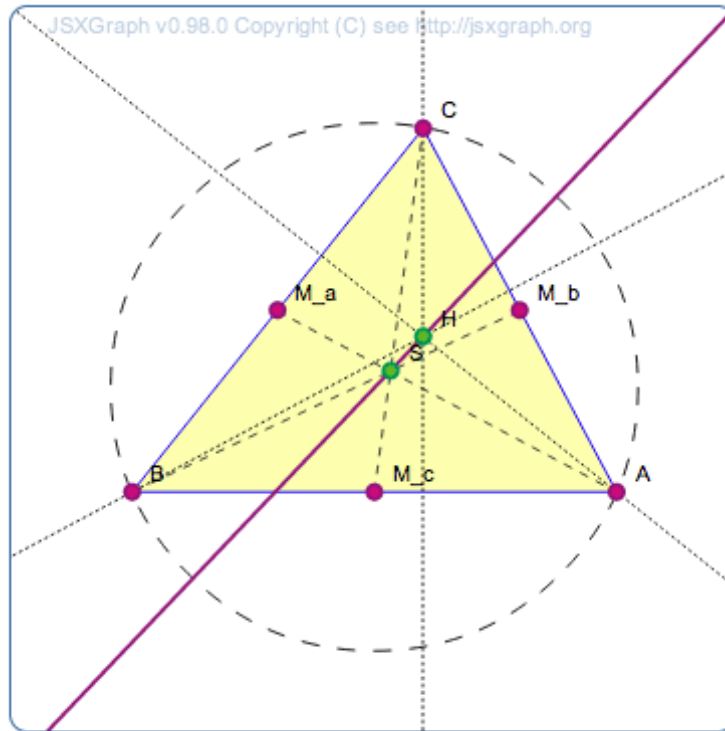
8.20 Iframe Tool

Note: EdX offers provisional support for this tool.

The iframe tool allows you to integrate ungraded exercises and tools from any Internet site into the body of your course. It places an iframe inside an HTML component, and then the exercise or tool appears inside the iframe. The iframe can include your own tools or third-party tools.

EULER LINES

In the image below, drag any of the red points to a new location. As you drag the point, notice the way the point's position affects the triangle's Euler line.



Before you make content or a tool from an external site available through your course, be sure to review the content or tool to ensure that it is accessible to people with disabilities. For example, in addition to testing the iframe components that you add to your course, you can ask third party providers to confirm that a tool is accessible, and, if available, contact your on campus accessibility support services for additional guidance. For more information, see [Accessibility Best Practices for Developing Course Content](#).

Iframes are well-suited for tools that demonstrate a concept, but that are not graded or used to store student data. If you want to add a graded tool or exercise, add the tool as a *custom JavaScript problem* or an *LTI component*.

For more information about iframes, see the [HTML/Elements/iframe specification](#).

8.20.1 Create an IFrame Tool

To add an exercise or tool in an iframe, you create an iframe HTML component and add the URL of the page that contains the exercise or tool to the component. You can also add text and images both before and after the iframe.

Note: The URL of the page that contains the exercise or tool must start with `https` instead of `http`. If the URL starts with `http`, work with the owner of that page to find out if an `https` version is available. Some websites do not allow their content to be embedded in iframes.

1. Under **Add New Component**, select **HTML**, and then select **IFrame Tool**.

2. In the new component, select **Edit**.
3. In the visual editor toolbar, select **HTML**.
4. In the HTML source code editor, locate the following HTML (line 7). This HTML includes the `<iframe>` element.

```
<p><iframe src="https://studio.edx.org/c4x/edx/DemoX/asset/eulerLineDemo.html" width="402" height="200"></iframe></p>
```

5. Replace the default URL in the `src` attribute (`https://studio.edx.org/c4x/edx/DemoX/asset/eulerLineDemo.html`) with the URL of the page that contains the exercise or tool. **This URL must start with https.** Make sure that you do not delete the quotation marks that surround the URL.
6. Change the attributes in the `iframe` element to specify any other settings that you want. For more information about these settings, see [Iframe Settings](#). You can also change the text between the opening and closing `<iframe>` tags. Learners see this text only when they use a browser that does not support iframes.
7. Select **OK** to close the HTML source code editor and return to the *visual editor*.
8. In the visual editor, replace the default text with your own text.
9. Select **Save**.

Iframe Settings

To specify settings for your iframe, you add, remove, or change the attributes inside the opening `<iframe>` tag. The `<iframe>` tag **must** contain a `src` attribute and a `title` attribute. Other attributes are optional.

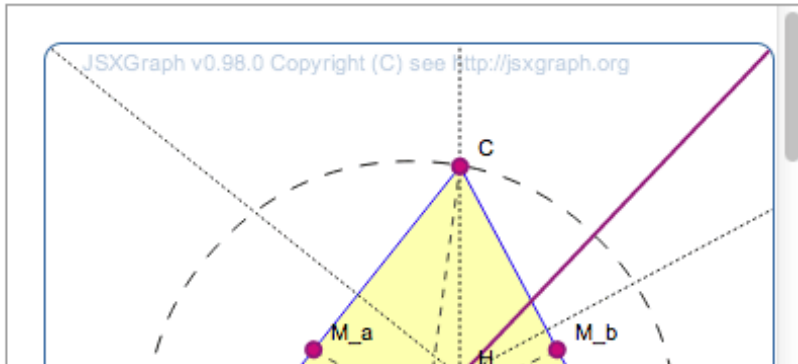
You can add these attributes in any order you want.

Attribute	Description
<code>src</code> (required)	Specifies the URL of the page that contains the exercise or tool, beginning with <code>https</code> .
<code>title</code> (required)	Describes the content or its purpose in the context of the course.
<code>width</code> and <code>height</code> (optional)	Specify the width and height of the iframe, in pixels or as a percentage. To specify the value in pixels, enter numerals. To specify a percentage, enter numerals followed by a percent sign. If you do not specify the width and height, the iframe uses the dimensions that the linked page has set. These dimensions vary by website. If you change the width and height of the iframe, the content from the linked page might be resized, or only part of the content may appear.
<code>marginwidth</code> and <code>marginheight</code> (optional)	Specify the size of the space between the edges of the iframe and your exercise or tool, in pixels.
<code>frameborder</code> (optional)	Specifies whether a border appears around your iframe. If the value is 0, no border appears. If the value is any positive number, a border appears.
<code>scrolling</code> (optional)	For an iframe that is smaller than the exercise or tool it contains, specifies whether a scrollbar appears to help users access all of the iframe's content. For example, if the content in your iframe is very tall, you can set the iframe's height to a smaller number and add a vertical scroll bar for users, as in the first image below.

For example, compare how the different settings in each of the `<iframe>` elements below affect the iframe.

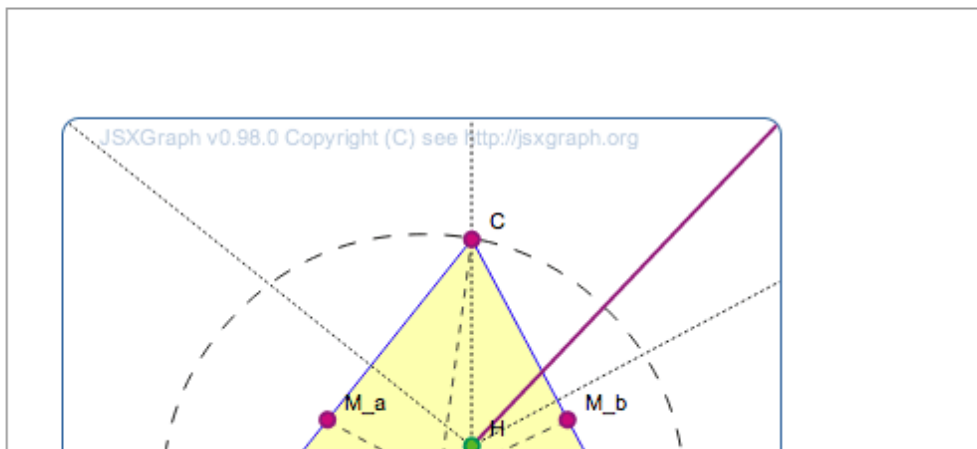
```
<p><iframe src="https://studio.edx.org/c4x/edX/DemoX/asset/eulerLineDemo.html" width="442" height="250">
```

In the image below, drag any of the red points to a new location. As you drag the point, notice the way the point's position affects the triangle's Euler line.



```
<p><iframe src="https://studio.edx.org/c4x/edX/DemoX/asset/eulerLineDemo.html" width="550" height="250">
```

In the image below, drag any of the red points to a new location. As you drag the point, notice the way the point's position affects the triangle's Euler line.



For more information about iframe attributes, see the [HTML/Elements/iframe specification](#).

8.21 Image Mapped Input Problem

Note: EdX offers provisional support for this problem type.

In an image mapped input problem, also known as a “pointing on a picture” problem, students click inside a defined region in an image. You define this region by including coordinates in the body of the problem.

What country is home to the Pyramids as well as the cities of Cairo and Memphis? Click the country on the map below.



EXPLANATION

Egypt is home to not only the Pyramids, Cairo, and Memphis, but also the Sphinx and the ancient Royal Library of Alexandria.

Check

Hide Answer

You can specify the following types of regions.

- One rectangular region. For more information, see *Specify a Rectangular Region*.
- Multiple rectangular regions. For more information, see *Specify Multiple Rectangular Regions*.

- One non-rectangular region. For more information, see *Specify an Irregular Region*.

Note: When you create a problem that contains an image, you must include alt text for your image to make the image accessible. For more information about alt text, see *Use Best Practices for Describing Images*.

8.21.1 Create an Image Mapped Input Problem

To create an image mapped input problem, follow these steps.

1. *Collect the information that you need for the image.*
2. *Create the problem in Studio.*

Collect Image Information

To create an image mapped input problem, you need the following elements.

- The height and width of the image in pixels.
- Coordinate pairs that define the region or regions where you want learners to click.

To collect the information you need about your image, use an image editing tool such as Microsoft Paint.

Note: The coordinate pairs for all images start with (0,0) in the upper-left corner of the image and increase in value toward the lower-right corner, similar to the progression of reading English.

- To specify a rectangular region, you need two coordinate pairs: the upper-left corner and the lower-right corner.
- To specify more than one rectangle, you need the coordinate pairs for the upper-left and lower-right corners of each rectangle.
- To specify an irregular region, you need three or more coordinate pairs. Studio creates the simplest possible shape based on these coordinate pairs. You can enter the coordinate pairs in any order.

For example, for a triangle, you need three coordinate pairs. For an octagon, you need eight coordinate pairs.

Create an Image Mapped Input Problem in Studio

1. In Studio, upload your image to the **Files & Uploads** page, and make a note of the file path for the image. For more information, see *Adding Files to a Course*.
2. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
3. Click **Image Mapped Input**.
4. In the component that appears, click **Edit**.
5. In the component editor, replace the example problem text with your own text.
6. In the `<imageinput>` element, follow these steps.
 - (a) Replace the example file path in the `src` attribute with the file path for your image.
 - (b) Include alt text for your image to make the image accessible. For more information about alt text, see *Use Best Practices for Describing Images*.

- (c) Replace the example values for the `width` and `height` attributes with the dimensions for your image.
- (d) Modify the example `rectangle` attribute to reflect the shape and size of the region that you want to specify. For more information, see [Specify a Rectangular Region](#), [Specify Multiple Rectangular Regions](#), or [Specify an Irregular Region](#).

7. Click **Save**.

Specify a Rectangular Region

To specify a rectangular region, edit the `rectangle` attribute in the `<imageinput>` element.

- Specify the coordinate pair for the upper-left and lower-right corners of the rectangle, separating the x and y values with a comma.
- Surround each coordinate pair with parentheses.
- Use a hyphen to separate the coordinate pairs.
- Surround the set of coordinate pairs with quotation marks (").

For example, the following `rectangle` attribute creates one rectangle from two coordinate pairs:

```
rectangle=" (338, 98) - (412, 168) "
```

Problem Code:

```
<problem>

<p>What country is home to the Pyramids as well as the cities of
Cairo and Memphis? Click the country on the map below.</p>

<imageresponse>
  <imageinput src="/static/Africa.png" width="600" height="638"
rectangle=" (338, 98) - (412, 168) " alt="Map of Africa" />
</imageresponse>

<solution>
  <div class="detailed-solution">

    <p>Explanation</p>

    <p>Egypt is home to not only the Pyramids, Cairo, and Memphis, but also the
Sphinx and the ancient Royal Library of Alexandria.</p>

  </div>
</solution>


</problem>
```

Specify Multiple Rectangular Regions

You can specify more than one rectangular region in an image.

IDENTIFYING RECTANGLES (1 point possible)

In the following image, click inside any of the rectangles.



Check Save Show Answer

To specify multiple rectangular regions, edit the `rectangle` attribute in the `<imageinput>` element.

- Specify the coordinate pair for the upper-left and lower-right corners of each rectangle, separating the x and y values with a comma.
- Surround each coordinate pair with parentheses.
- Use a hyphen (-) to separate the coordinate pairs.
- Separate each rectangle with a semicolon (;).
- Surround the entire set of coordinates with quotation marks ("").

For example, the following `rectangle` attribute creates three rectangles:

```
rectangle="(62,94)-(262,137);(306,41)-(389,173);(89,211)-(187,410)"
```

Problem Code:

```
<problem>

<p>In the following image, click inside any of the rectangles.</p>

<imageresponse>

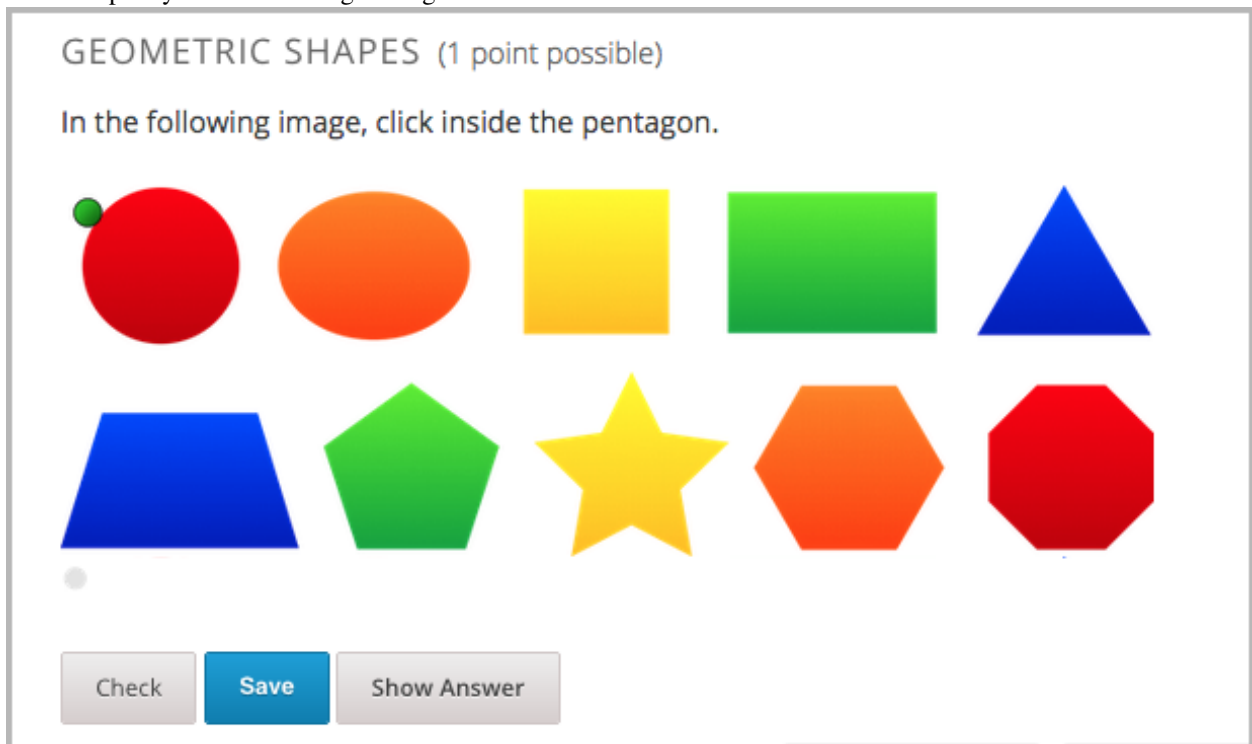
  <imageinput src="/static/imageresponse_multipleregions.png" width="450"
    height="450" rectangle="(62,94)-(262,137);(306,41)-(389,173);(89,211)-(
    (187,410)" alt="Three rectangles on a white background" />

</imageresponse>

</problem>
```

Specify an Irregular Region

You can specify one non-rectangular region.



To specify an irregular region, edit the `rectangle` attribute in the `<imageinput>` element.

- Change `rectangle` to `region`.
- Specify three or more coordinate points in any order.
- Enter each coordinate pair in brackets (`[]`). **Do not use parentheses.**
- Separate each set of points with a comma (,) and a space.
- Enclose the whole list of coordinate points in brackets (`[]`).
- Surround the outer brackets with quotation marks (").

For example, the following `regions` attribute creates a pentagon.

```
regions="[[219,86], [305,192], [305,381], [139,381], [139,192]]"
```

Problem Code:

```
<problem>

<p>In the following image, click inside the pentagon.</p>

<imageresponse>

  <imageinput src="/static/imageresponse_irregularregions.jpg" width="600"
height="204" regions="[[219,86], [305,192], [305,381], [139,381],
[139,192]]" alt = "A series of 10 shapes including a circle, triangle,
trapezoid, pentagon, star, and octagon" />

</imageresponse>

</problem>
```

8.21.2 Image Mapped Input Problem XML

Template

```
<problem>

  <p>Problem text</p>

  <imageresponse>

    <imageinput src="IMAGE FILE PATH" width="NUMBER" height="NUMBER"
rectangle="(X-AXIS,Y-AXIS)-(X-AXIS,Y-AXIS)" alt="DESCRIPTION OF
IMAGE" />

  </imageresponse>

</problem>
```

Tags

- `<imageresponse>`: Indicates that the problem is an image mapped input problem.
- `<imageinput>`: Specifies the image file and the region in the file that the learner must click.

Tag: `<imageresponse>`

Indicates that the problem is an image mapped input problem.

Attributes

(none)

Children

- `<imageinput>`

Tag: `<imageinput>`

Specifies the image file and the region in the file where learners must click.

Attributes

Attribute	Description
src (required)	The URL of the image
height (required)	The height of the image, in pixels
width (required)	The width of the image, in pixels
rectangle (required) (or, for irregular regions, region)	An attribute with two or more coordinate pairs that define the region where learners should click
alt (required)	A description of the image, used for accessibility

Children

(none)

8.22 LTI Component

Note: EdX offers full support for this tool.

You can integrate remote learning tools, such as applications and textbooks, into your course with the learning tools interoperability (LTI) component. The LTI component is based on the [IMS Global Learning Tools Interoperability version 1.1.1](#) specifications.

- *Overview*
- *LTI Authentication Information*
 - *Creating an LTI Passport String*
 - *Adding an LTI Passport to the Course Configuration*
- *Enabling LTI Components for a Course*
- *Adding an LTI Component to a Course Unit*
- *LTI Component Settings*

Before you make tools from an external site available through your course, be sure to review the tools to ensure that they are accessible to people with disabilities. For example, in addition to testing the LTI components that you add to your course, you can ask third party providers to confirm that a tool is accessible, and, if available, contact your on campus accessibility support services for additional guidance. For more information, see [Accessibility Best Practices for Developing Course Content](#).

8.22.1 Overview

You can use an LTI component in several ways.

- You can add remote LTI tools that display content only, and that do not require a learner response. An example is a digital copy of a textbook in a format other than PDF.
- You can add remote LTI tools that do require a learner response. A remote LTI tool provider grades the responses.
- You can use the LTI component as a placeholder for synchronizing with a remote grading system.

For example, the following LTI component integrates a Cerego tool that learners interact with into the LMS for a course.

These activities will help you remember some of the facts you are learning about important jazz eras and artists. Your goal is to reach "memory permanence" for all items, so that the information sinks in and you're able to remember it long after you finish the course.

Your progress on this set, Jazz Facts 2, counts as 20% of your final grade. Although the recommended deadline has passed, you can still revisit Jazz Facts 1 and continue to work for credit. Links to all the sets are available on the [Practice Your Knowledge](#) page.

The screenshot shows a Cerego interface. At the top, there's a dark header with the Cerego logo on the left, a progress bar in the center labeled 'progress' with a green bar and '47%' on the right, and 'Help' and 'Settings' icons on the far right. Below the header is a light gray bar. Underneath that is a yellow bar with the question 'Can you name a musician who played this instrument?'. In the center is a large green square with a white question mark. Below that, the text 'Tenor Saxophone' is displayed. At the bottom is a dark gray bar with a 'Pause' button on the left and 'Don't know it' and 'Know it' buttons on the right.

When you add an LTI component to your course, the edX Learning Management System (LMS) is the LTI tool consumer, and the external tool or content is the LTI tool provider.

Be sure to review all supplemental materials to ensure that they are accessible before making them available through your course. For more information, see [Accessibility Best Practices for Developing Course Content](#).

You can also integrate content from a course into a remote learning management system such as Canvas or Blackboard. For more information about how to use Studio as an LTI tool provider, see [Using Open edX as an LTI Tool Provider](#).

8.22.2 LTI Authentication Information

Some LTI tools require users to provide authentication credentials. If the LTI tool you are including in your course requires authentication, you must add an LTI passport for that tool to your course configuration.

An LTI passport is a string of text that contains the authentication key and shared secret for one LTI tool. A passport also contains the LTI ID for the tool. When you add an LTI component to your course, assign it a matching LTI ID so that it can use the LTI passport that it requires.

For more information about creating and registering LTI passports, see the following sections.

- *Creating an LTI Passport String*
- *Adding an LTI Passport to the Course Configuration*

Creating an LTI Passport String

Each LTI passport includes three component text strings that are separated by colon characters. The component strings are: the LTI ID, the client key, and the client secret.

- The **LTI ID** is a value that you create to refer to the remote LTI tool provider. You should create an LTI ID that you can remember easily.
The LTI ID can contain uppercase and lowercase alphanumeric characters, as well as underscore characters (_). It can be any length. For example, you can create an LTI ID that is as simple as `test_lti_id`, or your LTI ID can be a string of numbers and letters such as `id_21441` or `book_lti_provider_from_new_york`.
- The **client key** is a sequence of characters that you obtain from the LTI tool provider. The client key is used for authentication and can contain any number of characters. For example, your client key might be `b289378-f88d-2929-ctools.school.edu`.
- The **client secret** is a sequence of characters that you obtain from the LTI tool provider. The client secret is used for authentication and can contain any number of characters. For example, your client secret can be something as simple as `secret`, or it might be a string of numbers and letters such as `23746387264` or `yt4984yr8`.

To create an LTI passport, combine the LTI ID, client key, and client secret in the following format (be sure to include the colons).

```
{your_lti_id}:{client_key}:{client_secret}
```

The following example LTI passports show the format of the passport string.

```
test_lti_id:b289378-f88d-2929-ctools.school.edu:secret
```

```
id_21441:b289378-f88d-2929-ctools.school.edu:23746387264
```

```
book_lti_provider_from_new_york:b289378-f88d-2929-ctools.company.com:yt4984yr8
```

Adding an LTI Passport to the Course Configuration

To add an LTI passport for an LTI tool to the configuration for your course, follow these steps.

1. From the Studio **Settings** menu, select **Advanced Settings**.
2. In the **LTI Passports** field, place your cursor between the brackets.

3. Enter the LTI passport string surrounded by quotation marks.

The following example shows an LTI passport string.

```
"test_lti_id:b289378-f88d-2929-ctools.umich.edu:secret"
```

For more information about creating your key, see [LTI Authentication Information](#).

4. If you use more than one LTI provider in your course, separate each LTI passport string with commas. Make sure to surround each entry with quotation marks. The following example shows multiple LTI passports in the **LTI Passports** field.

```
[  
  "test_lti_id:b289378-f88d-2929-ctools.umich.edu:secret",  
  "id_21441:b289378-f88d-2929-ctools.school.edu:23746387264",  
  "book_lti_provider_from_new_york:b289378-f88d-2929-ctools.company.com:yt4984yr8"  
]
```

5. Select **Save Changes**.

The page refreshes automatically, reformats your entry in the **LTI Passports** field, and displays a notification that your changes have been saved.

8.22.3 Enabling LTI Components for a Course

Before you can add LTI components to your course, you must enable the LTI tool in Studio.

To enable the LTI tool in Studio, add the "lti_consumer" module to the **Advanced Module List** on the **Advanced Settings** page. For more information, see [Enable Additional Exercises and Tools](#).

Note: The `lti_consumer` module replaces a previous version of the LTI component. The name of the module for the previous LTI component is `lti` and it may appear in the **Advanced Module List** for older courses.

The `lti_consumer` module includes all of the functionality of the previous LTI component and it should be used for all new courses. Courses that include the previous LTI component will continue to work correctly, even if the `lti` module is no longer present in the **Advanced Module List**.

8.22.4 Adding an LTI Component to a Course Unit

To add an LTI component to a course unit, follow these steps.

1. If the LTI tool requires authentication, register the key and shared secret for the LTI tool in the configuration for your course. For more information about registering authentication credentials, see [LTI Authentication Information](#).
2. Edit the unit in which you want to add the remote LTI tool and select **Advanced** from the **Add New Component** section. Select **LTI Consumer**.

If the **Advanced** component type is not available, make sure you have enabled LTI components. To do this, see [Enabling LTI Components for a Course](#).

3. Select **Edit** in the component that appears.
4. Configure the LTI component in the component editor. For more information about each setting, see [LTI Component Settings](#).
5. Select **Save**.

To test an LTI component, use the **Preview** feature or view the live version in the LMS. For more information, see *Testing Your Course Content*.

8.22.5 LTI Component Settings

Setting	Description
Display Name	Specifies the name of the component. This name appears as a heading above the problem. Unique, descriptive display names help you identify problems quickly and accurately for analysis.
LTI Application Information	The description of the remote LTI application. If the application requires a username or email address, use this field to inform learners that their information will be forwarded to the external application.
LTI ID	Specifies the LTI ID for the remote LTI tool provider. This value must match the LTI ID that you entered as part of the LTI passport string for the LTI tool. For more information about LTI passports, see LTI Authentication Information .
LTI URL	Specifies the URL of the remote LTI tool that this component launches.
Custom Parameters	Sends additional parameters that are required by the remote LTI tool. The parameters that you send depend on the specific LTI tool you are using. Supply a key and value for each custom parameter. The key is an identifier for the parameter. Use the following format. <code>{key}={value}</code> For example, an LTI tool that displays an e-book might accept a <code>page</code> parameter to control which page the e-book opens to by default. The following example sends a <code>page</code> parameter to an LTI tool. <code>["page=144"]</code>
LTI Launch Target	Controls the way that the course page will open and display the remote LTI tool. Options are: <ul style="list-style-type: none"> • Inline - the LTI tool will appear directly in the course page. • Modal - the LTI tool will appear in a separate display window in front of the course page. The modal display window prevents learners from interacting with the course page until they dismiss the LTI tool. • New Window - the LTI tool will appear in a new web browser window. Depending on the configuration of the web browser, it may appear in a new tab or in a separate browser window. Learners can interact with both the course page and the LTI tool.
Button Text	Enter a custom label for the button that opens the external LTI tool.
Inline Height	Specifies the on-screen height of the LTI tool in pixels. This setting is only applied if the LTI Launch Target is set to Inline .
Modal Height	Specifies the on-screen height of the LTI content window as a percentage of the visible web browser window
8.22. LTI Component	height. Enter the percentage in whole numbers. 305 This setting is only applied if the LTI Launch Target control is set to Modal .
Modal Width	Specifies the on-screen width of the LTI content window as a percentage of the web browser window width. Enter

8.23 Math Expression Input Problems

Note: EdX offers full support for this problem type.

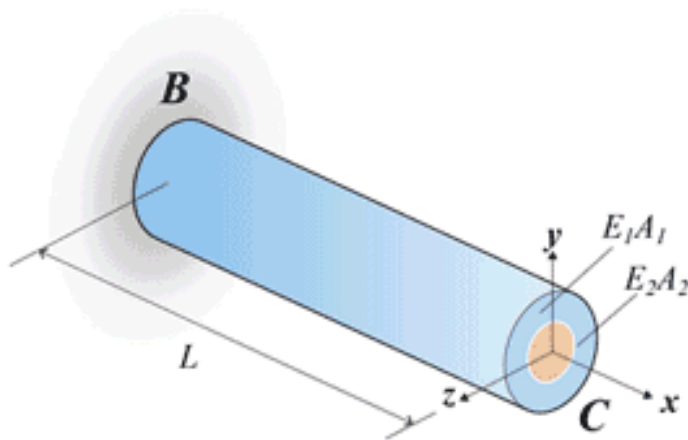
- *Overview*
- *Create a Math Expression Input Problem*
- *Example Problem Code*
- *Math Expression Input Problem XML*

8.23.1 Overview

In math expression input problems, learners enter text that represents a mathematical expression. The text is converted to a symbolic expression that appears below the response field. Unlike numerical input problems, which only allow integers and a few select constants, math expression input problems can include unknown variables and more complicated symbolic expressions.

This exercise first appeared in MITx's 2.01x Elements of Structures course, spring 2013.

The composite bar BC in the figure is composed of an inner core of cross sectional area $A_2 = 1 \text{ mm}^2$ and a sleeve of cross sectional area $A_1 = 4A_2$. The Young's modulus of the sleeve is E_1 and the modulus of the core is $E_2 = 2E_1$. Under the effects of unknown distributed loading, $f_x(x) \text{ [N/m]}$, the bar is observed to deform. The measured displacement field in the bar is $u_x(x) = ax^2 - 2aLx$, where $a = 0.05 \text{ [1/m]}$ is a dimensional constant and $L = 1 \text{ m}$ is the length of the bar. The origin of the x -axis is at the fixed support, B . The maximum magnitude (absolute value) of stress in the core is found to be 10 MPa .



Try it (do not include units in your response):

In terms of L , a , E_1 , A_2 and x , write a symbolic expression for $\mathcal{N}(x)$:



$$12 \cdot a \cdot L \cdot E_1 \cdot A_2 \cdot \left(\frac{x}{L} - 1 \right)$$

What is the numerical value of $\mathcal{N}(x=0)$ in Newtons?

 N


Reset

Show Answer(s)

For more information about how learners enter expressions, see [Entering Mathematical and Scientific Expressions in the EdX Learner's Guide](#) or [Entering Mathematical and Scientific Expressions in the Open edX Learner's Guide](#).

Note: You can make a calculator available to your learners on every unit page. For more information, see [Calculator Tool](#).

For the math expression input problems in your course, you can use edX Insights to review aggregated learner perfor-

mance data and examine submitted answers. For more information, see [Using edX Insights](#).

For math expression input problems, the grader uses numerical sampling to determine whether a learner's response matches the math expression that you provide, to a specified numerical tolerance. You specify the allowed variables in the expression as well as the range of values for each variable.

When you create a math expression input problem in Studio, you use [MathJax](#) to change your plain text into “beautiful math.” For more information about how to use MathJax in Studio, see [A Brief Introduction to MathJax in Studio](#).

Note: Math expression input problems currently cannot include negative numbers raised to fractional powers, such as $(-1)^{(1/2)}$. Math expression input problems can include complex numbers raised to fractional powers, or positive non-complex numbers raised to fractional powers.

8.23.2 Create a Math Expression Input Problem

To create a math expression input problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select **Advanced**.
3. Select **Math Expression Input**. Studio adds an example math expression input problem to the unit.
4. Select **Edit**. The advanced editor opens.
5. Replace the sample problem XML with your own marked up text. To practice, you can use the example problem that follows.
6. Select **Settings** and provide an identifying **Display Name** for the problem.
7. Define additional settings for the problem. For more information, see [Problem Settings](#).
8. Select **Save**.

8.23.3 Example Problem Code

```
<problem>
  <p>Some problems may ask for a mathematical expression. Practice creating mathematical expressions

  <p>Write an expression for the product of R_1, R_2, and the inverse of R_3.</p>
  <formularesponse type="ci" samples="R_1,R_2,R_3@1,2,3:3,4,5#10" answer="$VoVi">
    <responseparam type="tolerance" default="0.00001"/>
    <formulaequationinput size="40" label="Enter the equation"/>
  </formularesponse>

  <script type="loncapa/python">
VoVi = "(R_1*R_2)/R_3"
  </script>

  <p>Let <i>x</i> be a variable, and let <i>n</i> be an arbitrary constant. What is the derivative of
  <script type="loncapa/python">
derivative = "n*x^(n-1)"
  </script>
  <formularesponse type="ci" samples="x,n@1,2:3,4#10" answer="$derivative">
    <responseparam type="tolerance" default="0.00001"/>
    <formulaequationinput size="40" label="Enter the equation"/>
  </formularesponse>
```

```

<solution>
  <div class="detailed-solution">
    <p>Explanation or Solution Header</p>
    <p>Explanation or solution text</p>
  </div>
</solution>
</problem>

```

8.23.4 Math Expression Input Problem XML

Templates

```

<problem>
  <p>Write an expression for the product of R_1, R_2, and the inverse of R_3.</p>
  <formularesponse type="ci" samples="R_1,R_2,R_3@1,2,3:3,4,5#10" answer="R_1*R_2/R_3">
    <responseparam type="tolerance" default="0.00001"/>
    <formulaequationinput size="40" label="Enter the equation" />
  </formularesponse>
</problem>

```

```

<problem>
  <p>Problem text</p>
  <formularesponse type="ci" samples="VARIABLES@LOWER_BOUNDS:UPPER_BOUNDS#NUMBER_OF_SAMPLES" answer=
    <responseparam type="tolerance" default="0.00001"/>
    <formulaequationinput size="20" label="Enter the equation" />
  </formularesponse>

  <script type="loncapa/python">
PYTHON SCRIPT
  </script>

  <solution>
    <div class="detailed-solution">
      <p>Explanation or Solution Header</p>
      <p>Explanation or solution text</p>
    </div>
  </solution>
</problem>

```

Tags

- `<formularesponse>`
- `<formulaequationinput />`
- `<responseparam>`
- `<script>`

Tag: `<formularesponse>`

Specifies that the problem is a math expression input problem. The `<formularesponse>` tag is similar to `<numericalresponse>`, but `<formularesponse>` allows unknown variables.

Attributes

type: Can be “cs” for case sensitive, which is the default, or “ci” for case insensitive, so that capitalization does not matter in variable names.

answer: The correct answer to the problem, given as a mathematical expression. If you precede a variable name in the problem with a dollar sign (\$), you can include a script in the problem that computes the expression in terms of that variable.

samples: Specifies important information about the problem in the following lists.

- **variables:** A set of variables that learners can enter.
- **lower_bounds:** For every defined variable, a lower bound on the numerical tests to use for that variable.
- **upper_bounds:** For every defined variable, an upper bound on the numerical tests to use for that variable.
- **num_samples:** The number of times to test the expression.

Commas separate items inside each of the four individual lists. The at sign (@), colon (:), and pound sign (#) characters separate the lists. An example of the format follows.

```
"variables@lower_bounds:upper_bounds#num_samples"
```

For example, a `<formularesponse>` tag that includes the `samples` attribute might look like either of the following.

```
<formularesponse samples="x,n@1,2:3,4#10">
```

```
<formularesponse samples="R_1,R_2,R_3@1,2,3:3,4,5#10">
```

Children

```
<formulaequationinput />
```

Tag: `<formulaequationinput />`

Creates a response field where a learner enters an answer to the problem in plain text, as well as a second field below the response field where the learner sees a typeset version of the plain text. The parser that renders the learner’s plain text into typeset math is the same parser that evaluates the learner’s response for grading.

Attributes

Attribute	Description
label (required)	Specifies the name of the response field.
size (optional)	Specifies the width, in characters, of the response field where learners enter answers.

Children

(none)

Tag: `<responseparam>`

Used to define an upper bound on the variance of the numerical methods used to approximate a test for equality.

Attributes

Attribute	Description
default (required)	A number or a percentage specifying how close the learner and grader expressions must be. If you do not include a tolerance, the expression is vulnerable to rounding errors during sampling. The result of such unavoidable errors is that the grader can mark some learner input as incorrect, even if it is algebraically equivalent.
type	“tolerance”, which defines a tolerance for a number.

Children

(none)

8.24 Molecule Editor Tool

Note: EdX does not support this tool.

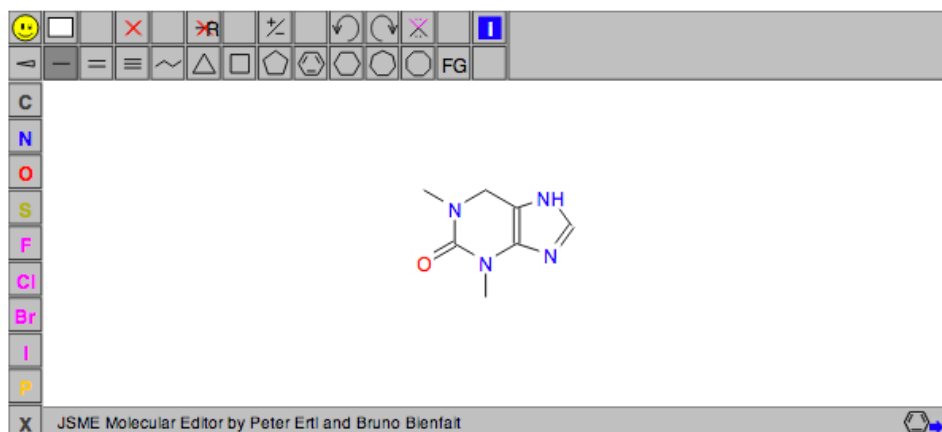
Students can use the molecule editor to learn how to create molecules. The molecule editor allows students to draw molecules that follow the rules for covalent bond formation and formal charge, even if the molecules are chemically impossible, are unstable, or do not exist in living systems. The molecule editor warns students if they try to submit a structure that is chemically impossible.

The molecule editor incorporates two tools: the JSME molecule editor created by Peter Erl and Bruno Bienfait, and JSmol, a JavaScript-based molecular viewer from Jmol. (You don't need to download either of these tools—Studio uses them automatically.) For more information about the JSME molecule editor, see [JSME Molecule Editor](#). For more information about JSmol, see [JSmol](#).

MOLECULAR STRUCTURE (1 point possible)

A molecular structure problem lets the user use the JSME editor component to draw a new molecule or update an existing drawing and then submit their work. Answers are specified as SMILES strings.

I was trying to draw my favorite molecule, caffeine. Unfortunately, I'm not a very good biochemist. Can you correct my molecule?



Answer: C8H10N4O2

EXPLANATION

Some scholars have hypothesized that the renaissance was made possible by the introduction of coffee to Italy. Likewise scholars have linked the Enlightenment with the rise of coffee houses in England.

Check

Hide Answer

8.24.1 Create the Molecule Editor

To create a molecule editor, you need the following files.

- MoleculeAnswer.png
- MoleculeEditor_HTML.png
- dopamine.mol

To download all of these files in a .zip archive, go to <http://files.edx.org/MoleculeEditorFiles.zip>.

Note: The molecule that appears when the tool starts is a dopamine molecule. To use a different molecule, download the .mol file for that molecule from the [list of molecules](#) on the [BioTopics](#) website. Then, upload the .mol file to the

Files & Uploads page for your course in Studio, and change “dopamine.mol” in the example code to the name of your .mol file.

To create the molecule editor that appears in the image above, you need an HTML component followed by a problem component.

1. Upload all of the files listed above to the **Files & Uploads** page in your course.
2. Create the HTML component.
 1. In the unit where you want to create the problem, click **HTML** under **Add New Component**, and then click **HTML**.
 2. In the component that appears, click **Edit**.
 3. In the component editor, paste the HTML component code from below.
 4. Make any changes that you want, and then click **Save**.
1. Create the problem component.
 1. Under the HTML component, click **Problem** under **Add New Component**, and then click **Blank Advanced Problem**.
 2. In the component that appears, click **Edit**.
 3. In the component editor, paste the problem component code from below.
 4. Click **Save**.

Molecule Editor Code

To create the molecule editor, you need an HTML component and a problem component.

HTML Component Code

```
<h3>Molecule Editor</h3>
<p>The molecule editor makes creating and visualizing molecules easy. A chemistry professor may have
<div>
<script type="text/javascript">// 
function toggle2(showHideDiv, switchTextDiv) {
    var ele = document.getElementById(showHideDiv);
    var text = document.getElementById(switchTextDiv);
    if(ele.style.display == "block") {
        ele.style.display = "none";
        text.innerHTML = "+ open";
    }
    else {
        ele.style.display = "block";
        text.innerHTML = "- close";
    }
}
// ]]&gt;&lt;/script&gt;
&lt;/div&gt;
&lt;div&gt;
&lt;style type="text/css"&gt;&lt;/style&gt;
&lt;/div&gt;
&lt;div id="headerDiv"&gt;
&lt;div id="titleText"&gt;Using the Molecule Editor&lt;a id="myHeader" href="javascript:toggle2('myContent', 'n</pre>
</div>
<div data-bbox="112 931 324 948" data-label="Page-Footer">8.24. Molecule Editor Tool</div>
<div data-bbox="846 931 884 948" data-label="Page-Footer">313</div>
```

```

</div>
<div id="contentDiv">
<div id="myContent" style="display: none;">
<p>In this problem you will edit a molecule using the molecular drawing program shown below:</p>
</div>
</div>
<p>&nbsp;</p>
<div id="headerDiv">
<div id="titleText">Are the molecules I've drawn chemically possible?<a id="IntroductionHeader" href=
</div>
<div id="contentDiv">
<div id="IntroductionContent" style="display: none;">
<p>The chemical editor you are using ensures that the structures you draw are correct in one very nar
<p>If you submit a structure that includes atoms that are not possible or are beyond the scope of th
</div>
</div>
<div id="ap_listener_added">&nbsp;</div>

```

Problem Component Code

```

<problem>
<p>The dopamine molecule, as shown, cannot make ionic bonds. Edit the dopamine molecule so it can ma
<p>When you are ready, click Check. If you need to start over, click Reset.</p>
  <script type="loncapa/python">
def check1(expect, ans):
    import json
    mol_info = json.loads(ans)["info"]
    return any(res == "Can Make Ionic Bonds" for res in mol_info)
  </script>
  <customresponse cfn="check1">
    <editamoleculeinput file="/static/dopamine.mol">
      </editamoleculeinput>
    </customresponse>
  <solution>
    
  </solution>
</problem>

```

Problem 2

```

<problem>
<p>The dopamine molecule, as shown, cannot make strong hydrogen bonds. Edit the dopamine molecule so
<script type="loncapa/python">
def grader_1(expect, ans):
    import json
    mol_info = json.loads(ans)["info"]
    return any(res == "Cannot Make Strong Hydrogen Bonds" for res in mol_info)
</script>
  <customresponse cfn="grader_1">
    <editamoleculeinput file="/static/dopamine.mol">
      </editamoleculeinput>
    </customresponse>
</problem>

```

Problem 3

```

<problem>
<p>The dopamine molecule has an intermediate hydrophobicity. Edit the dopamine molecule so that it is
<script type="loncapa/python">
def grader_2(expect, ans):
    import json
    mol_info = json.loads(ans) ["info"]

    hydrophobicity_index_str=mol_info[0]
    hydrophobicity_index=float(hydrophobicity_index_str[23:])
    return hydrophobicity_index > .490
</script>
<customresponse cfn="grader_2">
    <editamoleculeinput file="/static/dopamine.mol">
    </editamoleculeinput>
</customresponse>
</problem>

```

8.25 Molecule Viewer Tool

Note: EdX does not support this tool.

Studio offers two tools that you can use in discussions of molecules.

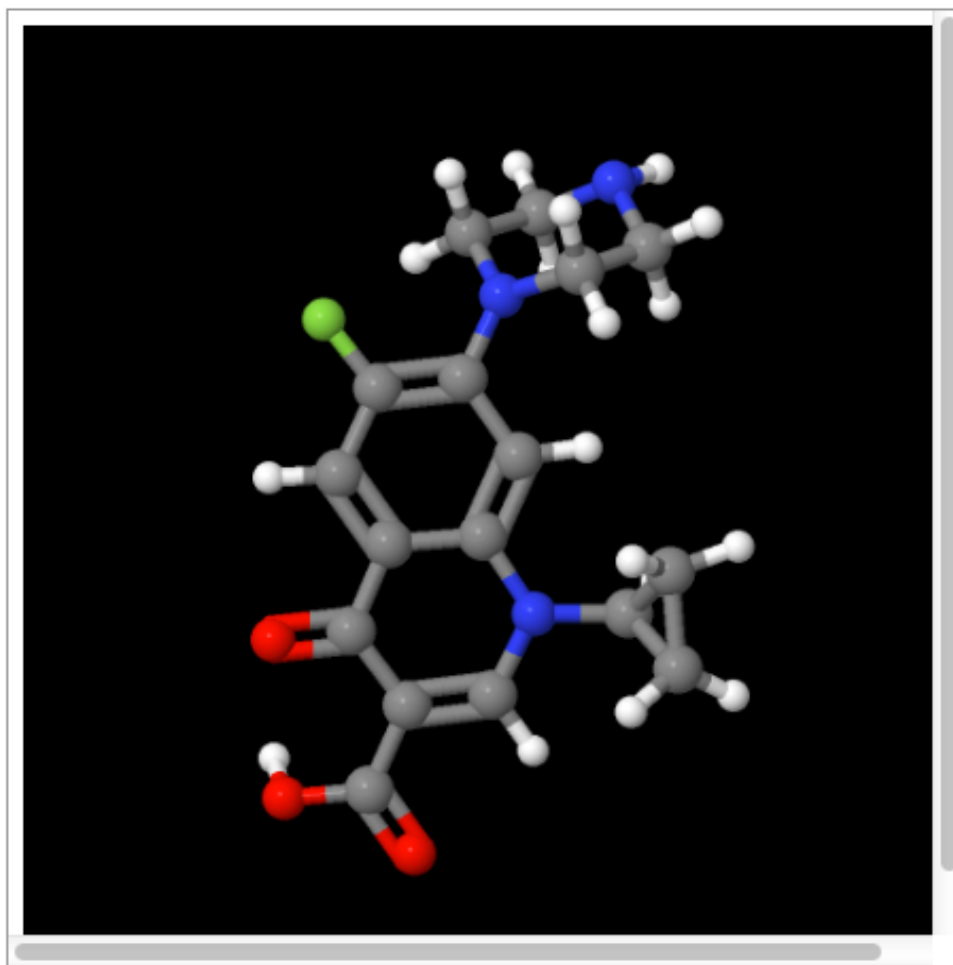
- With the **molecule viewer** tool, you can create three-dimensional representations of molecules for students to view.
- With the **molecule editor** problem type, you can allow students to draw their own molecules. For more information about this tool, see [Molecule Editor Tool](#).

Both tools use **JSmol**, a JavaScript-based molecular viewer from Jmol. (You don't need to download this tool; Studio uses it automatically.) For more information about JSmol, see [JSmol](#).

The following image shows the molecule viewer tool in a course.

CIPROFLOXACIN

In this course, we've studied the chemical structure of several different "broad-spectrum" antibiotics. The following image shows a molecule of Ciprofloxacin, a fluoroquinolone used to treat UTIs:



Note: To create a molecule viewer tool, you must have permission to upload files to a third-party file hosting site such as Amazon Web Services Simple Storage Service (AWS S3). When you create the molecule viewer, you'll upload a folder that contains a large number of files to the file hosting site.

8.25.1 Create the Molecule Viewer Tool

Creating a molecule viewer tool has several steps.

1. Download files from the [BioTopics website](#) and from edX.

2. Move or edit some of the files that you downloaded.
3. Upload a folder that contains all of the files that you downloaded and edited to your own file hosting site.
4. Create an HTML component that contains an `iframe` element in Studio. The `iframe` references the files that you upload to the file hosting site.

Download Files from BioTopics and edX

1. Create or download a `.mol` file for the molecule that you want to show. You can download a variety of `.mol` files from the [BioTopics website](#). Save the file in a place where you can easily find it.
2. Download the `MoleculeViewerFiles.zip` file from edX.
3. Unzip the `MoleculeViewerFiles.zip` file that you downloaded.

When you unzip the file, it contains a **MoleculeViewerFiles** folder with the following folders and files.

- data (folder)
- j2s (folder)
- js (folder)
- MoleculeViewer.html (file)

Move the `.mol` File and Edit the `MoleculeViewer.html` File

1. Move the `.mol` file that you downloaded from BioTopics into the **data** folder that you downloaded from edX.
2. Edit the `MoleculeViewer.html` file:
 - (a) In a text editor, open the `MoleculeViewer.html` file.
 - (b) In line 19 of the `MoleculeViewer.html` file, change **Example.mol** to the name of your `.mol` file. For example, if you downloaded the `Glucose.mol` file, line 19 in your file will look like the following:

```
script: "set antialiasDisplay; background black; load
data/Glucose.mol; "
```

3. Save the `MoleculeViewer.html` file.

Upload Files to a Hosting Site

1. Make sure that your **MoleculeViewerFiles** folder contains the following folders and files.
 - data (folder): Earlier, you added a `.mol` file to this folder.
 - j2s (folder)
 - js (folder)
 - MoleculeViewer.html (file): Earlier, you changed line 19 in this file.
2. Upload the entire **MoleculeViewerFiles** folder to your file hosting site.

Note: Because this folder contains many files, uploading the folder may take several minutes, even over a fast connection.

Create a Component in Studio

1. In Studio, open the unit where you want to add the molecule viewer.
2. Under **Add New Component**, select **HTML**, and then select **IFrame Tool**.
3. In the component editor that opens, replace the existing content with your own text.
4. In the toolbar, select **HTML**.
5. In the **HTML Source Code** box, enter the following line in the place where you want the molecule viewer to appear.

```
<p><iframe name="moleculeiframe" src="https://path_to_folder/MoleculeViewerFiles/Molec  
width="500" height="500"></iframe></p>
```

6. Replace `path_to_file` with the URL of your file hosting site. For example, the line may look like the following:

```
<p><iframe name="moleculeiframe" src="https://myfiles.example.com/MoleculeViewerFiles/  
width="500" height="500"></iframe></p>
```

7. Select **OK** to close the **HTML Source Code** box, and then select **Save**.
8. Select **Preview** to see your component as a student would see it.

8.26 Multiple Choice Problem

Note: EdX offers full support for this problem type.

- *Overview*
- *Analyzing Performance on Multiple Choice Problems*
- *Pedagogical Considerations for Multiple Choice Questions*
- *Creating a Multiple Choice Problem*
- *Using Feedback in a Multiple Choice Problem*
- *Using Hints in a Multiple Choice Problem*
- *Awarding Partial Credit in a Multiple Choice Problem*
- *Multiple Choice Problem XML*
- *Advanced Options for Multiple Choice Problems*

8.26.1 Overview

In multiple choice problems, learners select one option from a list of answer options. Unlike *dropdown* problems, whose answer choices do not appear until the learner clicks the dropdown arrow, answer choices for multiple choice problems are always visible directly below the question.

This exercise first appeared in Harvard's PH278x: Human Health and Global Environmental Change course, spring 2013.

Lateral inhibition, as was first discovered in the horseshoe crab:

- ☐ is a property of touch sensation, referring to the ability of crabs to detect nearby predators.
- ☐ is a property of hearing, referring to the ability of crabs to detect low frequency noises.
- ☒ is a property of vision, referring to the ability of crabs' eyes to enhance contrasts. ✓
- ☒ has to do with the ability of crabs to use sonar to detect fellow horseshoe crabs nearby. ✗
- ☐ has to do with a weighting system in the crab's skeleton that allows it to balance in turbulent water.

EXPLANATION

Horseshoe crabs were essential to the discovery of lateral inhibition, a property of vision present in horseshoe crabs as well as in humans that enables enhancement of contrast at edges of objects as was demonstrated in class. In 1967, Haldan Hartline received the Nobel prize for his research on vision and in particular his research investigating lateral inhibition using horseshoe crabs.

CHECK

HIDE ANSWER

Multiple choice problems can also have several advanced options, such as presenting a random set of choices to each learner. For more information about these options, see [Advanced Options for Multiple Choice Problems](#).

8.26.2 Analyzing Performance on Multiple Choice Problems

For the multiple choice problems in your course, you can use edX Insights to review aggregated learner performance data and examine the submitted answers. For more information, see [Using edX Insights](#).

8.26.3 Pedagogical Considerations for Multiple Choice Questions

EdX recommends the use, whenever possible, of authentic assessments rather than multiple choice questions for graded problems. Authentic assessments in online courses tend to lead to better learning outcomes. In addition, authentic assessments allow for infinite attempts, mastery learning, and more intellectual risk taking, which lead to substantially better learning outcomes.

Multiple choice questions do have these helpful uses.

- Ungraded multiple choice questions can help students think about a concept in the context of knowledge transfer.

- For many subject areas, authentic assessments are either unavailable or prohibitively complex to use. In such courses, multiple choice questions can act as the only available fallback.

Fortunately, multiple choice questions are among the best studied in assessment literature. A few guidelines for the creation of such questions follow.

- Organize the set of answers logically. Use consistent phrasing for the answers, and when possible, parallel structure.
- Place as many of the words in the stem as possible, and keep the answers as concise as possible.
- The distractors should not be substantially shorter, longer, or use different structure than the correct answer. The answer options should be as consistent in structure, length, and phrasing as possible.
- Avoid using negatives (and especially double negatives) in the question and the answers.
- Test higher order thinking (comprehension and critical thinking). Avoid simple recall.
- If you specify a finite number of attempts, avoid trick questions and try to keep wording clear and unambiguous.
- Make all distractors plausible.
- Use “All of the above” and “None of the above” answer options with caution. If a learner can identify at least two correct answers, it can give away the answer with only partial comprehension.

8.26.4 Creating a Multiple Choice Problem

You can create multiple choice problems in the simple editor or in the advanced editor. You can set up a problem in the simple editor, and then switch to the advanced editor to add more configuration options in XML. However, you cannot switch back to the simple editor from the advanced editor. Therefore, you might want to format the problem as completely as possible before you begin to use the advanced editor.

Use the Simple Editor to Create a Multiple Choice Problem

To use the *simple editor* to create a checkbox problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select one of the two multiple choice problem templates.
 - From the list of **Common Problem Types**, select **Multiple Choice**.
 - From the list of **Common Problems with Hints and Feedback**, select **Multiple Choice with Hints and Feedback**. For more information, see *Use Feedback in a Multiple Choice Problem*.Studio adds the problem to the unit.
1. Select **Edit**. The simple editor opens.
2. Replace the sample problem text with your own text.
3. Determine the text that describes the question you want learners to answer, and surround that text with two pairs of angle brackets (`>>question<<`). This text identifies the question for screen readers, reports, and Insights.
4. Edit your text to place each answer option on a separate line.
5. Select your set of answer options, and then select **Multiple Choice** from the toolbar. A pair of parentheses appears next to each answer choice.
6. To identify the correct answer, add an **x** between the parentheses for that option.
7. To provide an explanation, select the explanation text and then select **Explanation** from the toolbar. `[explanation]` appears before and after the explanation text.

8. Select **Settings** and provide an identifying **Display Name** for the problem.
9. Define additional settings for the problem. For more information, see *Problem Settings*.
10. Select **Save**.

For the example problem illustrated above, the following text is displayed in the problem component.

```
>>Lateral inhibition, as was first discovered in the horseshoe crab:<<

( ) is a property of touch sensation, referring to the ability of crabs
to detect nearby predators.
( ) is a property of hearing, referring to the ability of crabs to detect
low frequency noises.
(x) is a property of vision, referring to the ability of crabs' eyes to
enhance contrasts.
( ) has to do with the ability of crabs to use sonar to detect fellow
horseshoe crabs nearby.
( ) has to do with a weighting system in the crab's skeleton that allows
it to balance in turbulent water.

[Explanation]
Horseshoe crabs were essential to the discovery of lateral
inhibition, a property of vision present in horseshoe crabs as well as in
humans that enables enhancement of contrast at edges of objects as was
demonstrated in class. In 1967, Haldan Hartline received the Nobel prize
for his research on vision and in particular his research investigating
lateral inhibition using horseshoe crabs.
[Explanation]
```

Use the Advanced Editor to Edit a Multiple Choice Problem

To use the *advanced editor* to edit a multiple choice problem, follow these steps.

1. Follow the steps for creating the problem in the *simple editor*.
2. Select **Advanced Editor**, and then edit the XML to add the tags and attributes you want. An example follows.

```
<problem>
<p>Lateral inhibition, as was first discovered in the horseshoe crab...</p>
<multiplechoiceresponse>
  <choicegroup type="MultipleChoice" label="Lateral inhibition, as was first discovered
    in the horseshoe crab">
    <choice correct="false">is a property of touch sensation, referring to the ability
      of crabs to detect nearby predators.</choice>
    <choice correct="false">is a property of hearing, referring to the ability of crabs
      to detect low frequency noises.</choice>
    <choice correct="false">is a property of vision, referring to the ability of crabs'
      eyes to enhance contrasts.</choice>
    <choice correct="true">has to do with the ability of crabs to use sonar to detect
      fellow horseshoe crabs nearby.</choice>
    <choice correct="false">has to do with a weighting system in the crab's skeleton
      that allows it to balance in turbulent water.</choice>
  </choicegroup>
</multiplechoiceresponse>
<solution>
  <div class="detailed-solution">
    <p>Explanation</p>
    <p>Horseshoe crabs were essential to the discovery of lateral inhibition,
```

```
a property of vision present in horseshoe crabs as well as humans that
enables enhancement of contrast at edges of objects as was demonstrated in class.
In 1967, Haldan Hartline received the Nobel prize for his research on vision
and in particular his research investigating lateral inhibition using
horseshoe crabs.</p>
</div>
</solution>
</problem>
```

8.26.5 Using Feedback in a Multiple Choice Problem

You can add feedback in a multiple choice problem using the simple editor or the advanced editor. For an overview of feedback in problems, see [Adding Feedback and Hints to a Problem](#).

In multiple choice problems, you can provide feedback for each option that a learner can select. Use the following guidelines when providing feedback.

- Use feedback for the incorrect answers to target common misperceptions and mistakes.
- Ensure feedback provides some guidance to the learner about how to arrive at the correct answer.
- Use feedback for the correct answer as an opportunity to reinforce why the answer is correct. Because learners are able to guess, ensure that feedback provides a reason why the answer is correct for learners who might have selected that answer by chance.

Configure Feedback in the Simple Editor

In the *simple editor*, you configure answer feedback with the following syntax. When you create a new multiple choice problem, select the template **Multiple Choice with Hints and Feedback**. This template has example feedback syntax that you can replace.

```
( ) Answer {{Feedback for learners who select this answer.}}
```

For example, the following problem has feedback for each possible answer.

```
>>Which of the following is an example of a vegetable?<<
( ) apple {{An apple is the fertilized ovary that comes from an apple tree
and contains seeds classifying it as a fruit.}}
( ) pumpkin {{A pumpkin is the fertilized ovary of a squash plant and
contains seeds classifying it as a fruit.}}
(x) potato {{A potato is an edible part of a plant in tuber form and is
classified as a vegetable}}
( ) tomato {{Many people mistakenly think a tomato is a vegetable. However,
because a tomato is the fertilized ovary of a tomato plant and contains
seeds it is classified as a fruit.}}
```

Configure Feedback in the Advanced Editor

In the *advanced editor*, you configure answer feedback with the following syntax.

```
<choice correct="false">
  Choice Label
  <choicehint>
    Feedback for when learner selects this answer.
  </choicehint>
</choice>
```

For example, the following problem has feedback for each answer.

```
<multiplechoiceresponse>
  <choicegroup label="Which of the following is an example of a vegetable?"
    type="MultipleChoice">
    <choice correct="false">apple
      <choicehint>An apple is the fertilized
        ovary that comes from an apple tree and contains seeds classifying
        it as a fruit.
      </choicehint>
    </choice>
    <choice correct="false">pumpkin
      <choicehint>A pumpkin is the fertilized
        ovary of a squash plant and contains seeds classifying it as a fruit.
      </choicehint>
    </choice>
    <choice correct="true">potato
      <choicehint>A potato is an edible part of a plant in tuber form and is
        classified as a vegetable.
      </choicehint>
    </choice>
    <choice correct="false">tomato
      <choicehint>Many people mistakenly think a tomato is a vegetable.
        However, because a tomato is the fertilized ovary of a tomato plant
        and contains seeds it is classified as a fruit.
      </choicehint>
    </choice>
  </choicegroup>
</multiplechoiceresponse>
```

Customize Feedback Labels

By default, the feedback labels shown to learners are **Correct** and **Incorrect**. If you do not define feedback labels, learners see these terms when they submit an answer, as in the following example.

MULTIPLE CHOICE WITH HINTS AND FEEDBACK (1 point possible)

You can provide feedback for each option in a multiple choice problem.

You can also add hints for learners.

Be sure to select Settings to specify a Display Name and other values that apply.

Use the following example problem as a model.

Which of the following is a vegetable?

- ☐ apple
- ☒ pumpkin **✗**
- ☐ potato
- ☐ tomato

Incorrect: A pumpkin is the fertilized ovary of a squash plant and contains seeds, meaning it is a fruit.

Check

Hint

You can configure the problem to override the default labels. For example, you can configure a custom label for a specific wrong answer.

MULTIPLE CHOICE WITH HINTS AND FEEDBACK (1 point possible)

You can provide feedback for each option in a multiple choice problem.

You can also add hints for learners.

Be sure to select Settings to specify a Display Name and other values that apply.

Use the following example problem as a model.

Which of the following is a vegetable?

- ☐ apple
- ☐ pumpkin
- ☐ potato
- ☒ tomato **✗**

Not Quite:

Many people mistakenly think a tomato is a vegetable. However, because a tomato is the fertilized ovary of a tomato plant and contains seeds, it is a fruit.

Check

Hint

Note: The default labels **Correct** and **Incorrect** are displayed in the learner's requested language. If you provide custom labels, they are displayed to all users as you configure them and are not translated into different languages.

Customize Feedback Labels in the Simple Editor

In the *simple editor*, you configure custom feedback labels with the following syntax.

```
( ) Answer {{Label:: Feedback for learners who select this answer.}}
```

For example, the following feedback is configured to use a custom label.

```
( ) tomato {{Not Quite:: Many people mistakenly think a tomato is a
vegetable. However, because a tomato is the fertilized ovary of a tomato
plant and contains seeds, it is a fruit.}}
```

Customize Feedback Labels in the Advanced Editor

In the *advanced editor*, you configure custom feedback labels with the following syntax.

```
<choice correct="true or false">Answer
  <choicehint label="Custom Label">
    Feedback for learners who select this answer.
  </choicehint>
</choice>
```

For example, the following feedback is configured to use a custom label.

```
<choice correct="false">
  tomato
  <choicehint label="Not Quite">
    Many people mistakenly think a tomato is a vegetable. However, because
    a tomato is the fertilized ovary of a tomato plant and contains seeds,
    it is a fruit.
  </choicehint>
</choice>
```

8.26.6 Using Hints in a Multiple Choice Problem

You can add hints in a multiple choice problem, using the simple editor or the advanced editor. For an overview of hints in problems, see [Adding Feedback and Hints to a Problem](#).

Configure Hints in the Simple Editor

In the simple editor, you configure hints with the following syntax.

```
||Hint 1||
||Hint 2||
||Hint n||
```

Note: You can configure any number of hints. The learner views one hint at a time and views the next one by selecting **Hint** again.

For example, the following problem has two hints.

```
||A fruit is the fertilized ovary from a flower.||
||A fruit contains seeds of the plant.||
```

Configure Hints in the Advanced Editor

In the advanced editor, you configure each hint in the `<hint>` element within the `<demandhint>` element.

```
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
  <hint>Hint 3</hint>
</demandhint>
```

For example, the following XML shows two hints.

```
<demandhint>
  <hint>A fruit is the fertilized ovary from a flower.</hint>
  <hint>A fruit contains seeds of the plant.</hint>
</demandhint>
```

8.26.7 Awarding Partial Credit in a Multiple Choice Problem

You can configure a multiple choice problem so that specific incorrect answers award learners partial credit for the problem. You must use the advanced editor to configure partial credit.

In the following example, the learner selected a wrong answer and received partial credit.

MULTIPLE CHOICE (1.25/5 points)

You can use the following example problem as a model.

Which of the following countries has the largest population?

☒ Brazil ✖

☐ Germany

☐ Indonesia

☐ Russia

You can specify what percentage of the points for the problem a learner receives for an incorrect answer. If you do not specify the percentage, the system uses the default of 50%.

For an overview of partial credit in problems, see [Awarding Partial Credit for a Problem](#).

Configure a Multiple Choice Problem to Award Partial Credit

To configure a multiple choice problem to award partial credit for a specific answer, you add the following attributes to the problem XML.

- Add the `partial_credit="points"` attribute to the `<multiplechoiceresponse>` element.
- For each answer that you intend to award partial credit, add the `correct="partial"` attribute to the `<choice>` element.
- Optionally, define the percentage of the problem score to award for each answer. In the `point_values` attribute for the `<choice>` element, enter the value as a decimal. For example, you can add `point_value="0.25"` to award 25% of the points to learners who select that answer. The percentage awarded should reflect how close the learner has gotten to a full understanding of the concept. If you do not add the `point_value` attribute, the system uses a value of 50%.

For example, the following XML shows the multiple choice problem template updated to provide partial credit for the first answer.

```
<multiplechoiceresponse partial_credit="points">
  <choicegroup label="Which of the following countries has the largest
    population?" type="MultipleChoice">
    <choice correct="partial" point_value="0.25">Brazil</choice>
    <choice correct="false">Germany</choice>
    <choice correct="true">Indonesia</choice>
    <choice correct="false">Russia</choice>
  </choicegroup>
</multiplechoiceresponse>
```

8.26.8 Multiple Choice Problem XML

Template

```
<problem>
<p>Question text</p>
<multiplechoiceresponse>
  <choicegroup type="MultipleChoice" label="label text">
    <choice correct="false" name="a">
      Incorrect choice
      <choicehint>
        Hint for incorrect choice.
      </choicehint>
    </choice>
    <choice correct="true" name="b">
      Correct choice
      <choicehint>
        Hint for correct choice.
      </choicehint>
    </choice>
  </choicegroup>
</multiplechoiceresponse>
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
</demandhint>

<solution>
  <div class="detailed-solution">
    <p>Explanation or solution header</p>
    <p>Explanation or solution text</p>
  </div>
</solution>
</problem>
```

Tags

- `<multiplechoiceresponse>` (required): Indicates that the problem is a multiple choice problem.
- `<choicegroup>` (required): Indicates the beginning of the list of options.
- `<choice>` (required): Lists an answer option.
- `<demandhint>` (optional): Specifies hints for the learner.

Tag: `<multiplechoiceresponse>`

Indicates that the problem is a multiple choice problem.

Attributes

Attribute	Description
partial_credit (optional)	Specifies that the problem can award partial credit. If used, must be set to “points”.

(none)

Children

- `<choicegroup>`

- All standard HTML tags (can be used to format text).

Tag: <choicegroup>

Indicates the beginning of the list of options.

Attributes

Attribute	Description
label (required)	Specifies the name of the response field.
type (required)	Must be set to “MultipleChoice”.

Children

- <choice>

Tag: <choice>

Lists an answer option.

Attributes

Attribute	Description
correct (at least one required)	Indicates a correct, incorrect, or partially correct answer. <ul style="list-style-type: none"> • When set to “true”, the choice is a correct answer. • When set to “false”, the choice is an incorrect answer. • When set to “partial”, the learner receives partial credit for selecting the answer. You can specify more than one correct or partially correct answer, but learners can select only once choice to submit as their answer.
point_value	When <code>correct="partial"</code> , indicates the percentage, as a decimal, of the points the learner receives for selecting this option. If <code>point_value</code> is not specified for a partial credit answer, 50% is used by default.
name	A unique name that is used internally to refer to the choice.

Children

<choicehint>

Tag: <choicehint>

Specifies a hint for the answer.

Tag: <demandhint>

Specifies hints available to the learner.

Children

<hint>

Tag: <hint>

Specifies a hint available to the learner.

Children

(none)

8.26.9 Advanced Options for Multiple Choice Problems

Multiple choice problems have several advanced options. You can change the order of answers in the problem, include explanations that appear when a learner selects a specific incorrect answer, or present a random set of choices to each learner. For more information, see the following sections.

- *Shuffle Answers in a Multiple Choice Problem*
- *Targeted Feedback in a Multiple Choice Problem*
- *Answer Pools in a Multiple Choice Problem*

Shuffle Answers in a Multiple Choice Problem

Optionally, you can configure a multiple choice problem so that it shuffles the order of possible answers.

For example, one view of a geography problem could be as follows.

```
What Apple device competed with the portable CD player?  
  
( ) The iPad  
( ) Napster  
( ) The iPod  
( ) The vegetable peeler
```

Another view of the same problem, for a different learner or for the same learner on a subsequent view of the unit, could be as follows.

```
What Apple device competed with the portable CD player?  
  
( ) The iPad  
( ) The iPod  
( ) The vegetable peeler  
( ) Napster
```

You can also have some answers shuffled, but not others. For example, you might want to include the answer “All of the Above” and have it always appear at the end of the list, but shuffle the other answers.

You can configure the problem to shuffle answers using the simple editor or advanced editor. To shuffle the answers, you also edit the problem to set **Randomization** to a value other than **Never**. For more information, see [Randomization](#).

Use the Simple Editor to Shuffle Answers

You can configure the problem to shuffle answers in the *simple editor*.

For example, the following text defines a multiple choice problem before shuffling is enabled. The (x) indicates the correct answer.

```
>>What Apple device competed with the portable CD player?<<  
  ( ) The iPad  
  ( ) Napster  
  (x) The iPod  
  ( ) The vegetable peeler
```

To add shuffling to this problem, add ! between the parentheses of the first answer.

```
>>What Apple device competed with the portable CD player?<<
  (!) The iPad
  ( ) Napster
  (x) The iPod
  ( ) The vegetable peeler
```

To fix an answer's location in a shuffled list, add @ between the parentheses of that answer.

```
>>What Apple device competed with the portable CD player?<<
  (!) The iPad
  ( ) Napster
  (x) The iPod
  ( ) The vegetable peeler
  (@) All of the above
```

You can combine symbols within the parentheses as necessary. For example, to show the correct answer in a fixed location, you can use both x and @.

```
(x@) The iPod
```

When you complete problem setup in the simple editor, select **Edit** and then **Settings** to specify an option other than **Never** for the **Randomization** setting.

Use the Advanced Editor to Shuffle Answers

You can configure the problem to shuffle answers by editing XML in the *advanced editor*.

For example, the following XML defines a multiple choice problem before shuffling is enabled.

```
<problem>
  <p>What Apple device competed with the portable CD player?</p>
  <multiplechoiceresponse>
    <choicegroup type="MultipleChoice">
      <choice correct="false">The iPad</choice>
      <choice correct="false">Napster</choice>
      <choice correct="true">The iPod</choice>
      <choice correct="false">The vegetable peeler</choice>
    </choicegroup>
  </multiplechoiceresponse>
</problem>
```

To add shuffling to this problem, add `shuffle="true"` to the `<choicegroup>` element.

```
<problem>
  <p>What Apple device competed with the portable CD player?</p>
  <multiplechoiceresponse>
    <choicegroup type="MultipleChoice" shuffle="true">
      <choice correct="false">The iPad</choice>
      <choice correct="false">Napster</choice>
      <choice correct="true">The iPod</choice>
      <choice correct="false">The vegetable peeler</choice>
    </choicegroup>
  </multiplechoiceresponse>
</problem>
```

To fix an answer's location in the list, add `fixed="true"` to the `choice` element for the answer.

```
<problem rerandomize="always">
  <p>What Apple device competed with the portable CD player?</p>
  <multiplechoiceresponse>
    <choicegroup type="MultipleChoice" shuffle="true">
      <choice correct="false">The iPad</choice>
      <choice correct="false">Napster</choice>
      <choice correct="true">The iPod</choice>
      <choice correct="false">The vegetable peeler</choice>
      <choice correct="false" fixed="true">All of the above</choice>
    </choicegroup>
  </multiplechoiceresponse>
</problem>
```

You can set value randomization as an attribute of the `problem` element, as shown in this example, or select **Edit** and then **Settings** to specify an option other than **Never** for the **Randomization** setting.

Targeted Feedback in a Multiple Choice Problem

You can configure a multiple choice problem so that explanations for incorrect answers are automatically shown to learners. You can use these explanations to guide learners towards the right answer. Therefore, targeted feedback is most useful for multiple choice problems for which learners are allowed multiple attempts.

Use the Advanced Editor to Configure Targeted Feedback

You configure the problem to provide targeted feedback by editing XML in the *advanced editor*.

Follow these XML guidelines.

- Add a `targeted-feedback` attribute to the `<multiplechoiceresponse>` element, with no value: `<multiplechoiceresponse targeted-feedback="">`.
- Add a `<targetedfeedbackset>` element before the `<solution>` element.
- Within `<targetedfeedbackset>`, add one or more `<targetedfeedback>` elements.
- Within each `<targetedfeedback>` element, enter your explanation for the incorrect answer in HTML as markup described below.
- Connect the `<targetedfeedback>` element with a specific incorrect answer by using the same `explanation-id` attribute value for each.
- Use the `<solution>` element for the correct answer, with the same `explanation-id` attribute value as the correct `<choice>` element.

For example, the XML for the multiple choice problem follows.

```
<problem>
<p>What Apple device competed with the portable CD player?</p>
<multiplechoiceresponse targeted-feedback="">
  <choicegroup type="MultipleChoice">
    <choice correct="false" explanation-id="feedback1">The iPad</choice>
    <choice correct="false" explanation-id="feedback2">Napster</choice>
    <choice correct="true" explanation-id="correct">The iPod</choice>
    <choice correct="false" explanation-id="feedback3">The vegetable peeler</choice>
  </choicegroup>
</multiplechoiceresponse>
...
```

This is followed by XML that defines the targeted feedback.

```
...
<targetedfeedbackset>
  <targetedfeedback explanation-id="feedback1">
    <div class="detailed-targeted-feedback">
      <p>Targeted Feedback</p>
      <p>The iPad came out later and did not directly compete with portable
        CD players.</p>
    </div>
  </targetedfeedback>
  <targetedfeedback explanation-id="feedback2">
    <div class="detailed-targeted-feedback">
      <p>Targeted Feedback</p>
      <p>Napster was not an Apple product.</p>
    </div>
  </targetedfeedback>
  <targetedfeedback explanation-id="feedback3">
    <div class="detailed-targeted-feedback">
      <p>Targeted Feedback</p>
      <p>Vegetable peelers do not play music.</p>
    </div>
  </targetedfeedback>
</targetedfeedbackset>

<solution explanation-id="correct">
  <div class="detailed-solution">
    <p>The iPod directly competed with portable CD players.</p>
  </div>
</solution>
</problem>
```

Answer Pools in a Multiple Choice Problem

You can configure a multiple choice problem so that a random subset of choices are shown to each learner. For example, you can add 10 possible choices to the problem, and each learner views a set of five choices.

The answer pool must have at least one correct answer. It can have more than one correct answer. In each set of choices shown to a learner, one correct answer is included. For example, you can configure two correct answers in the set of choices. One of the two correct answers is included in each set that a learner views.

Use the Advanced Editor to Configure Answer Pools

You configure the problem to provide answer pools by editing XML in the *advanced editor*.

Follow these XML guidelines.

- In the `<choicegroup>` element, add the `answer-pool` attribute, with the numerical value indicating the number of possible answers in the set. For example, `<choicegroup answer-pool="4">`.
- For each correct answer, to the `<choice>` element, add an `explanation-id` attribute and value that maps to a solution. For example, `<choice correct="true" explanation-id="iPod">The iPod</choice>`.
- For each `<solution>` element, add an `explanation-id` attribute and value that maps back to a correct answer. For example, `<solution explanation-id="iPod">`.

Note: If the choices include only one correct answer, you do not have to use the `explanation-id` in either the choice or `<solution>` element. You do still use the `<solutionset>` element to wrap the `<solution>` element.

For example, for the following multiple choice problem, a learner will see four choices. In each set, one of the choices will be one of the two correct choices. The explanation shown for the correct answer is the one with the same explanation ID.

```
<problem>
<p>What Apple devices let you carry your digital music library in your pocket?</p>
<multiplechoiceresponse>
  <choicegroup type="MultipleChoice" answer-pool="4">
    <choice correct="false">The iPad</choice>
    <choice correct="false">Napster</choice>
    <choice correct="true" explanation-id="iPod">The iPod</choice>
    <choice correct="false">The vegetable peeler</choice>
    <choice correct="false">The iMac</choice>
    <choice correct="true" explanation-id="iPhone">The iPhone</choice>
  </choicegroup>
</multiplechoiceresponse>

  <solutionset>
    <solution explanation-id="iPod">
      <div class="detailed-solution">
        <p>Explanation</p>
        <p>Yes, the iPod is Apple's portable digital music player.</p>
      </div>
    </solution>
    <solution explanation-id="iPhone">
      <div class="detailed-solution">
        <p>Explanation</p>
        <p>In addition to being a cell phone, the iPhone can store and play your
          digital music.</p>
      </div>
    </solution>
  </solutionset>
</problem>
```


8.27 Multiple Choice and Numerical Input Problem

Note: EdX offers provisional support for this problem type.

You can create a problem that combines a multiple choice and numerical input problems. Students not only select a response from options that you provide, but also provide more specific information, if necessary.

THE VALUE OF PI (1/1 points)

The numerical value of pi, rounded to two decimal points, is 3.24.

☐ True.
 ☒ False. The correct value is . 

Note: Currently, students can only enter numerals in the text field. Students cannot enter words or mathematical expressions, which might be confusing to students who are accustomed to other edX numerical input fields.

You can make a calculator available to your learners on every unit page. For more information, see [Calculator Tool](#).

8.27.1 Create a Multiple Choice and Numerical Input Problem

To create a multiple choice and numerical input problem, follow these steps.

1. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
2. Click **Blank Advanced Problem**.
3. In the component that appears, click **Edit**.
4. In the component editor, paste the code from below.
5. Replace the example problem and response options with your own text.
6. Click **Save**.

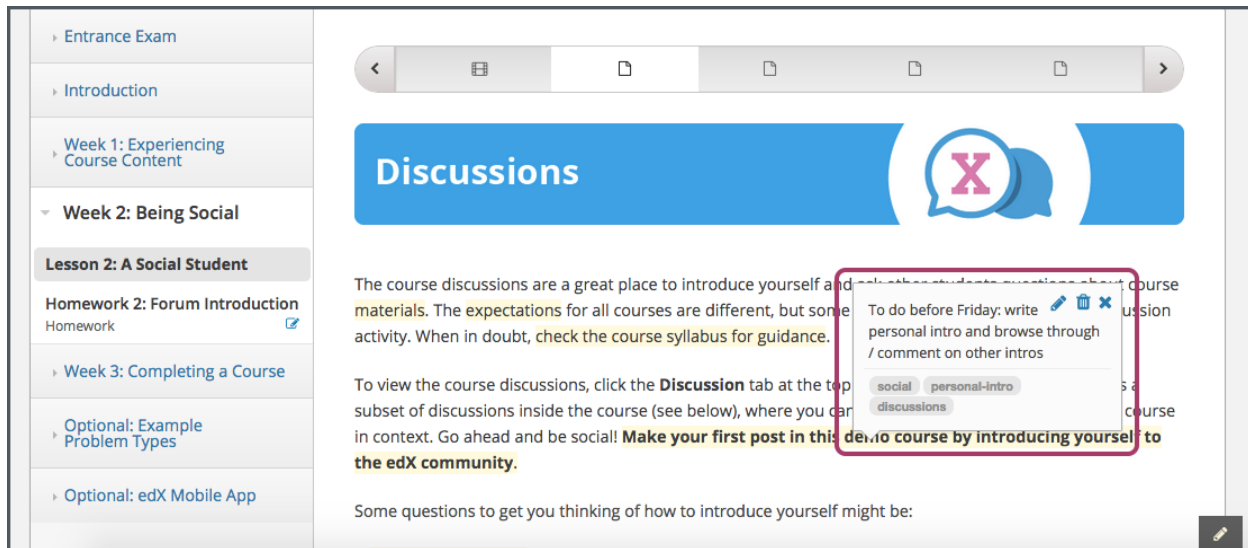
8.27.2 Multiple Choice and Numerical Input Problem Code

```
<problem>
The numerical value of pi, rounded to two decimal places, is 3.24.
<choicetextresponse>
  <radiotextgroup>
    <choice correct="false">True.</choice>
    <choice correct="true">False. The correct value is <numtolerance_input answer="3.14"/>.</choice>
  </radiotextgroup>
</choicetextresponse>
</problem>
```

8.28 Notes Tool

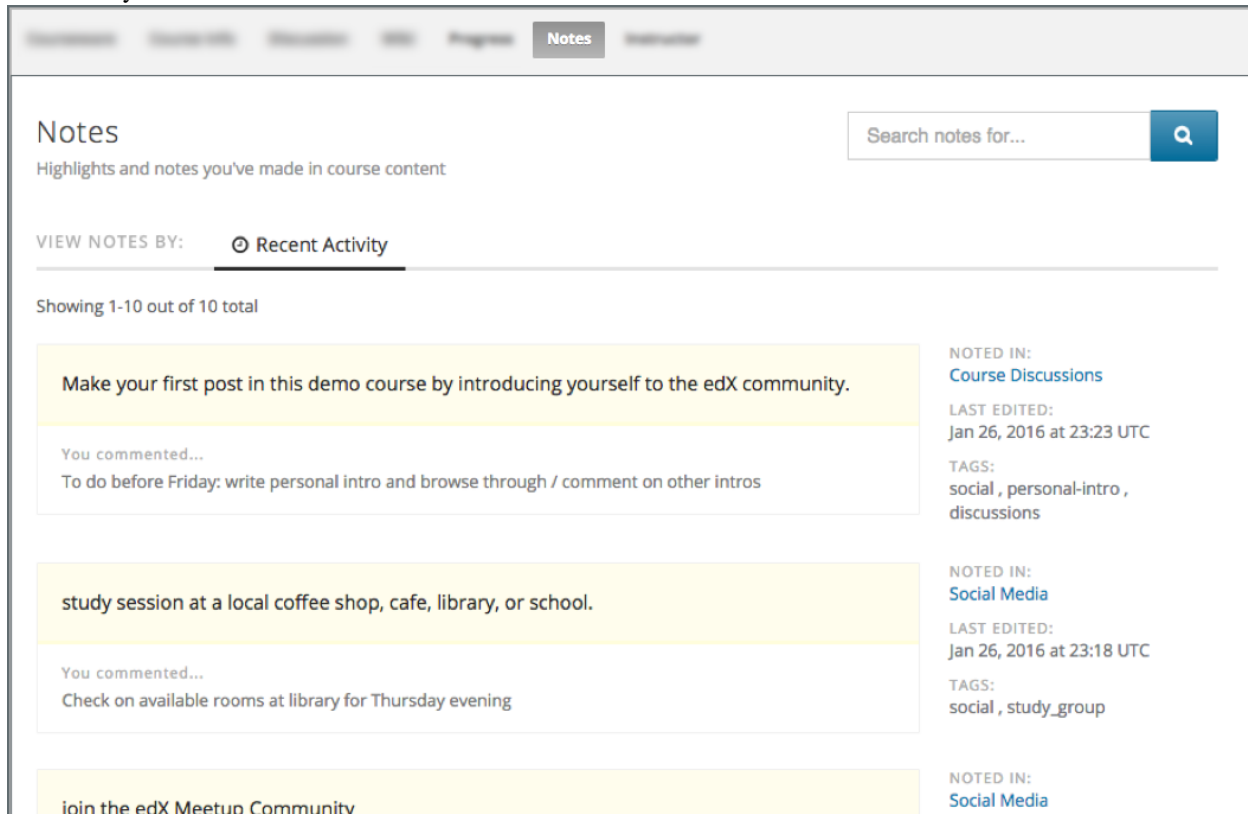
Note: EdX offers full support for this tool.

The notes tool allows learners to highlight and make notes about what they read in the body of the course.



Note: The notes tool is available for text, including text in HTML components. However, the tool is currently not available for discussions, exercises, video transcripts, or PDF documents.

Learners can access their notes either in the body of the course or on a **Notes** page. On the **Notes** page, a learner can see all the notes that she has made during the course. The page also contains links to the location of the notes in the course body.



You must enable the Notes tool before learners can use it. To enable the Notes tool, follow these steps.

1. In Studio, select **Settings**, and then **Advanced Settings**.

2. In the **Enable Notes** field, enter `true`.
3. Select **Save Changes**.

For more information about the ways learners can use notes, see [Taking Notes in an edX Course](#).

8.29 Numerical Input Problem

Note: EdX offers full support for this problem type.

- *Overview*
- *Analyzing Performance on Numerical Input Problems*
- *Creating a Numerical Input Problem*
- *Using Feedback in a Numerical Input Problems*
- *Using Hints in a Numerical Input Problem*
- *Awarding Partial Credit in a Numerical Input Problem*
- *Add Text after the Numeric Response Field*
- *Numerical Input Problem XML*

8.29.1 Overview

In numerical input problems, learners enter numbers or specific and relatively simple mathematical expressions to answer a question. The text that the learners enter is converted to a symbolic expression that appears below the response field.

NUMERICAL INPUT (1/2 points)

How many miles away from Earth is the sun? Use scientific notation to answer.

✖

Answer: 9.3*10^7

The square of what number is -100?

✔

Answer: 10*i

EXPLANATION

The sun is 93,000,000, or 9.3*10^7, miles away from Earth.

-100 is the square of 10 times the imaginary number, i.

Responses for numerical input problems can include integers, fractions, and constants such as pi and g. Responses can also include text representing common functions, such as square root (sqrt) and log base 2 (log2), as well as trigonometric functions and their inverses, such as sine (sin) and arcsine (arcsin). For these functions, learners enter text that is converted into mathematical symbols. The following example shows a response entered by a learner and the numerical expression that results.

For more information about how learners enter expressions, see [Entering Mathematical and Scientific Expressions](#).

You can specify a margin of error, or tolerance, for the answers to these problems so that learners' responses do not have to be exact. You can specify a correct answer explicitly or use a Python script.

Note: You can make a calculator available to your learners on every unit page. For more information, see [Calculator Tool](#).

8.29.2 Analyzing Performance on Numerical Input Problems

For the numerical input problems in your course, you can use edX Insights to review aggregated learner performance data and examine submitted answers. For more information, see [Using edX Insights](#).

8.29.3 Creating a Numerical Input Problem

You can create numerical problems in the simple editor or in the advanced editor.

- If the text of your problem does not include any italics, bold formatting, or special characters, you can create the problem in the simple editor.
- If the text of your problem contains special formatting or characters, or if your problem contains a Python script, you use the advanced editor.

For example, you must use the advanced editor to define the following problems.

What is the distance in the plane between the points (pi, 0) and (0, e)? You can type math.

`sqrt((pi-0)^2+(0-e)^2)` ✓

$\sqrt{(\pi - 0)^2 + (0 - e)^2}$

Answer: 4.15435440231

In this example, the question uses a Python script to compute the square root.

For more information about including a Python script in your problem, see [Write-Your-Own-Grader Problem](#).

Use the Simple Editor to Create a Numerical Input Problem

To the [simple editor](#) to create a numerical input problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select one of the two numerical input problem templates.
 - From the list of **Common Problem Types**, select **Numerical Input**.
 - From the list of **Common Problems with Hints and Feedback**, select **Numerical Input with Hints and Feedback**. For more information, see [Use Feedback in a Numerical Input Problems](#).

Studio adds the problem to the unit.
3. Select **Edit**. The simple editor opens.

4. Replace the sample problem text with your own text.
5. Determine the text that describes the question you want learners to answer, and surround that text with two pairs of angle brackets (`>>question<<`). This text identifies the question for screen readers, reports, and Insights.
6. To identify the problem's answer, select the answer text and then select **Numerical Input** from the toolbar. An equals sign appears next to the answer.
7. Optionally, specify a margin of error, or tolerance. You can specify a percentage, number, or range.
 - To specify a percentage on either side of the correct answer, after the answer add `+-{number}%`. For example, to include a 2% tolerance, add `+-2%`.
 - To specify a number on either side of the correct answer, after the answer add `+-{number}`. For example, to include a tolerance of 5, add `+-5`.
 - To specify a range, you provide the starting and ending values separated by a comma and then surround the range with brackets `[]` or parentheses `()`. A bracket includes the number next to it in the range, and a parenthesis excludes the number from the range. For example, if you specify `[5,8)`, correct answers can be 5, 6, and 7, but not 8. Likewise, if you specify `(5,8]`, correct answers can be 6, 7, and 8, but not 5.
8. To provide an explanation, select the explanation text and then select **Explanation** from the toolbar. `[explanation]` appears before and after the explanation text.
9. Select **Settings** and provide an identifying **Display Name** for the problem.
10. Define additional settings for the problem. For more information, see [Problem Settings](#).
11. Select **Save**.

For the first example problem illustrated above, the text in the problem component appears as follows.

```
>>What base is the decimal numeral system in?<<

= 10

[explanation]
The decimal numeral system is base ten.
[explanation]
```

Use the Advanced Editor to Create a Numerical Input Problem

For a more complex problem, such as the one that follows, you use the advanced editor.

1. Follow the steps for creating the problem in the [simple editor](#).
2. Select **Advanced Editor**, and then edit the XML to add the tags and attributes you want. An example follows.

Problem Code:

```
<problem>
  <p><b>Example Problem</b></p>

<legend>What base is the decimal numeral system in?</legend>
  <numericalresponse answer="10">
    <formulaequationinput label="What base is the decimal numeral system in?" />
  </numericalresponse>

<legend>What is the value of the standard gravity constant <i>g</i>, measured in m/s<sup>2</sup>?</legend>
<numericalresponse answer="9.80665">
  <responseparam type="tolerance" default="0.01" />
  <formulaequationinput label="Give your answer to at least two decimal places" />
</numericalresponse>
</problem>
```

```

</numericalresponse>

<!-- The following lines use Python script spacing. Make sure it is not indented when you add it to
<script type="loncapa/python">
computed_response = math.sqrt(math.fsum([math.pow(math.pi,2), math.pow(math.e,2)]))
</script>

<legend>What is the distance in the plane between the points (pi, 0) and (0, e)? You can type math.</
  <numericalresponse answer="$computed_response">
    <responseparam type="tolerance" default="0.0001" />
    <formulaequationinput label="What is the distance in the plane between the points (pi, 0) and
  </numericalresponse>
<solution>
  <div class="detailed-solution">
    <p>Explanation</p>
    <p>The decimal numerical system is base ten.</p>
    <p>The standard gravity constant is defined to be precisely 9.80665 m/s<sup>2</sup>.</p>
    This is 9.80 to two decimal places. Entering 9.8 also works.</p>
    <p>By the distance formula, the distance between two points in the plane is
      the square root of the sum of the squares of the differences of each coordinate.
      Even though an exact numerical value is checked in this case, the
      easiest way to enter this answer is to type
      <code>sqrt(pi^2+e^2)</code> into the editor.
      Other answers like <code>sqrt((pi-0)^2+(0-e)^2)</code> also work.
    </p>
  </div>
</solution>
</problem>

```

8.29.4 Using Feedback in a Numerical Input Problems

You can add feedback in a numerical input problem using the simple editor or the advanced editor. For an overview of feedback in problems, see [Adding Feedback and Hints to a Problem](#).

In numerical input problems, you can provide feedback for correct answers.

Note: You cannot provide feedback for incorrect answers in numerical input problems.

Use feedback for the correct answer to reinforce the process for arriving at the numerical value.

Configure Feedback in the Simple Editor

In the *simple editor*, you configure answer feedback with the following syntax. When you create a new numerical input problem, select the template **Numerical Input with Hints and Feedback**. This template has example feedback syntax that you can replace.

```
= Numerical Answer {{Feedback for the correct answer.}}
```

For example, the following problem has feedback for each possible answer.

```

>>What is the arithmetic mean for the following set of numbers?
  (1, 5, 6, 3, 5)<<

= 4 {{The mean for this set of numbers is 20 / 5 which equals 4.}}

```

Configure Feedback in the Advanced Editor

In the *advanced editor*, you configure answer feedback with the following syntax.

```
<numericalresponse answer="Correct Answer">
  <formulaequationinput label="Question" />
  <correcthint>
    Feedback for the correct answer.
  </correcthint>
</numericalresponse>
```

For example, the following problem has feedback for the correct answer.


```
<numericalresponse answer="4">
  <formulaequationinput label="What is the arithmetic mean for the following
    set of numbers? (1, 5, 6, 3, 5)" />
  <correcthint>
    The mean for this set of numbers is 20 / 5 which equals 4.
  </correcthint>
</numericalresponse>
```

Customize Feedback Labels

By default, the feedback label for correct answers is **Correct**. If you do not define a feedback label, learners see this term when they submit a correct answer, as in the following example.

NUMERICAL INPUT WITH HINTS AND FEEDBACK (1/1 point)

What is the arithmetic mean for the following set of numbers? (1, 5, 6, 3, 5)



Correct: The mean for this set of numbers is 20 / 5 which equals 4.

You can configure the problem to override the default labels. For example, you can configure a custom label for the answer.

NUMERICAL INPUT WITH HINTS AND FEEDBACK (1/1 point)

What is the arithmetic mean for the following set of numbers? (1, 5, 6, 3, 5)

4



4

Good Job: The mean for this set of numbers is 20 / 5 which equals 4.

Check

Hint

Show Answer

Note: The default label **Correct** is displayed in the learner's requested language. If you provide a custom label, it is displayed to all users as you configure it and is not translated into different languages.

Customize Feedback Labels in the Simple Editor

In the *simple editor*, you configure a custom feedback label with the following syntax.

```
= 4 {{Label::Feedback}}
```

For example, the following feedback is configured to use a custom label.

```
= 4 {{Good Job::The mean for this set of numbers is 20 / 5 which equals 4.}}
```

Customize Feedback Labels in the Advanced Editor

In the *advanced editor*, you configure custom feedback labels with the following syntax.

```
<correcthint label="Custom Label">
  Feedback
</correcthint>
```

For example, the following feedback is configured to use a custom label.

```
<correcthint label="Good Job">
  The mean for this set of numbers is 20 / 5 which equals 4.
</correcthint>
```

8.29.5 Using Hints in a Numerical Input Problem

You can use hints in a numerical input problem, using the simple editor or the advanced editor. For an overview of hints in problems, see [Adding Feedback and Hints to a Problem](#).

Configure Hints in the Simple Editor

In the simple editor, you configure hints with the following syntax.

```
||Hint 1||  
||Hint 2||  
||Hint n||
```

Note: You can configure any number of hints. The learner views one hint at a time and views the next one by selecting **Hint** again.

For example, the following problem has two hints.

```
||A fruit is the fertilized ovary from a flower.||  
||A fruit contains seeds of the plant.||
```

Configure Hints in the Advanced Editor

In the advanced editor, you configure each hint in the `<hint>` element within the `<demandhint>` element.

```
<demandhint>  
  <hint>Hint 1</hint>  
  <hint>Hint 2</hint>  
  <hint>Hint 3</hint>  
</demandhint>
```

For example, the following XML shows two hints.

```
<demandhint>  
  <hint>A fruit is the fertilized ovary from a flower.</hint>  
  <hint>A fruit contains seeds of the plant.</hint>  
</demandhint>
```

8.29.6 Awarding Partial Credit in a Numerical Input Problem

You can configure a numerical input problem to award partial credit to learners who submit an answer that is close or related to the correct answer. You must use the *advanced editor* to configure partial credit.

In the following example, the learner entered an answer that was close to the correct answer and received partial credit.

NUMERICAL INPUT (0.5/1 point)

How many miles away from Earth is the sun? Use scientific notation to answer.

✖

Answer: 9.3*10^7

EXPLANATION

The sun is 93,000,000, or 9.3*10^7, miles away from Earth.

-100 is the square of 10 times the imaginary number, i.

For an overview of partial credit in problems, see [Awarding Partial Credit for a Problem](#).

There are two ways to award partial credit in a numerical input problem.

- [Identifying Close Answers](#)
- [Awarding Partial Credit for Answers in a List](#)

Note: You can use these ways of awarding partial credit in combination.

Identifying Close Answers

You can configure a numerical input problem so that answers that are close to the correct answer receive partial credit.

You configure the tolerance for incorrect answers. Learners receive partial credit for close answers based on the tolerance. By default, the tolerance is multiplied by 2 and the following rules are applied.

- An answer within the tolerance receives 100% of the points for the problem.
- An answer within or equal to 2x of the tolerance receives 50%.
- An answer more than 2x the outside of the tolerance receives 0%.

You can optionally specify a different multiplier for the tolerance. For example, you could set the multiplier to 3. In this case, the following rules apply.

- An answer within the tolerance receives 100% of the points for the problem.
- An answer within or equal to 3x of the tolerance receives 50%.
- An answer more than 3x outside of the tolerance receives 0%.

Configure Close Answers for a Numerical Input Problem

To configure a numerical input problem to award partial credit for close answers, you add the following attributes to the problem XML.

- Add the `partial_credit="close"` attribute to the `<numericalresponse>` element. If you are using close answers in combination with a list, set the attribute to `partial_credit="close, list"`.
- Optionally, add the `partial_range` attribute to the `<responseparam>` element and set its value to the tolerance multiplier. If you do not set the `partial_range` attribute, 2 is used as the tolerance multiplier.

For example, the following XML shows the numerical problem template updated to provide partial credit for close answers.

```
<numericalresponse answer="9.3*10^7" partial_credit="close">
  <formulaequationinput label="How many miles away from Earth is the sun?
    Use scientific notation to answer." />
  <responseparam type="tolerance" default="1%" partial_range="3"/>
</numericalresponse>
```

Awarding Partial Credit for Answers in a List

For some numerical input problems, mistakes do not help a learner arrive at the correct answer. For example, a small mistake can lead to negative instead of positive results, or to an answer that is off by a square root or numerical factor.

For these types of problems, you can configure a list of wrong answers that receive partial credit. Learners who submit answers that are on the list receive 50% of the problem's points.

Configure a List for a Numerical Input Problem

To configure a numerical input problem to award partial credit for answers in a list, you add the following attributes to the problem XML.

- Add the `partial_credit="list"` attribute to the `<numericalresponse>` element. If you are a list in combination with close answers, set the attribute to `partial_credit="close, list"`.
- Add the `partial_answers` attribute to the `<responseparam>` element. Set its value to one or more answers that should earn 50% of the problem's points. Separate multiple values by a comma (,).

For example, the following XML shows the numerical problem template updated to provide partial credit for a different answer.

```
<numericalresponse answer="93*10^7" partial_credit="list">
  <formulaequationinput label="How many miles away from Earth is the sun?
    Use scientific notation to answer." />
  <responseparam partial_answers="150*10^6"/>
</numericalresponse>
```

8.29.7 Add Text after the Numeric Response Field

You might want to include a word, phrase, or sentence after the answer field in a numerical input problem to help guide your students or resolve ambiguity.

How far is 8 miles in kilometers, to two decimal places?

 km ?

☐

According to the Pew Research Center's Internet and American Life Project, what percentage of the world's population had a cellular phone as of May 2013?

 % ?

☐

What is the strength of Earth's gravity, to two decimal places?

 m/s^2 ?

☐

To do this, you must use the *advanced editor*.

After you open the problem in the advanced editor, locate the `formulaequationinput` element. This element creates the response field for the problem. The `formulaequationinput` element is a child of the `numericalresponse` element.

To add text after the answer field, add the `trailing_text` attribute together with the text that you want to use inside the `formulaequationinput` element. Several examples follow.

Note: You can use MathJax inside the `trailing_text` attribute, as the third example shows. You cannot use HTML inside this attribute.

```
<numericalresponse answer="12.87">
  <formulaequationinput label="How far is 8 miles in kilometers?"
    trailing_text="km" />
</numericalresponse>

<numericalresponse answer="91">
  <formulaequationinput label="According to the Pew Research Center's Internet
    and American Life Project, what percentage of the world's population has a
    cellular phone as of May 2013?" trailing_text="%" />
</numericalresponse>

<numericalresponse answer="9.81">
  <formulaequationinput label="What is the strength of Earth's gravity, to
    two decimal places?" trailing_text="\ (m/s^{2}) \" />
</numericalresponse>
```

8.29.8 Numerical Input Problem XML

Templates

The following templates represent problems with and without a decimal or percentage tolerance.

Problem with No Tolerance

```
<problem>

  <legend>TEXT OF PROBLEM</legend>
  <numericalresponse answer="ANSWER (NUMBER)">
    <formulaequationinput label="TEXT OF PROBLEM"/>
    <correcthint>
      Feedback for the correct answer.
    </correcthint>
  </numericalresponse>
  <solution>
    <div class="detailed-solution">
      <p>TEXT OF SOLUTION</p>
    </div>
  </solution>
</problem>
```

Problem with a Decimal Tolerance

```
<problem>

  <legend>TEXT OF PROBLEM</legend>
  <numericalresponse answer="ANSWER (NUMBER)">
    <responseparam type="tolerance" default="NUMBER (DECIMAL, e.g., .02)" />
    <formulaequationinput label="TEXT OF PROBLEM"/>
    <correcthint>
      Feedback for the correct answer.
    </correcthint>
  </numericalresponse>

  <solution>
    <div class="detailed-solution">
      <p>TEXT OF SOLUTION</p>
    </div>
  </solution>
</problem>
```

Problem with a Percentage Tolerance

```
<problem>

  <legend>TEXT OF PROBLEM</legend>
  <numericalresponse answer="ANSWER (NUMBER)">
```

```

<responseparam type="tolerance" default="NUMBER (PERCENTAGE, e.g., 3%)" />
<formulaequationinput label="TEXT OF PROBLEM"/>
<correcthint>
  Feedback for the correct answer.
</correcthint>
</numericalresponse>

<solution>
  <div class="detailed-solution">
    <p>TEXT OF SOLUTION</p>
  </div>
</solution>
</problem>

```

Answer Created Using a Script

```

<problem>

<!-- The following lines use Python script spacing. Make sure it is not indented when you add it to
<script type="loncapa/python">
computed_response = math.sqrt(math.fsum([math.pow(math.pi,2), math.pow(math.e,2)]))
</script>

<legend>TEXT OF PROBLEM</legend>
<numericalresponse answer="$computed_response">
  <responseparam type="tolerance" default="0.0001" />
  <formulaequationinput label="TEXT OF PROBLEM"/>
  <correcthint>
    Feedback for the correct answer.
  </correcthint>
</numericalresponse>

<solution>
  <div class="detailed-solution">
    <p>TEXT OF SOLUTION</p>
  </div>
</solution>
</problem>

```

Tags

- `<numericalresponse>` (required): Specifies that the problem is a numerical input problem.
- `<formulaequationinput />` (required): Provides a response field where the learner enters a response.
- `<correcthint>` (optional): Specifies feedback for the correct answer.
- `<responseparam>` (optional): Specifies a tolerance, or margin of error, for an answer. Also specifies a partial credit tolerance multiplier.
- `<script>` (optional)

Note: Some older problems use the `<textline math="1" />` tag instead of the `<formulaequationinput />` tag. However, the `<textline math="1" />` tag has been deprecated. All new problems should use the `<formulaequationinput />` tag.

Tag: <numericalresponse>

Specifies that the problem is a numerical input problem. The <numericalresponse> tag is similar to the <formularesponse> tag, but the <numericalresponse> tag does not allow unspecified variables.

Attributes

Attribute	Description
answer (required)	The correct answer to the problem, given as a mathematical expression.
partial_credit (optional)	Specifies the type of partial credit given. <code>close</code> , <code>list</code> , or a combination of both in any order separated by a comma (.).

Note: If you include a variable name preceded with a dollar sign (\$) in the problem, you can include a script in the problem that computes the expression in terms of that variable.

The grader evaluates the answer that you provide and the learner's response in the same way. The grader also automatically simplifies any numeric expressions that you or a learner provides. Answers can include simple expressions such as "0.3" and "42", or more complex expressions such as "1/3" and "sin(pi/5)".

Children

- <responseparam>
- <formulaequationinput>
- <correcthint>

Tag: <formulaequationinput>

Creates a response field in the LMS where learners enter a response.

Attributes

Attribute	Description
label (required)	Specifies the name of the response field.
size (optional)	Defines the width, in characters, of the response field in the LMS.

Children

(none)

Tag: <responseparam>

Specifies a tolerance, or margin of error, for an answer.

Attributes

Attribute	Description
type (optional)	"tolerance": Defines a tolerance for a number.
default (optional)	A number or a percentage specifying a numerical or percent tolerance.
partial_range (optional)	For partial credit problems of type <code>close</code> , a multiplier for the tolerance. Default is 2.
partial_answers (optional)	For partial credit problems of type <code>list</code> , a comma-separated list of values that are to receive 50% credit.

Children

(none)

Tag: <correcthint>

Specifies a hint for the correct answer.

Tag: <script>

Specifies a script that the grader uses to evaluate a learner's response. A problem behaves as if all of the code in all of the script tags were in a single script tag. Specifically, any variables that are used in multiple `<script>` tags share a namespace and can be overridden.

As with all Python, indentation matters, even though the code is embedded in XML.

Attributes

Attribute	Description
type (required)	Must be set to "loncapa/python".

Children

(none)

Tag: `<demandhint>`

Specifies hints available to the learner.

Children

`<hint>`

Tag: `<hint>`

Specifies a hint available to the learner.

Children

(none)

8.30 Office Mix Tool

Note: EdX offers full support for this tool.

Office Mix is a third-party tool that you can use to turn Microsoft® PowerPoint® presentations into interactive online lessons that are called mixes.

This topic describes how to embed PowerPoint (.ppt) format mixes in your course.

- *Overview*
 - *Creating Interactive Mixes with Office Mix*
 - *Creating Video Files with Office Mix*
 - *Adding Captions to Office Mix Presentations*
- *Add an Office Mix to a Course*
 - *Create or Identify an Office Mix*
 - *Enable the Office Mix Tool*
 - *Add a Mix in Studio*

Before you make content from an external site available through your course, be sure to review the content to ensure that it is accessible to people with disabilities. For more information, see [Accessibility Best Practices for Developing Course Content](#).

8.30.1 Overview

Office Mix is an extension to PowerPoint. With Office Mix, you can create lessons by integrating quizzes, polls, website links, narration, screen recordings, and more into your PowerPoint presentations. The [Office Mix gallery](#) provides examples and links to more information.

When you design a lesson that uses PowerPoint with Office Mix, consider that you can save the result in either PowerPoint (.ppt) format or export the file to video (.mp4 format).

- Lessons that include interactive elements should be saved in PowerPoint format as mixes.
- Lessons that do not include interactive elements, but that do include audio narration or video tablet capture, can be exported as videos in .mp4 format.

Note: Because Office Mix is a third-party tool, its features are subject to change without notice. Be sure to consult the [Office Mix Knowledge Base](#) for up to date information about this tool's features.

Creating Interactive Mixes with Office Mix

To embed mixes that have interactive elements, including quizzes, web pages, and apps, in a course, you save the file in .ppt format. These files can include any of the other Office Mix features as well, including audio and video.

Note: While you can include questions in your mixes, these questions cannot be graded. EdX recommends that you add Office Mix components only to ungraded subsections in a course.

This topic describes how to embed PowerPoint (.ppt) format mixes in your course. The following example shows a mix as learners see it in the edX LMS.

BAYESIAN STATISTICS OFFICE MIX

Historical

16% 3.75

84% 6.5

Probability of correct forecast (75%)
Probability of incorrect forecast (25%)

Rain forecast
Shine forecast

5	6	7	8	9	10	
14	15	16	17	18		
22	23					
5	26	27	28	29	30	31

08:21 / 19:17

For information about how to create mixes, see the [Office Mix Knowledge Base](#).

Creating Video Files with Office Mix

You can use Office Mix to add audio, video, or both to a PowerPoint presentation. These annotations can be recorded (or rerecorded) for the entire presentation or for individual slides within the presentation. To embed mixes that include audio and video only, you have the option to export the presentation to a video file in .mp4 format.

You then use a video component to add the resulting .mp4 file to your course, instead of the .ppt file. For more information about including .mp4 format video files in your course, see [Working with Video Components](#).

Note: Interactive features, such as hyperlinks, do not function in an .mp4 video file. The quality of the output that is rendered by the Microsoft PowerPoint web client for mixes in .ppt format can be higher than the quality of a video file

exported for the same presentation.

Adding Captions to Office Mix Presentations

Typically, mixes include audio, video, or both. Mixes that include audio or video are likely to qualify as time-based media, and as a result, they require captions or a transcript to make all content accessible to all learners.

For more information about how to add captions to a mix, see the Microsoft documentation for Office Mix, including the [How to add Closed Captions to an Office Mix](#) knowledge base article.

For more information about making time-based media accessible, see *Accessibility Best Practices for Developing Course Content*.

8.30.2 Add an Office Mix to a Course

To add .ppt format mixes to your course, you create a mix, host it at an external site, and then enable and use the Office Mix tool in Studio to add the mix into a component in your course.

For information about how to create mixes, see the [Office Mix Knowledge Base](#).

Create or Identify an Office Mix

1. On an external website, create or identify the mix that you want to add to your course. For examples of mixes, see the [Office Mix gallery](#).
2. Save the mix in .ppt format.
3. Make a note of the URL for the mix.

Enable the Office Mix Tool

Before you can add a mix to your course, you must enable this tool in Studio.

To enable the Office Mix tool in Studio, you add the "officemix" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see *Enable Additional Exercises and Tools*.

Add a Mix in Studio

You must *enable the Office Mix tool* before you add a component with a mix to your course. You must also create or identify the mix that you want to add and obtain its URL.

1. On the **Course Outline** page, locate the ungraded subsection where you want to add the mix and add or open a unit.
2. Under **Add New Component**, select **Advanced**, and then select **Office Mix**. Studio adds the new component, which includes a sample mix, to the unit.
3. In the new component, select **Edit**.

Editing: Bayesian Statistics Office Mix

Component Display Name
 The name students see. This name appears in the course ribbon and as a header for the video.

Office Mix URL
 The URL for your Office Mix.

Save **Cancel**

4. In the **Component Display Name** field, enter an identifying name for the component. In the LMS, this name appears as a heading above the mix.
 5. In the **Office Mix URL** field, enter the complete URL for the mix that you want to add. For example, `https://mix.office.com/watch/lotxpj7hz6kbx`.
 6. Select **Save**.
- To verify your work, select **play**.

8.31 Open Response Assessments

8.31.1 Open Response Assessments

Note: EdX offers full support for this problem type.

The topics in this section provide an overview and details about open response assessments.

- *Introduction to Open Response Assessments*
- *Best Practices for Open Response Assessments*
- *Elements of an Open Response Assessment*
- *How Scores for Open Response Assessments Are Calculated*
- *Top Responses*

For additional information, see *Create an Open Response Assessment Assignment*, *Managing Open Response Assessment Assignments*, and *Accessing Metrics for ORA Assignments*.

Introduction to Open Response Assessments

Open response assessments allow the course team to assign questions that might not have definite answers, such as text responses or short essays. Learners submit responses to questions, then each learner and the learner's peers compare the responses to a rubric that you create. You can also allow learners to upload an image, a .pdf file, or another file of a type that you specify, to accompany their text responses.

Open response assessments can include self assessments, peer assessments, and staff assessments. In self assessments, learners compare their own responses to a rubric that you create. In peer assessments, learners compare their peers' responses to the rubric. In staff assessments, a member of the course team evaluates the learner's responses using the rubric.

In open response assessments, learners usually only see their own responses and any peer responses they assess. You can also allow learners to see the top scoring responses that their peers have submitted. For more information, see [Top Responses](#).

Note: Open response assessments that are visible to all learners do not respect cohorts. In other words, it is possible for learners in one cohort to be asked to grade responses for learners in another cohort. If you want to make an open response assessment divided by cohort, you must create that assessment in a course component that is defined as cohort-specific. For more information about cohorts and creating cohort-specific course content, see [Using Cohorts in Your Courses](#) and [Creating Cohort-Specific Course Content](#).

For more information about creating open response assessments, including step by step instructions, see the following sections.

- [Best Practices for Open Response Assessments](#)
- [Elements of an Open Response Assessment](#)
- [How Scores for Open Response Assessments Are Calculated](#)
- [Create an Open Response Assessment Assignment](#)
- [Accessing Metrics for ORA Assignments](#)

For information about viewing metrics and learner responses for released open response assessments, see [Accessing Metrics for ORA Assignments](#).

For information about the learner experience with open response assessments, see [Open Response Assessments](#) in the *edX Guide for Learners*.

Best Practices for Open Response Assessments

Open response assessments can be a powerful teaching tool, but they are more effective in some situations than in others. In general, open response assessments are best suited to open-ended or project-based assignments with subjective essay answers and discussion. For example, open response assessments work well in humanities assignments where learners are encouraged to make subjective assessments of text, images, or other contributions, but they might not be the ideal tool in chemistry assignments where there are definitively correct or incorrect answers to questions.

Note: Do not add more than one ORA component in a course unit. Multiple ORA assignments in a unit cause errors when learners submit their assessments.

EdX suggests that you follow these guidelines and best practices when you use open response assessments in your courses.

- Make sure you have a well designed and clear *rubric*. A good rubric is very important in helping to eliminate ambiguity in the peer grading process.
- Make ORA assignments count toward only a small percentage of the final course grade, or make them ungraded.
- In graded ORA assignments, consider setting the lowest possible score to a number higher than zero, so that learners can earn some credit for the work they have done, even if their peer assessors give them low grades.
- Provide an ungraded practice ORA assignment prior to the first graded ORA assignment in the course, so that learners can understand the peer grading process and get the most out of the eventual graded ORA assignment.
- Consider using ungraded ORA assignments to generate learner interaction and feedback without affecting grades.
- Be wary of including too many ORA assessments in your course. *Peer assessments* are hard work for learners, and having to perform too many peer assessments can have a negative impact on learners' course completion rates.
- For a manageable experience, use staff assessment steps only in assignments that are available to a limited number of learners. For example, in courses that have cohorts enabled, you make the assignment containing the staff assessment step available only to members of one or more cohorts.
- Set the **Must Grade** number higher than the **Graded By** number to minimize the chance that some responses will not be peer assessed. EdX recommends a setting such as **Must Grade** = 4 and **Graded By** = 3.
- In ORA assignments, to allow enough time for peer assessments to be performed after learners have submitted their own responses, set the response due date and time at least one week before the peer assessment due date and time. If the response due time and peer assessment due time are close together, and a learner submits a response just before responses are due, other learners may not have time to perform peer assessments before peer assessments are due.
- In discussion posts, provide guidance for peer grading of ORA assignments.
- Consider extending due dates to allow the discussion moderation team to monitor course discussions for questions about, or reactions to, peer grading, and to address issues when necessary.

If learners raise concerns about ORA assignments in course discussions, course team members can perform actions such as *deleting a learner's history*, or *"state"* for a problem so that he can submit his assignment again, *overriding a learner's grade*, or *removing a learner response* from peer grading. If there are more widespread issues with peer grading, the course team can reduce the weight of the peer assessment within the final course grade or allow learners to drop the lowest graded assignment from their grades.

Elements of an Open Response Assessment

When you create an open response assessment assignment, you include several elements.

- One or more *prompts*, or questions.
- The *rubric*. One rubric is used to grade all the prompts in the assessment.
- One or more *assessment steps*. Assignments can include a learner training step, a peer assessment step, a self assessment step, and a staff assessment step.

Note: If you include a learner training step, you must also include a peer assessment step. The learner training step must come first, before the peer and self assessment steps. If you include a staff assessment step, it should be the final step in the assignment.

For step-by-step instructions for creating an open response assessment, see *Create an Open Response Assessment Assignment*.

Prompts

Each **prompt**, or question, that you want your learners to answer, appears near the top of the page, followed by a field where the learner enters a response. You can require your learners to enter text as a response, or you can allow your learners to both enter text and upload another file, such as an image or document.

Note: Uploaded files must be smaller than 5 MB in size. If learners upload an image, the file must be in .jpg, .gif, or .png format.

This assignment has several steps. In the first step, you'll provide a response to the question. The other steps appear below the **Your Response** field.

Censorship in the Libraries

'All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work I abhor -- then you also have exactly the same right and so does everyone else. And then we have no books left on the shelf for any of us.' --Katherine Paterson, Author

Write a persuasive essay to a newspaper reflecting your views on censorship in libraries. Do you believe that certain materials, such as books, music, movies, magazines, etc., should be removed from the shelves if they are found offensive? Support your position with convincing arguments from your own experience, observations, and/or reading.

Read for conciseness, clarity of thought, and form.

1 | Your Response

IN PROGRESS

Enter your response to the question. You can save your progress and return to complete your response at any time. **After you submit your response, you cannot edit it.**

YOU MAY CONTINUE TO WORK ON YOUR RESPONSE UNTIL YOU SUBMIT IT.

Save Your Progress

THIS RESPONSE HAS NOT BEEN SAVED.

Submit your response and move to the next step ▶

When you write each question, you can include helpful information for your learners, such as what they can expect after they submit responses, or the approximate number of words or sentences that their response should have.

Note: Each learner is limited to a total word count of 10,000 for all responses in an ORA assignment.

For more information, see [Step 2. Add Prompts](#).

Asking Learners to Upload Other Files in Responses For an open response assessment, you can ask your learners to upload an image, a .pdf file, or a file of another type as a part of their responses. Other learners evaluate the responses and their accompanying files during the peer assessment. Offering the option to upload a file in addition to a text response can give learners the opportunity to use tools and develop skills that are relevant to your course.

Before you decide to ask learners to upload other files along with their text responses, however, you should be aware of the following limitations and best practices.

- During the peer assessment step, learners download the files that other learners uploaded. To reduce the potential for problems from files with malicious content, learners cannot upload files with certain file extensions. For a complete list, see [Prohibited File Extensions](#).
- Course teams can only access uploaded files for one learner at a time. Uploaded file content is not included in the reports of answer submissions available from the Instructor Dashboard, and course data packages do not include any of the uploaded files.
- You cannot require your learners to upload files. You can only give them the option to do so.
- All responses must include some response text. Learners cannot submit a response that contains only an uploaded file.
- Learners can submit only one file with each response.
- Files must be smaller than 5MB in size.
- Image files must be in .jpg, .gif, or .png format.

For more information, see [Allow Learners to Submit Files \(optional\)](#).

Prohibited File Extensions This topic lists the file extensions for the set of file types that learners are prohibited from uploading as part of an open response assessment on edx.org or edX Edge. When you define a set of custom file types for learners to upload with their responses, you cannot specify these file types. The extensions on this list are selected and maintained by the development operations team at edX, and are subject to change.

This set of file extensions is provided as the default for Open edX installations. Open edX system administrators can update this list. For more information, see [Prohibiting Submission of Specified File Types](#).

A through I	.action, .apk, .app, .application, .bat, .bin, .cmd, .com, .command, .cpl, .csh, .dmg, .exe, .gadget, .hta, .inf, .ins, .inx, .ipa, .isu
J through P	.jar, .job, .jse, .lnk, .msc, .msh, .msh1, .msh2, .mshxml, .msh1xml, .msh2xml, .msi, .msp, .mst, .osx, .out, .paf, .pif, .prg, .psc1, .psc2, .ps1, .ps1xml, .ps2, .ps2xml
Q through Z	.reg, .rgs, .run, .scf, .scr, .sct, .shb, .shs, .u3p, .vb, .vbe, .vbs, .vbscript, .workflow, .ws, .wsc, .wsf, .wsh

Rubric

Your assignment must include a **rubric** that you design. The same rubric is used for all the types of assessments (self, peer, or staff). The person performing the assessment sees the rubric when she begins grading, and compares the submitted response to the rubric.

Rubrics consist of *criteria* and *options*.

- Each criterion has a *name*, a *prompt*, and one or more *options*.
 - The name is a very short summary of the criterion, such as “Ideas” or “Content”. Criterion names generally have just one word. Because the system uses criterion names for identification, **the name for each criterion must be unique**. Criterion names do not appear in the rubric that learners see when they are completing peer assessments, but they do appear on the page that shows the learner’s final grade.

Your Grade: **8 out of 14**

YOUR SUBMITTED RESPONSE

Really really excited to be standing at the crossroads of technology and education!!!!!!

PEER EVALUATIONS OF YOUR RESPONSE

Criteria names

▼ Ideas 5 / 11 POINTS

PEER 1	PEER 2	PEER 3	YOUR SELF ASSESSMENT
Good	Good	Good	Good
Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.
5 POINTS	5 POINTS	5 POINTS	

▼ Content 3 / 3 POINTS

PEER 1	PEER 2	PEER 3	YOUR SELF ASSESSMENT
Excellent	Excellent	Excellent	Excellent
Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.
3 POINTS	3 POINTS	3 POINTS	

- The prompt is a description of the criterion.
- Options describe how well the response satisfies the criterion.
- Each option has a *name*, an *explanation*, and a *point value*.

▼ Determine if there is a unifying theme or main idea. — Criterion prompt				
Option names	● Poor	Option explanations	Difficult for the reader to discern the main idea. Too brief or too repetitive to establish or maintain a focus.	Option points
	● Fair		Presents a unifying theme or main idea, but may include minor tangents. Stays somewhat focused on topic and task.	
	● Good		Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	
▼ Assess the content of the submission				
	● Poor		Includes little information with few or no details or unrelated details. Unsuccessful in attempts to explore any facets of the topic.	0 points
	● Fair		Includes little information and few or no details. Explores only one or two facets of the topic.	1 points
	● Good		Includes sufficient information and supporting details. (Details may not be fully developed; ideas may be listed.) Explores some facets of the topic.	3 points
	● Excellent		Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	3 points

Different criteria in the same assignment can have different numbers of options. For example, in the image above, the first criterion has three options and the second criterion has four options.

Note: You can also include criteria that do not have options, but that do include a field where learners or staff can enter feedback. For more information, see [Provide Only Comment Fields for Individual Criteria](#).

You can see both criterion and option names when you access assignment information for an individual learner. For more information, see [Accessing Metrics for ORA Assignments](#).

Student Information

Student Response

Masceras ac leo agestas, pellentesque ante id, tempus lorem. Cras suscipit venenatis ante, ac sodales libero scelerisque eget. Cras fella lectus, commodo vitae fella eget, facilisis bibendum risa. Aenean aliquam odio a rhoncus eleifend. Vivamus ut ipsum congue sapien feugiat semper ut amet et diam. Aenean lacus agestas ante, ut amet fringilla magna tristique ullamcorper. Vivamus hendrerit neque ac metus hendrerit, nec placerat ipsum varius. In nulla est, dignissim eu nunc eu, pulvinar vehicula sapien.

Peer Assessments for This Student

Peer 1:

CRITERION	SELECTED OPTION	FEEDBACK	POINTS	POINTS POSSIBLE
Ideas	Fair	Fusce velit neque, ultrices in vehicula id, fermentum quis ante. Pellentesque fella libero, vehicula quis tempus eu, ornare in magna. Quisque sagittis ultrices vehicula.	3	5
Content	Fair		1	3

Overall Feedback

Cras suscipit venenatis ante, ac sodales libero scelerisque eget. Cras fella lectus, commodo vitae fella eget, facilisis bibendum risa. Aenean aliquam odio a rhoncus eleifend. Vivamus ut ipsum congue sapien feugiat semper ut amet et diam.

When you create your rubric, decide how many points each option will receive, and make sure that the explanation for each option is as specific as possible. For example, one criterion and set of options may resemble the following.

Criterion

Name: Origins

Prompt: Does this response explain the origins of the Hundred Years' War? (5 points possible)

Options

Points	Name	Explanation
0	Not at all	This response does not address the origins of the Hundred Years' War.
1	Dynastic disagreement	This response alludes to a dynastic disagreement between England and France, but doesn't reference Edward III of England and Philip VI of France.
3	Edward and Philip	This response mentions the dynastic disagreement between Edward III and Philip VI, but doesn't address the role of Salic law.
5	Salic law	This response explains the way that Salic law contributed to the dynastic disagreement between Edward III and Philip VI, leading to the Hundred Years' War.

Note: For peer grading, the most effective rubrics are as concrete and specific as possible. Many novice learners will be unqualified to make the types of value judgments required for more holistic rubrics. In addition, edX suggests using clear, simple language in rubrics.

For more information, see [Step 3. Add the Rubric](#).

Assessment Steps

In your assignment, you also specify the **assessment steps**. You can set the assignment to include some combination of the following steps.

- *Learner Training Step*
- *Peer Assessment Step*
- *Self Assessment Step*
- *Staff Assessment Step*

Note: If you include a learner training step, you must also include a peer assessment step. The learner training step must come before peer or self assessment steps. If you include both peer and self assessment steps, edX recommends that you place the peer assessment before the self assessment. If you include a staff assessment step, it should be the final step in the assignment.

You can see the type and order of the assessments when you look at the assignment. In the following example, after learners submit a response, they complete a learner training step (“Learn to Assess Responses”), complete peer assessments on other learners’ responses (“Assess Peers”), and then complete self assessments (“Assess Your Response”).

This assignment has several steps. In the first step, you'll provide a response to the question. The other steps appear below the Your Response field.

Censorship in the Libraries

'All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work I abhor -- then you also have exactly the same right and so does everyone else. And then we have no books left on the shelf for any of us.' --Katherine Paterson, Author

Write a persuasive essay to a newspaper reflecting your views on censorship in libraries. Do you believe that certain materials, such as books, music, movies, magazines, etc., should be removed from the shelves if they are found offensive? Support your position with convincing arguments from your own experience, observations, and/or reading.

Read for conciseness, clarity of thought, and form.

Current step → 1 | Your Response **Status of current step** → IN PROGRESS

Enter your response to the question. You can save your progress and return to complete your response at any time. After you submit your response, you cannot edit it.

I think that censorship shouldn't be allowed per se, but that libraries should use judgment when they acquire books. Librarians can also work with kids to make sure the kids know what they're checking out. When I was 13 I was going to check out a book and the librarian told me it had mature content. I told him that was OK and he didn't have a problem with me checking out the book. But I'm glad he was paying enough attention to let me know. I think other kids might not have checked out the book.

YOU MAY CONTINUE TO WORK ON YOUR RESPONSE UNTIL YOU SUBMIT IT.

Save Your Progress THIS RESPONSE HAS BEEN SAVED BUT NOT SUBMITTED.

Submit your response and move to the next step ▶

Next steps → 2 | Learn to Assess Responses NOT AVAILABLE

3 | Assess Peers NOT AVAILABLE

4 | Assess Your Response NOT AVAILABLE

Status of next steps →

Your Grade: Not Started

You have not started this problem yet.

Learner Training Step Learner training steps teach learners to perform their own assessments. A learner training assessment contains one or more sample responses that you write, together with the scores that you would give the sample responses. Learners review these responses and try to score them the way that you scored them.

Note: If you include a learner training step, you must also include a peer assessment step. The learner training step must come before any peer and self assessment steps.

In a learner training assessment, the **Learn to Assess Responses** step opens immediately after a learner submits a response. The learner sees one of the sample responses that you created, along with the rubric. The scores that you gave the response do not appear. The learner also sees the number of sample responses that he or she will assess.

1 | Your Response
✓ COMPLETE

2 | Learn to Assess Responses
IN PROGRESS (0 OF 2)

LEARNING TO ASSESS RESPONSES

Before you begin to assess your peers' responses, you'll learn how to complete peer assessments by reviewing responses that instructors have already assessed. If you select the same options for the response that the instructor selected, you'll move to the next step. If you don't select the same options, you'll review the response and try again.

TRAINING ESSAY # 1 OF 2

(optional) To train students to perform peer assessments, replace this text with your own sample response for this assignment. Below, list the names of each of the criteria for this assignment, and then specify the name of the option that you would select for this response. Students will assess this response and compare the rubric options that they select with the rubric options that you specified.

If you don't want to provide sample responses and scores, delete the entire "assessment" element.

▼ DETERMINE IF THERE IS A UNIFYING THEME OR MAIN IDEA.

<input type="radio"/> Poor	Difficult for the reader to discern the main idea. Too brief or too repetitive to establish or maintain a focus.	0 POINTS
<input type="radio"/> Fair	Presents a unifying theme or main idea, but may include minor tangents. Stays somewhat focused on topic and task.	3 POINTS
<input type="radio"/> Good	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	5 POINTS

▼ ASSESS THE CONTENT OF THE SUBMISSION

<input type="radio"/> Poor	Includes little information with few or no details or	0 POINTS
----------------------------	---	----------

The learner selects an option for each of the assignment's criteria, and then selects **Compare your selections with the instructor's selections**. If all of the learner's selections match the selections defined by the course team, the next sample response opens automatically.

If any of the learner's selections differ from those specified by the course team, the learner sees the response again, and the following message appears above the response.

Learning to Assess Responses

Your assessment differs from the instructor's assessment of this response. Review the response and consider why the instructor may have assessed it differently. Then, try the assessment again.

For each of the criteria, the learner sees one of the following two messages, depending on whether the learner's selections matched those of the course team.

Selected Options Differ

The option you selected is not the option that the instructor selected.

Selected Options Agree

The option you selected is the option that the instructor selected.

For example, the following learner chose one correct option and one incorrect option.

2 | Learn to Assess Responses

IN PROGRESS (0 OF 2)

LEARNING TO ASSESS RESPONSES

Your assessment differs from the instructor's assessment of this response. Review the response and consider why the instructor may have assessed it differently. Then, try the assessment again.

TRAINING ESSAY # 1 OF 2

(optional) To train students to perform peer assessments, replace this text with your own sample response for this assignment. Below, list the names of each of the criteria for this assignment, and then specify the name of the option that you would select for this response. Students will assess this response and compare the rubric options that they select with the rubric options that you specified.

If you don't want to provide sample responses and scores, delete the entire "assessment name"/"student training" element.

▼ DETERMINE IF THERE IS A UNIFYING THEME OR MAIN IDEA.

SELECTED OPTIONS DIFFER

The option you selected is not the option that the instructor selected.

<input checked="" type="radio"/> Poor	Difficult for the reader to discern the main idea. Too brief or too repetitive to establish or maintain a focus.	0 POINTS
<input type="radio"/> Fair	Presents a unifying theme or main idea, but may include minor tangents. Stays somewhat focused on topic and task.	3 POINTS
<input type="radio"/> Good	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	5 POINTS

▼ ASSESS THE CONTENT OF THE SUBMISSION

SELECTED OPTIONS AGREE

The option you selected is the option that the instructor selected.

<input type="radio"/> Poor	Includes little information with few or no details or unrelated details. Unsuccessful in attempts to explore any facets of the topic.	0 POINTS
<input type="radio"/> Fair	Includes little information and few or no details. Explores only one or two facets of the topic.	1 POINTS
<input checked="" type="radio"/> Good	Includes sufficient information and supporting details. (Details may not be fully developed; ideas may be listed.) Explores some facets of the topic.	3 POINTS
<input type="radio"/> Excellent	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	3 POINTS

The learner continues to try scoring the sample response until the learner's scoring for all criteria matches the scoring defined by the course team.

For more information, see [Learner Training](#).

Peer Assessment Step In the peer assessment step, learners review the responses of other learners in the course. For each response, they select an option for each criterion in your rubric based on the response. Learners can also provide text feedback, or comments, on each response.

If you include both peer and self assessment steps, edX recommends that you place the peer assessment before the self assessment.

For information about how peer assessments affect a learner's assignment grade, see [How Scores for Open Response Assessments Are Calculated](#).

Number of Responses and Assessments When you include a peer assessment step, you specify the number of responses that each learner must assess (**Must Grade**) and the number of peer assessments that each response must receive (**Graded By**) before the step is considered complete.

Note: Because some learners might submit a response without performing any peer assessments, some responses might not receive the required number of assessments. To increase the chance that all responses receive a sufficient number of assessments, you must set the number of responses that learners must assess to be higher than the number of assessments that each response must undergo. For example, if you require each response to receive three assessments, you could require each learner to assess five responses.

If all responses have received assessments, but some learners have not completed the required number of peer assessments, those learners can perform peer assessments on responses that have already been assessed by other learners. The learner who submitted the response sees the additional peer assessments when he sees his score. However, the additional peer assessments do not count toward the score that the response receives.

Feedback Options By default, in peer assessment steps, learners see a single comment field below the entire rubric. You can also add a comment field to an individual criterion or to several individual criteria. This comment field can contain up to 300 characters.

The comment field appears below the options for the criterion. In the following image, both criteria have a comment field. There is also a field for overall comments on the response.

Feedback for individual criteria

Feedback for overall response

▼ DETERMINE IF THERE IS A UNIFYING THEME OR MAIN IDEA.

<input type="radio"/> Poor	Difficult for the reader to discern the main idea. Too brief or too repetitive to establish or maintain a focus.	0 POINTS
<input type="radio"/> Fair	Presents a unifying theme or main idea, but may include minor tangents. Stays somewhat focused on topic and task.	3 POINTS
<input checked="" type="radio"/> Good	Presents a unifying theme or main idea without going off on tangents. Stays completely focused on topic and task.	5 POINTS

Comments

▼ ASSESS THE CONTENT OF THE SUBMISSION

<input type="radio"/> Poor	Includes little information with few or no details or unrelated details. Unsuccessful in attempts to explore any facets of the topic.	0 POINTS
<input type="radio"/> Fair	Includes little information and few or no details. Explores only one or two facets of the topic.	1 POINTS
<input type="radio"/> Good	Includes sufficient information and supporting details. (Details may not be fully developed; ideas may be listed.) Explores some facets of the topic.	3 POINTS
<input checked="" type="radio"/> Excellent	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	3 POINTS

Comments

(OPTIONAL) WHAT ASPECTS OF THIS RESPONSE STOOD OUT TO YOU? WHAT DID IT DO WELL? HOW COULD IT IMPROVE?

I noticed that this response...

Submit your assessment & move to response #2 ▶

For more information, see [Step 3. Add the Rubric and Provide Only Comment Fields for Individual Criteria.](#)

Assessing Additional Responses Learners can assess more than the required number of responses. After a learner completes the peer assessment step, the step “collapses” so that only the **Assess Peers** heading is visible.

The screenshot shows a vertical list of three assessment steps. The first step, '1 | Your Response', is marked as 'COMPLETE' with a green bar. The second step, '2 | Assess Peers', is marked as '2 COMPLETED' with a green bar. The third step, '3 | Assess Your Response', is marked as 'IN PROGRESS' with a grey bar. Below the steps, the text 'VALID RESPONSE' is visible.

If the learner selects the **Assess Peers** heading, the step expands again. The learner can then select **Continue Assessing Peers** to perform additional peer assessments.

The screenshot shows the '2 | Assess Peers' step expanded. It features a green bar with '2 COMPLETED'. Below this is a light green box with the heading 'PEER ASSESSMENTS COMPLETE' and the text: 'You have successfully completed all of the required peer assessments for this assignment. You may assess additional peer responses if you want to. Completing additional assessments will not affect your final grade.' At the bottom right, there is a blue button labeled 'Continue Assessing Peers ▶'.

Self Assessment Step In self assessment steps, the learner sees her own response followed by the rubric. As with peer assessments, the learner evaluates the response using the rubric, selecting an option for each criterion.

If you include both peer and self assessments, edX recommends that you include the peer assessment before the self assessment.

Staff Assessment Step In staff assessment steps, a member of the course team performs an evaluation of the learner's response. Course team members grade the response using the problem's rubric, in the same way that self and peer assessments are done, and can include comments in their assessment.

Note: If a staff assessment step is included in an assignment, learners do not receive final grades until the staff assessment step has been completed. The scores that you give learners in staff assessment steps override scores from any other assessment type in the assignment, including peer assessments that are completed after the staff assessment.

Including a staff assessment step in an ORA assignment is best for courses with smaller groups of learners. For example, in a course with cohorts, you might create an ORA assignment that has both peer assessment and staff assessment steps, and make it available only to the members of one or more specific cohorts. For the members of the remaining cohorts, you create an ORA assignment that has only the peer assessment step. For details about creating different course experiences for learners in different cohorts, see *Creating Cohort-Specific Course Content*.

For details about performing grading in staff assessment steps, see *Perform Staff Assessments in an ORA Assignment*.

How Scores for Open Response Assessments Are Calculated

In open response assessments that contain staff assessments, staff assessments can be performed more than once, and the most recent staff assessment score is equivalent to the assignment's final score. Peer and self assessment scores are not taken into account, although learners can see scores and comments from all assessments that were performed on their response.

In open response assessments that do not contain staff assessments but do contain both peer assessment and self assessments, only the peer assessment score counts toward the assignment's final score. The self assessment score is not taken into account. There is no option for weighting the peer and self assessment portions independently.

In open response assessments that include only self assessments, the assignment's final score is equivalent to the self assessment score.

Note: Given the high level of subjectivity in peer assessments, edX recommends that you make ORA assignments count towards only a small percentage of a course's final grade.

The following topics detail how the scores for peer assessments and self assessments are calculated.

Peer Assessment Scoring

Note: If an open response assessment includes peer and self assessments but not staff assessments, only the peer assessment score counts towards the assignment's final score. The self assessment score is not taken into account.

Peer assessments are scored by criteria. A number of peer assessors rate a learner's response by each of the required criteria. The learner's score for a particular criterion is the median of all scores that each peer assessor gave that criterion. For example, if the Ideas criterion in a peer assessment receives a 10 from one learner, a 7 from a second learner, and an 8 from a third learner, the Ideas criterion's score is 8.

The learner's final score on a response is the sum of the median scores from all peer assessors for all of the required criteria.

For example, a response might have received the following scores from peer assessors.

Criterion Name	Peer 1	Peer 2	Peer 3	Median
Ideas (out of 10)	10	7	8	8
Content (out of 10)	7	9	8	8
Grammar (out of 5)	4	4	5	4

To calculate the final score for the response, add the median scores that were given for each criterion, as follows.

Ideas median (8/10) + Content median (8/10) + Grammar median (4/5) = final score (20/25)

Note: Remember that final scores are calculated by criteria, not by individual assessor. Therefore, the score for the response is not the median of the scores that each individual peer assessor gave the response.

For information on scores for learner submissions that you have canceled and removed from peer assessment, refer to [Remove a Learner's Response from Peer Grading](#).

Self Assessment Scoring

Note: If an open response assessment includes both peer and self assessments, the self assessment score does not count toward the final grade.

If an open response assessment includes only self assessments, the assignment's final score is equivalent to the self assessment score.

Self assessments are scored by criteria. Each learner rates herself on each criterion, using the rubric. The learner's final score on a response is the total number of earned points, out of the total possible points.

Staff Assessment Scoring

If an open response assessment includes a staff assessment step, the score that is given in the staff assessment step overrides all other scores in the assignment.

Top Responses

You can include a **Top Responses** section that shows the top scoring responses that learners have submitted for the assignment, along with the scores for those responses. The **Top Responses** section appears below the learner's score information after the learner finishes every step in the assignment.

Top Responses

Top-Scoring Responses for This Assignment

1

8 POINTS

Sed ut leo nec lorem sollicitudin consectetur ut sed diam. Aenean facilisis, nulla et adipiscing consequat, felis ante feugiat velit, in sodales metus mi sed odio. Integer ut amet sagittis felis, in commodo mauris. Pellentesque eget sem ut eros accumsan gravida. Curabitur vestibulum nibh nibh, eget pretium neque adipiscing vitae. Praesent sed tellus ut est feugiat venenatis.

2

8 POINTS

Sed ut leo nec lorem sollicitudin consectetur ut sed diam. Aenean facilisis, nulla et adipiscing consequat, felis ante feugiat velit, in sodales metus mi sed odio. Integer ut amet sagittis felis, in commodo mauris. Pellentesque eget sem ut eros accumsan gravida. Curabitur vestibulum nibh nibh, eget pretium neque adipiscing vitae. Praesent sed tellus ut est feugiat venenatis. Aenean at dolor non nec faucibus nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

3

3 POINTS

consequat, felis ante feugiat velit, in sodales metus mi sed odio. Integer ut amet sagittis felis, in commodo mauris. Pellentesque eget sem ut eros accumsan gravida. Curabitur vestibulum nibh nibh, eget pretium neque adipiscing vitae. Praesent sed tellus ut est feugiat venenatis.

concomodo mauris. Pellentesque eget sem ut eros accumsan gravida. Curabitur vestibulum nibh nibh, eget pretium neque adipiscing vitae. Praesent sed tellus ut est feugiat venenatis. Aenean at dolor non nec faucibus nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

You can allow the **Top Responses** section to show between 1 and 100 responses. Keep in mind, however, that each response might be up to 300 pixels in height in the list. (For longer responses, learners can scroll to see the entire response.) EdX recommends that you specify 20 or fewer responses to prevent the page from becoming too long.

Note: It can take up to an hour for a high-scoring response to appear in the **Top Responses** list.

If a high-scoring response is *removed from peer assessment* it is also removed from the **Top Responses** list.

For more information, see *Step 7. Show Top Responses*.

8.31.2 Create an Open Response Assessment Assignment

Creating an open response assessment is a multi-step process. This section covers each step in detail.

- *Step 1. Create the Component*
- *Step 2. Add Prompts*
- *Step 3. Add the Rubric*
- *Step 4. Specify the Assignment Name and Response Dates*
- *Step 5. Select Assignment Steps*
- *Step 6. Specify Step Settings*
- *Step 7. Show Top Responses*
- *Step 8. Test the Assignment*

In addition, see these other topics about different aspects of open response assessments.

- Components of an open response assessment: [Open Response Assessments](#)
- Viewing metrics and learner responses for released open response assessments: [Accessing Metrics for ORA Assignments](#)
- Actions you can take for an active ORA assignment: [Managing Open Response Assessment Assignments](#)

Step 1. Create the Component

To create the component for your open response assessment, complete these steps.

Note: Do not add more than one ORA component in a course unit. Multiple ORA assignments in a unit cause errors when learners submit their assessments.

1. In Studio, open the unit where you want to create the open response assessment.
2. Under **Add New Component**, select **Problem**.
3. Select **Advanced**, and then select **Peer Assessment**.
4. In the problem component that appears, select **Edit**.

You use this component editor to add prompts and the rubric, and to specify other settings for the open response assessment component.

5. Select **Save** each time you complete an editing session. You can continue to edit the problem until you publish the unit.

Note: After you publish an ORA assignment, you can no longer change the structure of the rubric or the point values associated with each criterion in the rubric. If you correct typographical errors in the text of the rubric, only learners who have not yet started the assignment will see the corrections. However, you can modify due dates and the weight of the ORA assignment after you publish an ORA assignment.

Step 2. Add Prompts

To add prompts, or questions, complete these steps.


Note: If you want to add text formatting to the prompt, or include an image, see [Add Formatting or Images to a Prompt](#).

1. In the open response assessment component editor, select **Prompt**.
2. Add the text of your question in the text field. Replace any default text if necessary.
3. Select **Add a Prompt** to add another prompt in the problem.

Add Formatting or Images to a Prompt

Currently, you cannot format text or add images inside the Peer Assessment component. To include formatting or images in a prompt, you can add an HTML component that contains your text above the Peer Assessment component, and leave the text field in the **Prompt** tab blank. The instructions for the peer assessment still appear above the **Your Response** field.

CENSORSHIP IN THE LIBRARIES



"All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work I abhor -- then you also have exactly the same right and so does everyone else. And then we have no books left on the shelf for any of us." -- Katherine Paterson, Author

Write a persuasive essay to a newspaper reflecting your views on censorship in libraries. Do you believe that certain materials, such as books, music, movies, magazines, etc., should be removed from the shelves if they are found offensive? Support your position with convincing arguments from your own experience, observations, and/or reading.

Read for conciseness, clarity of thought, and form.

This assignment has several steps. In the first step, you'll provide a response to the question. The other steps appear below the **Your Response** field.

1 | Your Response

IN PROGRESS

Enter your response to the question. You can save your progress and return to complete your response at any time. After you submit your response, you cannot edit it.

Allow Learners to Submit Files (optional)

Before you enable this feature for your open response assessment, be sure to read about its limitations and best practices. For more information, see [Asking Learners to Upload Other Files in Responses](#).

To allow learners to submit a file along with their text responses, follow these steps.

1. In the open response assessment component editor, select **Settings**.
2. Set **Allow File Upload** to one of these options.
 - **Image File**
 - **PDF or Image File**
 - **Custom File Types**
3. If you select **Custom File Types**, the **File Types** field appears. Enter the file extensions, separated by commas, of the types of files that you want learners to submit.

Note: To reduce the potential for problems from files with malicious content, learners cannot upload certain file types. For more information, see [Asking Learners to Upload Other Files in Responses](#).

4. Verify that the text of the prompt describes the file type or types that learners can upload.

Step 3. Add the Rubric

In this step, you add your rubric to provide guidance for assessing responses within the assignment. You add one rubric for each problem, regardless of the number of prompts in the problem.

For each step below, replace any default text with your own text.

Note: All open response assessments include a feedback field below the rubric so that learners can provide written feedback on a peer's overall response. You can also allow or require learners to provide feedback for individual criteria. See step 6 below for instructions. For more information, see [Feedback Options](#).

To add the rubric, follow these steps.

1. In the open response assessment component editor, select the **Rubric** tab.
2. In the first **Criterion** section, enter the name and prompt text of your first criterion.
3. In the first **Option** section, enter the name, explanation, and point value for the first option.
4. In the next **Option** section, enter the name, explanation, and point value for the next option.
5. Repeat step 4 for each option. If you need to add more options, select **Add Option**.
6. Next to **Feedback for This Criterion**, select a value in the dropdown list.
 - If you do not want to allow feedback for this individual criterion, select **None**.
 - If you want to require feedback, select **Required**.
 - If you want to allow feedback, but not require it, select **Optional**.
7. Repeat steps 2-6 to add your remaining criteria. If you need to add more criteria, select **Add Criterion** at the end of the list of criteria.

8. Include instructions for learners to provide overall written feedback on their peers' responses. You can leave the default text in the **Feedback Instructions** field or replace it with your own text.

Note: After you publish an ORA assignment, you can no longer change the structure of the rubric or the point values associated with each criterion in the rubric. If you correct typographical errors in the text of the rubric, only learners who have not yet started the assignment will see the corrections. However, you can modify due dates and the weight of the ORA assignment after you publish an ORA assignment.

Provide Only Comment Fields for Individual Criteria

When you add a comment field to a criterion, the comment field appears below the options for the criterion. You can also provide a comment field, but no options.

In the following image, the first criterion has a comment field but no options. The second criterion includes options, but does not have a comment field.

Read and assess the following response from one of your peers.

ASSESSMENT # 1 OF 5

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor
 incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud
 exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure
 dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.
 Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit
 anim id est laborum.

Criterion 1: Comment field with no options

▼ DESCRIBE THE UNIFYING THEME OR MAIN IDEA IN THE RESPONSE.

Comments

Criterion 2: Options without comment field

▼ ASSESS THE CONTENT OF THE SUBMISSION

<input type="radio"/> Poor	Includes little information with few or no details or unrelated details. Unsuccessful in attempts to explore any facets of the topic.	0 POINTS
<input type="radio"/> Fair	Includes little information and few or no details. Explores only one or two facets of the topic.	1 POINTS
<input type="radio"/> Good	Includes sufficient information and supporting details. (Details may not be fully developed; ideas may be listed.) Explores some facets of the topic.	3 POINTS
<input type="radio"/> Excellent	Includes in-depth information and exceptional supporting details that are fully developed. Explores all facets of the topic.	3 POINTS

Overall comments on the response

(OPTIONAL) WHAT ASPECTS OF THIS RESPONSE STOOD OUT TO YOU? WHAT DID IT DO WELL? HOW COULD IT IMPROVE?

I noticed that this response...

To provide a comment field without options, complete these steps.

1. In the criterion, select **Remove** to remove, or delete, all the options.
2. Next to **Feedback for This Criterion**, select **Required** in the dropdown list.

Step 4. Specify the Assignment Name and Response Dates

Before you specify the start and due dates and times for a response, be sure that you consider these aspects of, and best practices for, the open response assessment feature.

- Unlike other problem types, ORA assignments are not governed by the subsection due date. Due dates for each ORA assignment are set in the assignment's settings.
- The *grace period* that you can set for the course does not apply to ORA assignments.
- EdX recommends that you set the response due date at least one week before the peer assessment due date and time, to allow enough time for peer assessments to be performed after learners have submitted their own responses. If the response due time and peer assessment due time are close together, and a learner submits a response just before responses are due, other learners may not have time to perform peer assessments before peer assessments are due. For details, see *Best Practices for Open Response Assessments*.
- The times that you set, and the times that learners see, are in Coordinated Universal Time (UTC). You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

To specify a name for the assignment as well as start and due dates for all learner responses, complete these steps.

1. In the component editor, select the **Settings** tab.
2. Next to **Display Name**, type the name you want to give the assignment.
3. Next to **Response Start Date** and **Response Start Time**, enter the date and time when you want learners to be able to begin submitting responses.
4. Next to **Response Due Date** and **Response Due Time**, enter the date and time by which all learner responses must be submitted.

Step 5. Select Assignment Steps

Open response assessment assignments can include learner training, peer assessment, self assessment, and staff assessment steps.

The component editor provides the steps in a sequence that works well for most courses. While you can change the order of the peer, self, and staff assessment steps, edX recommends that you include them in this order.

Note: If you include a learner training step, you must also include a peer assessment step. The learner training step must come before peer or self assessment steps.

If you include both peer and self assessment steps, edX recommends that you place the peer assessment before the self assessment.

If you include a staff assessment step, it should be the final step in the assignment.

To add steps to the open response assignment, complete these actions.

1. In the component editor, select the **Settings** tab.
2. Scroll down past the **Allow Image Responses** and **Allow Latex Responses** fields.

3. Locate the following headings.

- **Step: Learner Training**
- **Step: Peer Assessment**
- **Step: Self Assessment**
- **Step: Staff Assessment**

Select the check boxes for the steps that you want the assignment to include.

4. (optional) To change the order of the steps, drag the steps into the order that you want.

Step 6. Specify Step Settings

After you select the steps that you want, you can specify settings for those steps.

Note: If you make changes to a step, but then you clear the check box for that step, the step will no longer be part of the assignment and your changes will not be saved.

Learner Training

For the learner training step, you enter one or more responses that you have created, then select an option for each criterion in your rubric.

Note: You must enter your complete rubric on the **Rubric** tab before you can select options for the learner training responses. If you later change one of your criteria or any of its options, you must also update the learner training step.

To add and score learner training responses, follow these steps.

1. Under **Step: Learner Training**, locate the first **Scored Response** section.
2. In the **Response** field, enter the text of your example response.
3. Under **Response Score**, for each criterion, select the option that you want.

For more information about learner training steps, see [Learner Training Step](#).

Peer Assessment

For the peer assessment step, you specify the number of responses that each learner must grade, the number of learners who must grade each response, and start and due dates. All fields are required.

To specify peer assessment settings, follow these steps.

1. Locate the **Step: Peer Assessment** heading.
2. Next to **Must Grade**, enter the number of responses that each learner must grade.
3. Next to **Graded By**, enter the number of learners that must grade each response.
4. Next to **Start Date** and **Start Time**, enter the date and time when learners can begin assessing their peers' responses.
5. Next to **Due Date** and **Due Time**, enter the date and time by which all peer assessments must be completed.

Note: The times that you set, and the times that learners see, use Coordinated Universal Time (UTC). You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

For more information about peer assessment steps, see [Peer Assessment Step](#).

Self Assessment

For the self assessment step, you specify when the step starts and ends.

1. Locate the **Step: Self Assessment** heading.
2. Next to **Start Date** and **Start Time**, enter the date and time when learners can begin assessing their peers' responses.
3. Next to **Due Date** and **Due Time**, enter the date and time by which all peer assessments must be complete.

Note: The times that you set, and the times that learners see, use Coordinated Universal Time (UTC). You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#)

For more information about self assessment steps, see [Self Assessment Step](#).

Staff Assessment

For the staff assessment step, there are no additional settings after you have selected the step for inclusion in the assignment.

For more information about staff assessment steps, see [Staff Assessment Step](#).

Step 7. Show Top Responses

To allow learners to see the top scoring responses for the assignment, you specify a number on the **Settings** tab.

1. In the component editor, select the **Settings** tab.
2. In the **Top Responses** field, specify the number of responses that you want to appear in the **Top Responses** section below the learner's final score. If you do not want this section to appear, set the number to 0. The maximum number is 100.

Note: Because each response can be up to 300 pixels in height, we recommend that you set the number of top responses to 20 or lower, to prevent the page from becoming too long.

For more information about the **Top Responses** section that you can include for an ORA assignment, see [Top Responses](#).

Step 8. Test the Assignment

To test your ORA assignment, you can set up the assignment in your course, set the section or subsection date in the future, publish the unit, and ask one or more beta testers to submit responses and grade each other. The beta testers

can then let you know if they found the question and the rubric easy to understand or if they had any problems with the assignment.

For more information about beta testing, see [Beta Testing a Course](#).

8.31.3 Managing Open Response Assessment Assignments

After you publish an open response assessment and learners start to submit responses and perform assessments, there are various actions you can take as a member of the course staff.

- [View a Specific Learner's Response and Assessments](#)
- [Perform Staff Assessments in an ORA Assignment](#)
- [Override a Learner's Assessment Grade](#)
- [Remove a Learner's Response from Peer Grading](#)
- [Locate a Specific Submission in an ORA Assignment](#)

In addition, see these other topics about different aspects of open response assessments.

- Components of an open response assessment: [Open Response Assessments](#)
- Instructions for creating an open response assessment: [Create an Open Response Assessment Assignment](#)
- Viewing metrics and learner responses for released open response assessments: [Accessing Metrics for ORA Assignments](#)

View a Specific Learner's Response and Assessments

You can view the following information about an individual learner's performance in the open response assessment assignment.

- The text of the learner's response, including any files that the learner uploaded.
- The peer assessments that other learners performed on the learner's response, including feedback on individual criteria and on the overall response.
- The peer assessments that the learner performed on other learners' responses, including feedback on individual criteria and on the overall responses.
- The learner's self assessment.
- The learner's grade for the assignment.
- An override grade provided by course staff.

For more details about accessing information for a specific learner, and for an example that shows a learner's response with peer assessments, see [Access a Specific Learner's Information](#).

To determine whether a learner has received the required number of assessments from other learners and has completed the required number of assessments for other learners, refer to the **Graded By** and **Must Grade** values that were set for the open response assessment assignment in Studio. For more information about these settings, see [Specify Step Settings](#).

Access a Specific Learner's Information

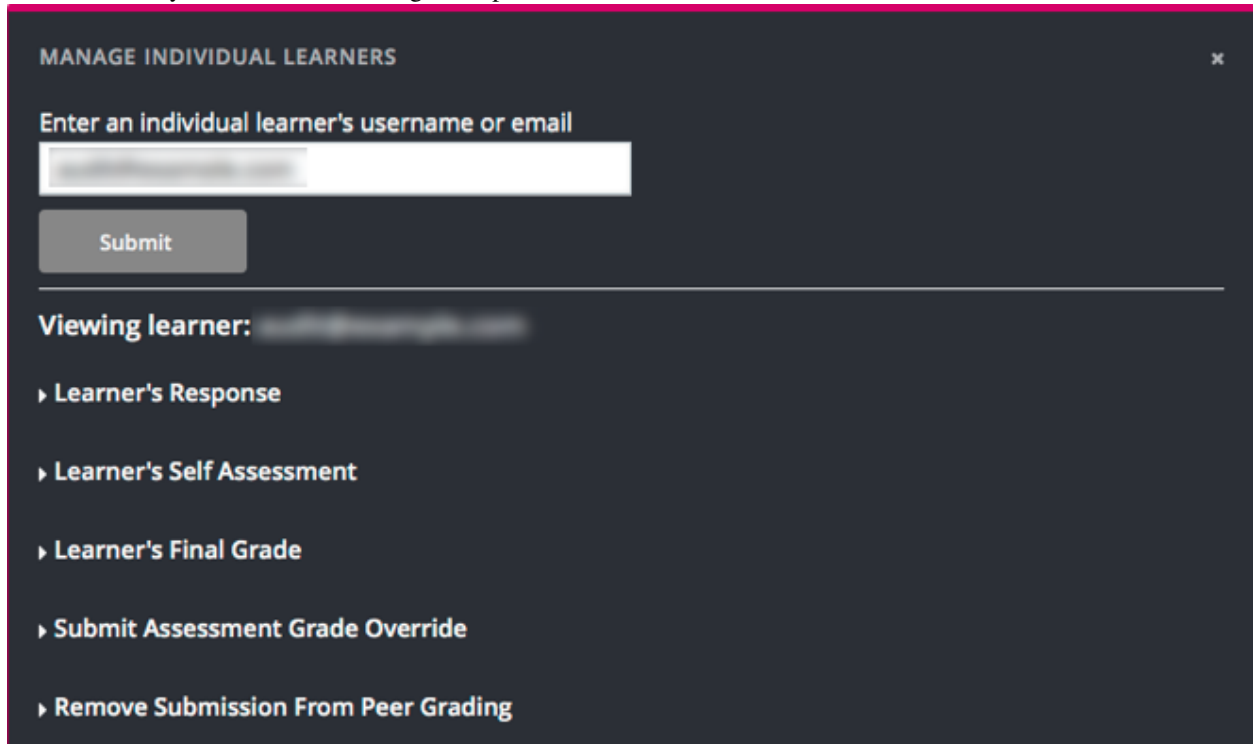
Before you can access information about a specific learner's assignment, you need the learner's username or email address. For more information, see [Download or View Learner Data](#).

1. In the course, go to the ORA assignment.
2. Scroll to the bottom of the problem, then select **Manage Individual Learners**.
3. Enter the learner's username or email address, then select **Submit**.

The **Manage Individual Learners** dialog updates with expandable sections for each of the assessment steps in the assignment and other actions you can take on the learner's response. Only the types of assessment steps (self, peer, or staff) that are included in the assignment are shown.

If the learner uploaded a file along with her response, select **View the file associated with this submission** to review or download it.

4. Select any of the section headings to expand that section.



MANAGE INDIVIDUAL LEARNERS

Enter an individual learner's username or email

Submit

Viewing learner:

- ▶ Learner's Response
- ▶ Learner's Self Assessment
- ▶ Learner's Final Grade
- ▶ Submit Assessment Grade Override
- ▶ Remove Submission From Peer Grading

Perform Staff Assessments in an ORA Assignment

When a staff assessment step is included in an open response assessment assignment, course team members see a **Grade Available Responses** button at the bottom of the assignment in the course, and learners see a **Staff Assessment** step in their assignment.

Note: The scores that you give learners in staff assessment steps override scores from any other assessment type in the assignment, including peer assessments that are completed after the staff assessment.

To perform staff assessments in an assignment, complete these steps.

1. In the course, go to the ORA assignment.
2. Scroll to the bottom of the problem, then select **Grade Available Responses**.

In the dialog that opens, the number of available and checked out responses is shown. Checked out responses are responses that are currently being graded by you or another course team member.

3. Select the **Staff Assessment** heading to open a response that is available for grading.
4. Perform an evaluation of the response using the problem's rubric.
5. Select **Submit assessment** to submit the assessment and close the grading dialog. Alternatively, select **Submit assessment and continue grading** to submit the assessment and immediately grade another submission.

The grade that you have given this learner's response overrides scores from any other assessment type in the assignment. Peer assessments performed on this response after a staff grade has been given have no effect on the learner's final assignment grade.

Override a Learner's Assessment Grade

For any open response assessment, whether or not a staff assessment step is already included, you might want to override a learner's final grade for the assignment. The ability to override the final grade is particularly useful in assignments without staff assessment steps, for example, if a learner's submission was inappropriately or inadequately graded by peers, or if there are not enough peer reviewers to complete the required number of peer assessments.

Course staff can perform an assessment of an individual learner's response that acts as an override to the learner's existing grade. The grade given by staff in the override assessment immediately replaces any other calculated grade as the final grade for the learner.

Note: You can perform override assessments more than once on the same response, regardless of the due date of the assignment. The learner's final grade on the assessment is updated to reflect the most recent staff override assessment grade.

Learners who have override grades for their submissions see a **Staff Assessment** step in their assignments, where they can view the rubric and any comments provided in the staff assessments.

Perform an Override Assessment

To perform an override assessment for a particular learner, complete these steps.

1. In the course, go to the ORA assignment.
2. Scroll to the bottom of the problem, then select **Manage Individual Learners**.
3. Enter the learner's username or email, then select **Submit**.

The **Manage Individual Learners** dialog updates with expandable sections for each of the assessment steps in the assignment and other actions you can take on the learner's response.

4. Select **Submit Assessment Grade Override**.
5. Perform an assessment of the learner's response using the problem's rubric.
6. When you have finished the assessment, select **Submit assessment**.

The grade that you have given this learner's response becomes the learner's final grade on the assignment. Peer assessments are not taken into account in calculating the learner's final assignment grade when a staff override grade exists.

Learners who have an override grade for their submission see a **Staff Assessment** step in their assignment, where they can view the rubric and any comments provided in the staff assessment.

Note: Override assessments can be performed more than once on the same response, regardless of the due date of the assignment. The learner's final grade on the assessment is updated to reflect the most recent staff override assessment grade.

Remove a Learner's Response from Peer Grading

In a course that contains assignments with peer assessment steps, learners might alert you to vulgar, abusive, or otherwise inappropriate responses that they have seen while performing peer assessments. In such a situation you can [locate](#) and remove the submission. Doing so removes the inappropriate response from peer assessments so that it is no longer shown to other learners.

Note: Removing a learner's submission is an irreversible action.

When you remove an inappropriate submission, the response is immediately taken out of the pool of submissions available for peer assessment. If the inappropriate response has already been sent to other learners for peer assessment, it is also removed from their queue. However, if any learner has already graded the inappropriate response, it is counted as one of the submissions they have graded.

Note: After you remove an inappropriate response from peer assessment, you decide whether the learner who submitted that response is allowed to submit a replacement response. If you do not want to allow the learner to submit a replacement response, you do not need to take any additional action. The learner receives a grade of zero for the entire submission. To allow the learner to resubmit a response for a cancelled submission, you must delete the learner's state for the problem. For more information, see [Delete a Learner's State for a Problem](#).

To remove a submission from peer assessment, complete these steps.

1. Identify the learner who submitted the inappropriate response by following the steps in the [Locate a Specific Submission in an ORA Assignment](#) topic.
2. In the course, go to the ORA assignment that contains the submission you want to remove.
3. Scroll to the bottom of the problem, then select **Manage Individual Learners**.
4. Enter the learner's username or email, and select **Submit**.

The **Manage Individual Learners** dialog updates with expandable sections for each of the assessment steps in the assignment and other actions you can take on the learner's response.

5. Select **Remove Submission from Peer Grading**.
6. Enter a comment to explain the removal. This comment appears to the learner when she views her response in the open response assessment problem.

▼ Remove Submission From Peer Grading

CAUTION: THIS ACTION CANNOT BE UNDONE

Removing a learner's submission cannot be undone and should be done with caution.

Comments:

The response you submitted contains inappropriate language. The submission has been cancelled, and you have received a grade of zero for this assignment.

Remove submission

6. Select **Remove submission**.

The inappropriate submission is removed from peer assessment. Removed submissions are also removed from the list of Top Responses if they were previously listed.

When you access this learner's information again by selecting **Manage Individual Learners**, instead of the response, you see a note showing the date and time that the submission was removed, and the comments that you entered.

MANAGE INDIVIDUAL LEARNERS

Enter an individual learner's username or email

Submit

Viewing learner:

▼ Learner's Response

Learner submission removed by staff on December 28, 2015 19:40 UTC

Comments: The response you submitted contains inappropriate language. The submission has been cancelled, and you have received a grade of zero for this assignment.

When the learner views the assignment in the course, she sees that all steps in the assignment have a status of “Cancelled”. Under **Your Response**, instead of the text of their response, she sees the date and time that their response was cancelled, and the comments relating to the removal of their submission.

The screenshot displays a course interface with a red header bar. The first section, labeled '1 Your Response', shows a submission due on Feb. 26, 2016, which has been cancelled. A yellow box contains the message: 'SUBMISSION CANCELLED. Your submission has been cancelled by staff on Dec. 28, 2015 20:29 UTC. Comments: The response you submitted contains inappropriate language. The submission has been cancelled, and you have received a grade of zero for this assignment.' Below this are five assessment steps, each marked as 'CANCELLED': '2 Learn to Assess Responses', '3 Assess Your Response' (due March 4, 2016), '4 Assess Peers' (due March 18, 2016), and '5 Staff Grade'. At the bottom, a red bar indicates 'Your Grade: 0' and 'Your submission has been cancelled.'

Locate a Specific Submission in an ORA Assignment

If you are alerted to an inappropriate ORA submission that you want to cancel and *remove from peer assessment*, locate the specific submission by following these steps.

1. Ask the person who reported the incident to send you a sample of text from the inappropriate response.
2. Contact your edX partner manager to request a data download of ORA responses for your course.
You will receive the download as a spreadsheet or in .csv file format.
3. Search the spreadsheet for text that matches the sample text from the inappropriate response.
4. From any matching entries in the spreadsheet, locate the username of the learner who posted the submission.
5. Make a note of the username, and follow the steps to *remove a learner response from peer grading*.

8.31.4 Accessing Metrics for ORA Assignments

After you release an open response assessment assignment, you can access various metrics for the assignment. For example, you can view the number of learners in each step of the assignment or in possible states such as “Waiting” or “Completed” within the assignment. In addition to viewing metrics for the assignment, you can also access assignment details for an individual learner, or *generate a report* containing learner and response details for ORA assignments in the course.

For information about tasks that you can perform on learner responses in an ORA assignment, including *performing a grade override assessment* or *cancelling a learner’s submission*, see *Managing Open Response Assessment Assignments*.

View ORA Assignment Statistics

To view metrics about learners in the assignment, including the number who are active in each step, follow these steps.

1. Open the assignment in the course.
2. Scroll to the bottom of the assignment and select **View Assignment Statistics**.

You see statistics for the assignment, including the total number of responses and the location ID for the assignment.

In the **Learner Progress** section, for each assessment step in the assignment, you can see the number of learners who are currently working through (but who have not completed) that step. Only assessment types that exist in the assignment are included.

Note: If a Staff Assessment step exists in the assignment, this step will always show 0 active learners, because no learner actions are required for that step.

In addition to learners who are active in the assessment steps of the assignment, you can see the number of learners who are in the following states in the assignment.

- **Waiting:** Learners who have finished the requirements for a step and are waiting for their responses to be assessed by peers or staff.
- **Done:** Learners who have completed all of their required steps, and have received the required number of reviews.
- **Cancelled:** Learners who have had their responses cancelled.

In the **Dates** section below **Learner Progress**, the release and due dates for each step in the assignment are shown.

VIEW ASSIGNMENT STATISTICS
×

Response total: 9

Location: block-v1: @openassessment+block@c50163e0ebb1466489fe7a268a88e488

Learner Progress

PROBLEM STEP	ACTIVE LEARNERS IN STEP
training	
self	
peer	
staff	
waiting	
done	
cancelled	

Dates

PROBLEM STEP	RELEASE DATE	DUE DATE
submission	Jan. 1, 2001 00:00 UTC	Feb. 26, 2016 00:00 UTC
student-training	Jan. 1, 2001 00:00 UTC	March 4, 2016 00:00 UTC
self-assessment	Jan. 1, 2001 00:00 UTC	March 4, 2016 00:00 UTC
peer-assessment	Jan. 1, 2001 00:00 UTC	March 18, 2016 00:00 UTC
staff-assessment	Jan. 1, 2001 00:00 UTC	N/A

Generate a Report for ORA Assignments

To generate a report containing details of the ORA assignments in the course, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. In the **Reports** section, select **Generate ORA Data Report**.

A status message indicates that the ORA data report generation is in progress. This process might take some time to complete, but you can navigate away from this page and do other work while it runs.

To check the progress of the report generation, reload the page in your browser and scroll down to the **Pending Tasks** section. The table shows the status of active tasks.

When the report is complete, a linked .csv file name becomes available above the **Pending Tasks** section. File names are in the format {course_id}_ORA_data_{datetime}.csv. The most recently generated reports appear at the top of the list.

- To open or save the generated ORA data report, locate and select the link for the grade report you requested.

You can open .csv files in a spreadsheet application to sort, graph, and compare data.

Interpret the ORA Data Report

The ORA data report for your course is a time-stamped .csv file that contains data for all the ORA assignments in your course. For each ORA assignment in the course, the report provides information that includes each learner's anonymized ID, response, assessments details and scores, and the final score for the assignment. For more details about each column in the report, see the following descriptions.

Submission ID	Item ID	Anonymized Student ID	Date/Time Response Submitted	Response	Assessment Details	Assessment Scores	Date/Time Final Score Given	Final Score Points Earned	Final Score Points Possible	Feedback Statements Selected	Feedback on Peer Assessments
87f07e90-e231-11e5-af0b-0ab35812f93f	3	5bd5df9b2ed3a97acd5ad6f2fa88fb9e	2016-03-04 17:50:06.66 2467+00:00	{u'parts': [{u'text': u'Censorship is never a good idea. Anyone can be offended by something different, and if libraries started to respond to complaints by making certain books unavailable, then as the quote in the question says, we would soon "have no books left on the shelf for any of us."}]}	Assessment #7 -- scored_at: 2016-03-04 18:07:46.046305+00:00 -- type: PE -- scorer_id: 7d554d4d3c75cc153c77ca2022a1e0d1 Assessment #5 -- scored_at: 2016-03-04 17:53:30.650492+00:00 -- type: PE -- scorer_id: ed8e6b92c554762860333785f764f998 -- overall_feedback: Use of the quotation was good	Assessment #7 -- Content: Fair (1) -- Ideas: Fair (3) Assessment #5 -- Content: Good (3) -- Ideas: Good (5) -- feedback: Expresses the main idea clearly. Assessment #4 -- Content: Good (3) -- Ideas: Fair (3)	2016-03-04 17:53:30.776 582+00:00	8	8	These assessments were useful.	I feel that the assessments performed on my response were fair.

The .csv file contains one row of data for each response from a learner.

- The IDs in the **Item ID** and **Submission ID** columns uniquely identify the problem within the course content and the learner's submission for that problem.
- The **Anonymized Student ID** column lists an ID for each learner without revealing confidential, personally identifiable data such as email addresses and usernames.
- The **Date/Time Response Submitted** column displays the date and time that the learner submitted her response, in YYYY-MM-DD HH-MM-SS format.
- The **Response** column displays the content of the learner's response.
- The **Assessment Details** column displays the following details for the assessments that were performed on the response.
 - The time and date that the assessment was submitted.
 - The type of assessment: self (SE), peer (PE), staff (ST).
 - The ID of the person who performed the assessment.
 - Any text comments about the response that were included in the assessment.
- The **Assessment Scores** column lists the scores that the response received in self, peer, or staff assessments.
- The **Date/Time Final Score Given**, **Final Score Points Earned**, and the **Final Score Points Possible** columns provide details of the final score that the response received. If a response has not received enough assessments for the assignment to be considered complete, these columns show a value of "None".
- The **Feedback Statements Selected** and **Feedback on Peer Assessments** columns together show the information that learners provided in the **Provide Feedback on Peer Assessments** section of their ORA assignments. This section is available to learners only when all assessments for an assignment have been completed, and provides an optional way for learners to comment on their experience of the peer assessment process.

The **Feedback Statements Selected** column displays the text of the feedback statements (if any) that the learner selected to describe their experience of the peer assessment process. Learners can select either "These assess-

ments were useful” or “These assessments were not useful”. They can also select either or both of “I disagree with one or more of the peer assessments of my response” and “Some comments I received were inappropriate”.

If a learner also provided a free-form comment in the text field below the selectable feedback statements, the text appears in the **Feedback on Peer Assessments** column.

8.32 Oppia Exploration Tool

Note: EdX offers full support for this tool.

Oppia is a third-party tool that you can use to create short interactive tutorials, called explorations. This topic describes how to embed Oppia explorations in your course.

- *Overview*
- *Enable the Oppia Exploration Tool*
- *Add an Oppia Exploration in Studio*

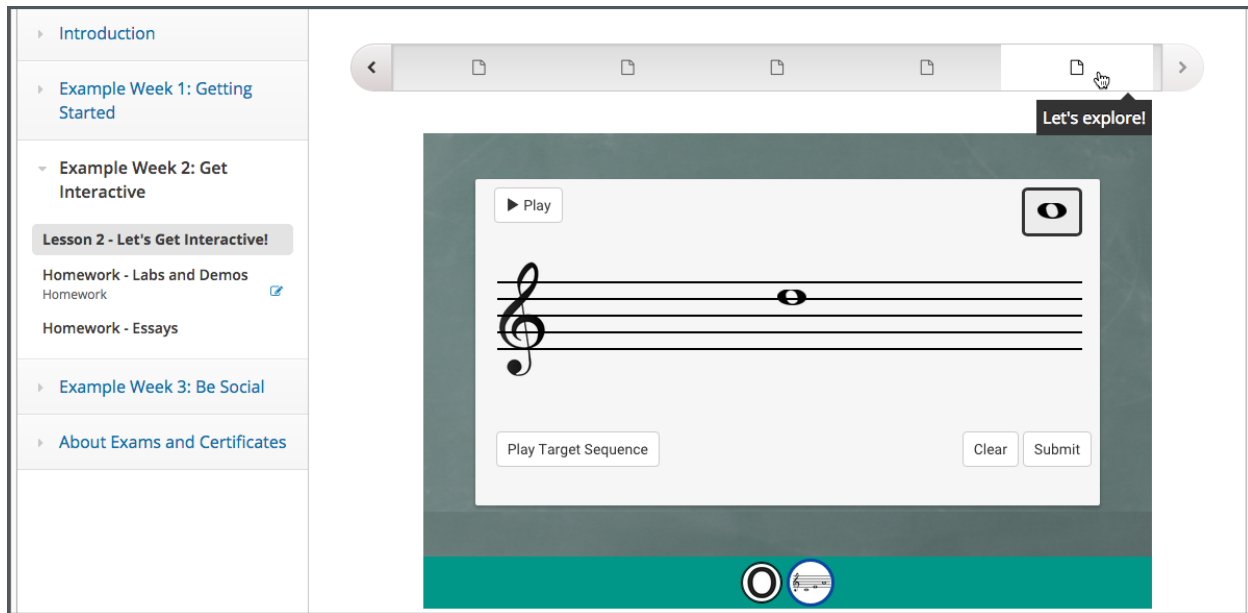
Before you make content from an external site available through your course, be sure to review the content to ensure that it is accessible to people with disabilities. For more information, see *Accessibility Best Practices for Developing Course Content*.

8.32.1 Overview

You use the Oppia exploration tool in Studio to add interactive tutoring activities, created as Oppia explorations, to your course. Oppia explorations simulate conversations with human tutors to encourage exploration and experiential learning.

Note: Oppia explorations are not assessments that can be graded. At this time, you should not add Oppia exploration components to the graded subsections of your course.

The following example shows an Oppia exploration as learners see it in the edX LMS.



For information about how to create Oppia explorations, see the [Oppia User Documentation](#).

8.32.2 Enable the Oppia Exploration Tool

Before you can add an Oppia exploration to your course, you must enable this tool in Studio.

To enable the Oppia exploration tool in Studio, you add the "oppia" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

8.32.3 Add an Oppia Exploration in Studio

You must [enable the Oppia exploration tool](#) before you add a component with an exploration to your course. You must also select the Oppia exploration that you want to add, and obtain both the URL of the website that hosts that exploration and its ID.

1. On the **Course Outline** page, open the unit in an ungraded subsection where you want to add the exploration.
2. Under **Add New Component**, select **Advanced**, and then select **Oppia Exploration**. The new component is added to the unit.
3. In the new component, select **Edit**.

Editing: Let's explore!

Component Display Name

Let's explore!

The name students see. This name appears in the course ribbon and as a header for the Oppia exploration.

Oppia Exploration ID

9

Example: a4j3jdj21tw

Oppia Server URL

https://www.oppia.org

Example: https://www.oppia.org

Save

Cancel

4. In the **Component Display Name** field, enter an identifying name for the component. In the LMS, this name appears as a heading above the exploration.
5. In the **Oppia Exploration ID** field, enter the identifier assigned to the exploration you want to add. For example, qG6kc1SxlWZn or gC4_ggkWar-L.
6. In the **Oppia Server URL** field, enter the host site of the exploration you want to add. For example, `www.oppia.org`.
7. Select **Save**.

Studio does not show the exploration on the unit page. To verify your work, select **Preview**, or publish the unit and then select **View Live**.

8.33 Peer Instruction Tool

Note: EdX offers full support for this tool.

The Peer Instruction learning system provides students with in class opportunities to discuss questions and arrive at a deeper understanding of concepts. The peer instruction tool emulates this classroom experience for the learners in an online course.

- *Assignment Overview*
 - *Designing an Online Peer Instruction Assignment*
 - *Enable the Peer Instruction Tool*
- *Adding a Peer Instruction Assignment in Studio*
 - *Upload Images (Optional)*
 - *Add a Peer Instruction Component*
 - *Add the Assignment Details*
- *Reviewing a Histogram of Learner Responses*

For more information about the Peer Instruction learning system, consult the resources of the [Mazur Group](#) or the [Turn to Your Neighbor](#) blog.

8.33.1 Assignment Overview

Assignments created with the peer instruction tool present learners with a multiple choice question, and then guide the learners through these stages of the exercise.

1. An initial response, which includes both an answer choice and a written explanation for that choice.
2. Review of responses submitted by several other course participants.
3. A final response, which also includes an answer choice and revised explanation.

Learners also receive an explanation for the correct answer choice. After 10 learners complete the assignment, class breakdown histograms show the percentage of responding learners who selected each of the answer choices, both initially and after reviewing peer responses.

Designing an Online Peer Instruction Assignment

Before you use the peer instruction tool in Studio, you design the assignment. You prepare the assignment question and its answer choices in the same way that you would for classroom students. The question and the answer choices can include text, images, or both.

For your online learners, you also prepare the following additional elements for the exercise.

- A text explanation of the correct answer choice.
- An example text explanation for each answer choice.

These example explanations ensure that all learners, including the first few to attempt the assignment, have other responses to review in the second stage of the exercise. As the number of responses received from learners increases, the likelihood that your examples will be shown to any given learner decreases.

- The number of responses for learners to review in the second stage of the exercise.
- The logic for selecting the responses to show.
 - The random algorithm presents the specified number of responses without regard to the associated answer choices. The responses shown to a learner might include explanations for each of the answer choices, or it might include several explanations for one choice and none for another choice.
 - The simple algorithm includes an additional step to minimize repeated and missed responses for the different answer choices. Explanations are presented for as many different answer choices as possible for the number of responses specified.

After your design is complete, you use Studio to add the assignment to your course.

Note: You might consider including an HTML component before the peer instruction component to describe the workflow that learners will experience in this assessment type. You might also consider including a content-specific discussion component after the peer instruction component to give learners an opportunity to continue the conversation.

For more information about how learners experience peer instruction assignments, see [Explaining Multiple Choice Answers](#) in the *EdX Learner's Guide* or [Explaining Multiple Choice Answers](#) in the *Open edX Learner's Guide*.

Enable the Peer Instruction Tool

Before you can add a component to your course structure for a peer instruction assignment, you must enable the peer instruction tool for your course.

To enable the peer instruction tool in Studio, you add the "ubcpi" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

Note: This tool was developed and contributed to the edX platform by the University of British Columbia.

8.33.2 Adding a Peer Instruction Assignment in Studio

- *Upload Images (Optional)*
- *Add a Peer Instruction Component*
- *Add the Assignment Details*

Upload Images (Optional)

If the question or an answer choice in an assignment includes an image, you *upload the image file* on the **Files & Uploads** page. The **Studio URL** for the image can then be added to the question or answer choice in the peer instruction component.

Add a Peer Instruction Component

After you *enable the peer instruction tool* for your course, you can add the component for a peer instruction assignment.

1. On the **Course Outline** page, locate the subsection where you want to add the assignment and add or open a unit.
2. Under **Add New Component**, select **Advanced**, and then select **Peer Instruction**. Studio adds the new component to the unit and uses a template to supply a sample question, answers, and so on.

Peer Instruction

EDIT

QUESTION:

Where does most of the mass in a fully grown tree originate?

STEP 1) YOUR INITIAL ANSWER

You can change this answer later, if you change your mind.

☐ Air

☐ Soil

☐ Water

Explain your selection (Required):

In the next step you will be shown a selection of other responses which may help you refine your answer.

Note: In order to move to the next step please choose an answer and explain your decision.

Next Step →

3. Select **Edit**.
4. In the component editor, replace the default component display name with an identifying name. In the LMS, this name appears as a heading above the assignment.
Unique, descriptive display names can help you identify individual assignments quickly and accurately for analysis.
5. Select **Save**, or continue on to replace the template information with the details for this assignment.

Add the Assignment Details

Before you add the details of the assignment to a peer instruction component, you *design the assignment* by preparing a question, answer choices, and other required elements. If the question or any of the answer choices includes an image, you also *upload* the image file and obtain its Studio URL so that you can add it to the assignment.

To enter all of the assignment details into the component editor, follow these steps.

1. In the new component, select **Edit**.
2. For the assignment question, enter text, add an image, or both.

- To add text, enter the question that you want learners to consider in the **Question Text** field.
- To add an image, follow these steps.
 - (a) Select **Add Image to Question**. Additional fields appear.
 - (b) In the **Image URL** field, paste or enter the Studio URL from the **Files & Uploads** page.
 - (c) Specify the **Image Position**. If your question does not include text, **Appears above** and **Appears below** have the same result.
 - (d) Provide a description of the image. This description should provide enough detail so that learners who cannot see the image, and who rely on screen readers to complete your course, can understand the question.
- 3. Select a minimum and maximum length for the written explanations your learners supply for their answer choices.

You can change the supplied default values as needed to require explanations that are longer than 1 character, or limit explanations to less than 32,000 characters (approximately 12 pages).
- 4. Enter each answer choice. You can enter text, add an image, or both. For information on how to add an image, see step 2.

The template for this component has three sample answer choices.

- If your question has more than three answer choices, select **Add New Answer** and then enter the answer. You can include up to 10 answer choices.
 - To delete an answer choice, select the **X** next to the text field for that answer.
- 5. Specify which of the answer choices is the correct answer. You identify the correct answer choice by its assigned number: to indicate Answer 1 you select **Option 1**, for Answer 2 you select **Option 2**, and so on.
 - 6. Enter a text explanation that describes why the specified answer choice is correct.
 - 7. Configure how, and how many, peer responses to show to learners after they submit an initial response.
 - To guide selection of the responses to show, select either **Random** or **Simple**. For more information, see [Designing an Online Peer Instruction Assignment](#).
 - Specify how many responses learners should be given to review. The default, **#**, shows learners the same number of responses as there are answer options.
 - 8. Enter your example explanations. For each of the answer choices you enter in step 4, you must supply an example explanation. You identify each answer choice by its assigned number: to indicate Answer 1 you select **Option 1**, for Answer 2 you select **Option 2**, and so on.

The template for this component includes three example explanations.

- If your question has more than three answer choices, you select **Add New Example**, and then identify the answer choice and enter the example explanation for each of the other answer choices.
 - To delete an example explanation, select the **X** next to the list of numbered choices.
- 9. Select **Save**.

If **Save** is not available, an edit check has detected incomplete or invalid information in the component editor. Review your entries to make sure that each field has an entry, and that you have provided an example explanation for each answer choice. For information about the error found, move your cursor over the question mark that appears next to **Save**.

8.33.3 Reviewing a Histogram of Learner Responses

When learners submit their final answer choices and revised explanations, the peer instruction tool displays the correct answer and its explanation. The learner's initial answer and response, and final answer and response, follow.

As soon as 10 learners complete the assignment, the peer instruction tool displays a pair of class breakdown histograms. These histograms show how frequently learners selected each of the options, before and after they reviewed the responses submitted by other class participants.



8.34 Periodic Table Tool

Note: EdX does not support this tool.

You can create an interactive periodic table of the elements to help your students learn about various elements' properties. In the table below, detailed information about each element appears as the student moves the mouse over the element.

AN INTERACTIVE REFERENCE TABLE

This interactive periodic table of the elements was first used in [3.091x Introduction to Solid State Chemistry](#). The table reveals detailed information about each element as you mouse over it.

<div><div>H</div><div>Hydrogen</div><div>1.00794 g/mol</div></div> <div><div>Atomic Weight</div><div>Atomic Volume</div><div>Ionic Radius</div><div>Density</div><div>Melting Point</div><div>Boiling Point</div><div>Polarizability</div><div>Electronegativity</div><div>First Ionization Potential</div><div>Crystal Structure</div><div>Oxidation States</div><div>Electronic Configuration</div><div>Enthalpy of Fusion</div><div>Enthalpy of Vaporization</div><div>Covalent Radius</div><div>Thermal Conductivity</div><div>Specific Heat Capacity</div><div>Enthalpy of Atomization</div></div> <div><div>1.00794 g/mol</div><div>14.1 cm³/mol</div><div>- pm</div><div>0.0899 g/cm³</div><div>-259.34 C</div><div>-252.87 C</div><div>0.667</div><div>2.2</div><div>13.598 eV</div><div>Hex</div><div>1</div><div>1s¹</div><div>0.0586 kJ/mol</div><div>0.449 kJ/mol</div><div>0.32 Å</div><div>0.001815 W·cm⁻¹·K⁻¹</div><div>14.304 J g⁻¹·K⁻¹</div><div>217.57 kJ/mol</div></div>	<div>He</div> <div>4</div> <div>20.18</div>																
<div>Li</div> <div>3</div> <div>6.94</div>	<div>Be</div> <div>4</div> <div>9.01</div>	<div>B</div> <div>5</div> <div>10.81</div>	<div>C</div> <div>6</div> <div>12.01</div>	<div>N</div> <div>7</div> <div>14.01</div>	<div>O</div> <div>8</div> <div>16</div>	<div>F</div> <div>9</div> <div>19</div>	<div>Ne</div> <div>10</div> <div>20.18</div>										
<div>Na</div> <div>11</div> <div>22.99</div>	<div>Mg</div> <div>12</div> <div>24.30</div>	<div>Al</div> <div>13</div> <div>26.98</div>	<div>Si</div> <div>14</div> <div>28.09</div>	<div>P</div> <div>15</div> <div>30.97</div>	<div>S</div> <div>16</div> <div>32.07</div>	<div>Cl</div> <div>17</div> <div>35.45</div>	<div>Ar</div> <div>18</div> <div>39.95</div>										
<div>K</div> <div>19</div> <div>39.10</div>	<div>Ca</div> <div>20</div> <div>40.08</div>	<div>Sc</div> <div>21</div> <div>44.96</div>	<div>Ti</div> <div>22</div> <div>47.88</div>	<div>V</div> <div>23</div> <div>50.94</div>	<div>Cr</div> <div>24</div> <div>52</div>	<div>Mn</div> <div>25</div> <div>54.94</div>	<div>Fe</div> <div>26</div> <div>55.85</div>	<div>Co</div> <div>27</div> <div>58.93</div>	<div>Ni</div> <div>28</div> <div>58.69</div>	<div>Cu</div> <div>29</div> <div>63.55</div>	<div>Zn</div> <div>30</div> <div>65.39</div>	<div>Ga</div> <div>31</div> <div>69.72</div>	<div>Ge</div> <div>32</div> <div>72.61</div>	<div>As</div> <div>33</div> <div>74.92</div>	<div>Se</div> <div>34</div> <div>78.96</div>	<div>Br</div> <div>35</div> <div>79.90</div>	<div>Kr</div> <div>36</div> <div>83.80</div>
<div>Rb</div> <div>37</div> <div>85.47</div>	<div>Sr</div> <div>38</div> <div>87.62</div>	<div>Y</div> <div>39</div> <div>88.91</div>	<div>Zr</div> <div>40</div> <div>91.22</div>	<div>Nb</div> <div>41</div> <div>92.91</div>	<div>Mo</div> <div>42</div> <div>95.94</div>	<div>Tc</div> <div>43</div> <div>97.91</div>	<div>Ru</div> <div>44</div> <div>101.07</div>	<div>Rh</div> <div>45</div> <div>102.91</div>	<div>Pd</div> <div>46</div> <div>106.42</div>	<div>Ag</div> <div>47</div> <div>107.87</div>	<div>Cd</div> <div>48</div> <div>112.41</div>	<div>In</div> <div>49</div> <div>114.82</div>	<div>Sn</div> <div>50</div> <div>118.71</div>	<div>Sb</div> <div>51</div> <div>121.76</div>	<div>Te</div> <div>52</div> <div>127.60</div>	<div>I</div> <div>53</div> <div>126.90</div>	<div>Xe</div> <div>54</div> <div>131.29</div>
<div>Cs</div> <div>55</div> <div>132.91</div>	<div>Ba</div> <div>56</div> <div>137.33</div>	<div>La</div> <div>57</div> <div>138.91</div>	<div>Hf</div> <div>72</div> <div>178.49</div>	<div>Ta</div> <div>73</div> <div>180.95</div>	<div>W</div> <div>74</div> <div>183.84</div>	<div>Re</div> <div>75</div> <div>186.21</div>	<div>Os</div> <div>76</div> <div>190.23</div>	<div>Ir</div> <div>77</div> <div>192.22</div>	<div>Pt</div> <div>78</div> <div>195.08</div>	<div>Au</div> <div>79</div> <div>196.97</div>	<div>Hg</div> <div>80</div> <div>200.59</div>	<div>Tl</div> <div>81</div> <div>204.38</div>	<div>Pb</div> <div>82</div> <div>207.20</div>	<div>Bi</div> <div>83</div> <div>208.98</div>	<div>Po</div> <div>84</div> <div>208.98</div>	<div>At</div> <div>85</div> <div>209.99</div>	<div>Rn</div> <div>86</div> <div>222.02</div>
<div>Fr</div> <div>87</div> <div>223.02</div>	<div>Ra</div> <div>88</div> <div>226.03</div>	<div>Ac</div> <div>89</div> <div>227.03</div>	<div>Rf</div> <div>104</div> <div>261</div>	<div>Db</div> <div>105</div> <div>262</div>	<div>Sg</div> <div>106</div> <div>263</div>	<div>Bh</div> <div>107</div> <div>262</div>	<div>Hs</div> <div>108</div> <div>265</div>	<div>Mt</div> <div>109</div> <div>266</div>	<div>Uun</div> <div>110</div> <div>289</div>	<div>Uuu</div> <div>111</div> <div>272</div>	<div>Uub</div> <div>112</div> <div>277</div>	<div>Uut</div> <div>113</div> <div>-</div>	<div>Uuq</div> <div>114</div> <div>285</div>	<div>Uup</div> <div>115</div> <div>-</div>	<div>Uuh</div> <div>116</div> <div>289</div>	<div>Uus</div> <div>117</div> <div>-</div>	<div>Uuo</div> <div>118</div> <div>293</div>
<div>Ce</div> <div>58</div> <div>140.12</div>	<div>Pr</div> <div>59</div> <div>140.91</div>	<div>Nd</div> <div>60</div> <div>144.24</div>	<div>Pm</div> <div>61</div> <div>144.91</div>	<div>Sm</div> <div>62</div> <div>150.36</div>	<div>Eu</div> <div>63</div> <div>151.97</div>	<div>Gd</div> <div>64</div> <div>157.25</div>	<div>Tb</div> <div>65</div> <div>158.93</div>	<div>Dy</div> <div>66</div> <div>162.50</div>	<div>Ho</div> <div>67</div> <div>164.93</div>	<div>Er</div> <div>68</div> <div>167.26</div>	<div>Tm</div> <div>69</div> <div>168.93</div>	<div>Yb</div> <div>70</div> <div>173.04</div>	<div>Lu</div> <div>71</div> <div>174.97</div>				
<div>Th</div> <div>90</div> <div>232.04</div>	<div>Pa</div> <div>91</div> <div>231.04</div>	<div>U</div> <div>92</div> <div>238.03</div>	<div>Np</div> <div>93</div> <div>237.05</div>	<div>Pu</div> <div>94</div> <div>244.06</div>	<div>Am</div> <div>95</div> <div>243.06</div>	<div>Cm</div> <div>96</div> <div>247.07</div>	<div>Bk</div> <div>97</div> <div>247.07</div>	<div>Cf</div> <div>98</div> <div>251.08</div>	<div>Es</div> <div>99</div> <div>252.08</div>	<div>Fm</div> <div>100</div> <div>257.10</div>	<div>Md</div> <div>101</div> <div>258.10</div>	<div>No</div> <div>102</div> <div>259.10</div>	<div>Lr</div> <div>103</div> <div>262.11</div>				

8.34.1 Create the Periodic Table Tool

To create a periodic table, you need the following files:

- Periodic-Table.js

- Periodic-Table.css
- Periodic-Table-Colors.css
- PeriodicTableHTML.txt

To download all of these files in a .zip archive, go to <http://files.edx.org/PeriodicTableFiles.zip>.

To create the periodic table, you need an HTML component.

1. Upload all of the files listed above *except* *PeriodicTable.txt* to the **Files & Uploads** page in your course.
2. In the unit where you want to create the problem, click **HTML** under **Add New Component**, and then click **HTML**.
3. In the component that appears, click **Edit**.
4. In the component editor, switch to the **HTML** tab.
5. Open the PeriodicTable.txt file in any text editor.
6. Copy all of the text in the PeriodicTable.txt file, and paste it into the HTML component editor. (Note that the PeriodicTableHTML.txt file contains over 6000 lines of code. Paste all of this code into the component editor.)
7. Click **Save**.

8.35 Poll Tool

Note: EdX offers full support for this tool.

This section describes how to include polls in your course.

- *Overview*
- *Enable the Poll Tool*
 - *Enable the Poll Tool in OLX*
- *Add a Poll in edX Studio*
- *Add a Poll in OLX*
 - *poll Element Attributes*
- *Editing Published Polls*
- *View Poll Results*

8.35.1 Overview

You can include polls in your course to gather learners' opinions on various questions.

For a poll, you configure one question and multiple possible answers. If you need to ask multiple questions, use the *Survey Tool*.

The following example poll has four possible answers to the question.

POLL

What is your favorite color?

- ☐ Red
- ☐ Blue
- ☐ Green
- ☐ Other

Submit

After learners submit their answers to the poll question, they see the poll results that have been gathered at this time, unless the poll has been configured to hide results.

POLL

What is your favorite color?

- | | | |
|--|--|------------|
| <input type="radio"/> Red | | 50% |
| <input checked="" type="radio"/> Green | | 50% |
| <input type="radio"/> Blue | | 0% |
| <input type="radio"/> Other | | 0% |

Submit

Results gathered from 2 respondents.

8.35.2 Enable the Poll Tool

Before you can add a poll to your course, you must enable the poll tool in Studio or OLX.

To enable the poll tool in Studio, you add the "poll" key to the **Advanced Module List** on the **Advanced Settings**

page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

Alternatively, you can use OLX to enable the poll tool.

Enable the Poll Tool in OLX

To enable polls in your course, you edit the XML file that defines the course structure.

Open the XML file for the course in the `course` directory. In the `course` element's `advanced-modules` attribute, add the string `poll`.

For example, the following XML code enables polls in a course.

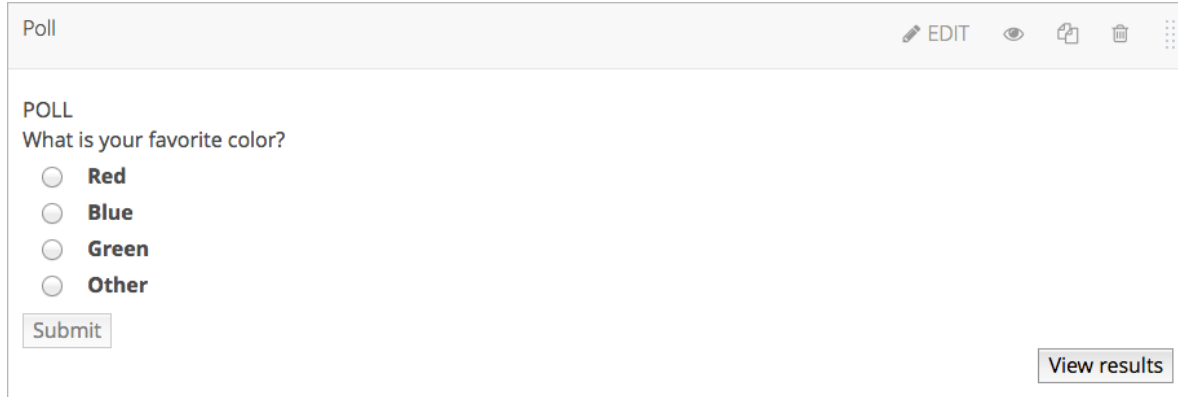
```
<course advanced_modules="['"survey"','"poll"']" display_name="Sample Course"
start="2015-01-01T00:00:00Z">
  ...
</course>
```

8.35.3 Add a Poll in edX Studio

You must *enable the poll* tool before you add the component.

1. On the Course Outline page, open the unit where you want to add the poll.
2. Under **Add New Component** click **Advanced**, and then select **Poll**.

The new component is added to the unit, with the default poll that contains three answer fields.



Poll

POLL

What is your favorite color?

☐ Red

☐ Blue

☐ Green

☐ Other

Submit

View results

3. In the new component, select **Edit**.
4. In the **Display Name** field, enter the name for the component.
5. In the **Question/Prompt** field, enter text that learners see above the poll. You can use Markdown in this field.
6. In the **Feedback** field, enter text that learners see after they submit a responses. You can use Markdown in this field.
7. In the **Private Results** field, to hide poll results from learners, select **True**. If you leave the default value, **False**, learners see poll results after they submit responses.
8. In the **Maximum Submissions** field, change the value to the number of times that you want to allow learners to submit responses. Enter **0** to allow unlimited responses.

Note: If you allow learners to submit responses more than once, you should set **Private Results** to **True**. Otherwise, learners will be able to change their responses after seeing others' responses.

9. Configure answers for the poll.

- (a) In each **Answer** field, enter the answer text that learners see.
- (b) You must enter either text or an image path, or both, for each answer. To enter an image, use the *Studio URL* for the image.
- (c) If you use an image, you must enter useful alternative text in the **Image alternate text** field for non-sighted users.
- (d) To add answers, select **Add answer** at the bottom of the editor. New answers are added at the bottom of the list.
- (e) To change the order of answers, select the up and down buttons next to each answer.
- (f) To remove an answer, select **Delete** next to the answer.

10. Select **Save**.

8.35.4 Add a Poll in OLX

To add a poll XBlock in OLX, you create the `poll` element. You can embed the `poll` element in the `vertical` element, or you can create the `poll` element as a standalone file that you reference in the `vertical`.

The following example shows the OLX definition for a poll with four answers.

```
<poll url_name="f4ae7de0006f426aa4eed4b0b8112da5" xblock-family="xblock.v1"
  feedback="Feedback"
  display_name="Poll"
  private_results="false"
  question="What is your favorite color?"
  max_submissions="1"
  answers="[
    [
      '&quot;R&quot;;',
      {
        '&quot;img&quot;;': '&quot;/static/image.png&quot;;',
        '&quot;img_alt&quot;;': '&quot;Alt 1&quot;;',
        '&quot;label&quot;;': '&quot;Red&quot;;'
      }
    ],
    [
      '&quot;B&quot;;',
      {
        '&quot;img&quot;;': '&quot;/static/image.png&quot;;',
        '&quot;img_alt&quot;;': '&quot;Alt 2&quot;;',
        '&quot;label&quot;;': '&quot;Blue&quot;;'
      }
    ],
    [
      '&quot;G&quot;;',
      {
        '&quot;img&quot;;': '&quot;/static/image.png&quot;;',
        '&quot;img_alt&quot;;': '&quot;Alt 3&quot;;',
        '&quot;label&quot;;': '&quot;Green&quot;;'
      }
    ],
    [
      '&quot;O&quot;;',
```

```
        {
            &quot;img&quot;;: &quot;/static/image.png&quot;;,
            &quot;img_alt&quot;;: &quot;Alt 4&quot;;,
            &quot;label&quot;;: &quot;Other&quot;;
        }
    ]
]
"/>
```

poll Element Attributes

The following table describes the attributes of the `poll` element.

Attribute	Description
<code>url_name</code>	The unique identifier of the poll.
<code>xblock-family</code>	The XBlock version used. Must be <code>xblock.v1</code> .
<code>private_results</code>	Whether the poll results are shown to learners (<code>true</code>) or not (<code>false</code>).
<code>display_name</code>	The display name for the poll.
<code>question</code>	The prompt for the poll.
<code>feedback</code>	The text shown to learners after they submit a response.
<code>max_submissions</code>	The number of times a learner can submit poll answers. Use 0 to allow unlimited submissions. If you use a value other than 1, set <code>private_results</code> to <code>true</code> . Otherwise, learners will be able to change their responses after seeing others' responses.
<code>answers</code>	An array of answers in the poll. Each answer has a unique identifier, and a dictionary that defines values for the following names. <ul style="list-style-type: none"><code>img</code>, the static URL of the answer image.<code>img_alt</code>, the alternative text for the image.<code>label</code>, the answer text. Each answer must have a value for <code>img</code> or <code>label</code> , or both.

8.35.5 Editing Published Polls

Do not publish a poll until you have completed and tested it. You should avoid changing a poll after learners have begun to use it.

If you must edit a poll after learners have submitted answers take into account the following implications.

- If you edit the value of an answer, previous submissions are associated with the new answer value. This change can result in an inaccurate picture of the responses.
- If you change the poll so that previous submissions are invalid, by removing an answer, those submissions are deleted when learners next view the unit. Learners with invalid submissions can submit new responses.

8.35.6 View Poll Results

When you view the poll as a course staff member, you can view results of the poll inside the course.

Select **View results** in the poll.

POLL

What is your favorite color?

☐ Red

☐ Blue

☐ Green

☐ Other

The results of the poll are then displayed.

POLL

What is your favorite color?

<input type="radio"/> Red		50%
<input checked="" type="radio"/> Green		50%
<input type="radio"/> Blue		0%
<input type="radio"/> Other		0%

Results gathered from 2 respondents.

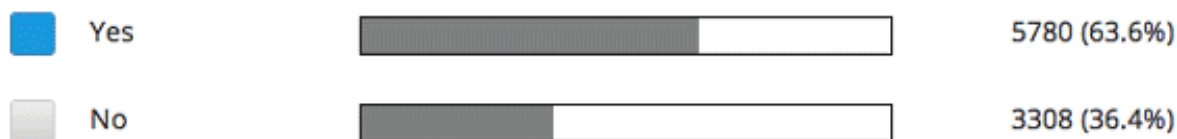
8.36 Poll Tool for OLX

Note: EdX offers provisional support for this tool.

You can run polls in your course so that your students can share opinions on different questions.

POLL QUESTION

All things being equal, should the government use public funds to invest in museums rather than sports arenas?



You responded "Yes" to the poll question. But what would you say to the following: What if public officials expect that more people will make use of and enjoy a sports arena? Should the government still use public funds to invest in museums instead?

Post your answer in the discussion section below, or view the discussion of those who responded "No" to the poll question [here](#).

Note: Creating a poll requires you to export your course, edit some of your course's XML files in a text editor, and then re-import your course. We recommend that you create a backup copy of your course before you create the poll. We also recommend that you only edit the files that will contain polls in the text editor if you are very familiar with editing XML.

8.36.1 Terminology

Sections, subsections, units, and components have different names in the **Course Outline** view and in the list of files that you see after you export your course and open the .xml files for editing. The following table lists the names of these elements in the **Course Outline** view and in a list of files.

Course Outline View	File List
Section	Chapter
Subsection	Sequential
Unit	Vertical
Component	Discussion, HTML, problem, or video

For example, when you want to find a specific section in your course, you look in the **Chapter** folder when you open the list of files that your course contains. To find a unit, you look in the **Vertical** folder.

8.36.2 Create a Poll

1. In the unit where you want to create the poll, create components that contain all the content that you want *except* for the poll. Make a note of the 32-digit unit ID that appears in the **Unit Identifier** field under **Unit Location**.
2. Export your course. For information about how to do this, see [Exporting and Importing a Course](#). Save the .tar.gz file that contains your course in a memorable location so that you can find it easily.

3. Locate the .tar.gz file that contains your course, and then unpack the .tar.gz file so that you can see its contents in a list of folders and files.
 - To do this on a Windows computer, you need to download a third-party program. For more information, see [How to Unpack a tar File in Windows](#), [How to Extract a Gz File](#), [The gzip Home Page](#), or the [Windows](#) section of the [How to Open .tar.gz Files](#) page.
 - For information about how to do this on a Mac, see the [Mac OS X](#) section of the [How to Open .tar.gz Files](#) page.
4. In the list of folders and files, open the **Vertical** folder.

Note: If your unit is not published, open the **Drafts** folder, and then open the **Vertical** folder in the **Drafts** folder.

5. In the **Vertical** folder, locate the .xml file that has the same name as the unit ID that you noted in step 1, and then open the file in a text editor such as Sublime 2. For example, if the unit ID is e461de7fe2b84ebeabe1a97683360d31, you open the e461de7fe2b84ebeabe1a97683360d31.xml file.

The file contains a list of all the components in the unit, together with the URL names of the components. For example, the following file contains an HTML component followed by a discussion component.

```
<vertical display_name="Test Unit">
  <html url_name="b59c54e2f6fc4cf69ba3a43c49097d0b"/>
  <discussion url_name="8320c3d511484f3b96bde9fd4a44ac8b"/>
</vertical>
```

6. Add the following poll code in the location where you want the poll. Change the text of the prompt to the text that you want.

```
<poll_question display_name="Poll Question">
  <p>Text of the prompt</p>
  <answer id="yes">Yes</answer>
  <answer id="no">No</answer>
</poll_question>
```

In the example above, if you wanted your poll to appear between the HTML component and the discussion component in the unit, your code would resemble the following.

```
<vertical display_name="Test Unit">
  <html url_name="b59c54e2f6fc4cf69ba3a43c49097d0b"/>
  <poll_question display_name="Poll Question">
    <p>Text of the prompt</p>
    <answer id="yes">Yes</answer>
    <answer id="no">No</answer>
  </poll_question>
  <discussion url_name="8320c3d511484f3b96bde9fd4a44ac8b"/>
</vertical>
```

7. After you add the poll code, save and close the .xml file.
8. Re-package your course as a .tar.gz file.
 - For information about how to do this on a Mac, see [How to Create a Tar GZip File from the Command Line](#).
 - For information about how to do this on a Windows computer, see [How to Make a .tar.gz on Windows](#).
9. In Studio, re-import your course. You can now review the poll question and answers that you added in Studio.

Note:

- Although polls render correctly in Studio, you cannot edit them in Studio. You will need to follow the export/import process outlined above to make any edits to your polls.
 - A .csv file that contains student responses to the problem is not currently available for polls. However, you can obtain the aggregate data directly in the problem.
-

8.36.3 Format description

The main tag of poll module input is:

```
<poll_question> ... </poll_question>
```

`poll_question` can include any number of the following tags: any `xml` and `answer` tag. All inner `xml`, except for `answer` tags, we call “question”.

poll_question tag

Xmodule for creating poll functionality - voting system. The following attributes can be specified for this tag:

```
name - Name of xmodule.  
[display_name| AUTOGENERATE] - Display name of xmodule. When this attribute is not defined - display  
[reset | False] - Can reset/revote many time (value = True/False)
```

answer tag

Define one of the possible answer for poll module. The following attributes can be specified for this tag:

```
id - unique identifier (using to identify the different answers)
```

Inner text - Display text for answer choice.

8.36.4 Example

Example of poll

```
<poll_question name="second_question" display_name="Second question">  
  <h3>Age</h3>  
  <p>How old are you?</p>  
  <answer id="less18">&lt; 18</answer>  
  <answer id="10_25">from 10 to 25</answer>  
  <answer id="more25">&gt; 25</answer>  
</poll_question>
```

Example of poll with unable reset functionality

```
<poll_question name="first_question_with_reset" display_name="First question with reset"
  reset="True">
  <h3>Your gender</h3>
  <p>You are man or woman?</p>
  <answer id="man">Man</answer>
  <answer id="woman">Woman</answer>
</poll_question>
```

8.37 Problem with Adaptive Hint

Note: EdX offers provisional support for this problem type.

A problem with an adaptive hint evaluates a student's response, then gives the student feedback or a hint based on that response so that the student is more likely to answer correctly on the next attempt. These problems can be text input problems or multiple choice problems.

If a bat and a ball cost \$1.10 together, and the bat costs \$1.00 more than the ball, how much does the ball cost? Enter your answer in cents, and include only the number (that is, do not include a \$ or a ¢ sign).

✖

Hint: If the ball costs 10 cents, and the bat costs one dollar more than the ball, how much does the bat cost? If that is the cost of the bat, how much do the ball and bat cost together?

8.37.1 Create a Problem with an Adaptive Hint

To create the problem illustrated above, follow these steps.

1. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
2. Click **Problem with Adaptive Hint**.
3. In the component that appears, click **Edit**.
4. In the component editor, replace the example code with the code below.
5. Click **Save**.

```
<problem>
  <text>
    <script type="text/python" system_path="python_lib">
def test_str(expect, ans):
    print expect, ans
    ans = ans.strip('"')
    ans = ans.strip('\'')
    return expect == ans.lower()
```

```

def hint_fn(answer_ids, student_answers, new_cmap, old_cmap):
    aid = answer_ids[0]
    ans = str(student_answers[aid]).lower()
    print 'hint_fn called, ans=', ans
    hint = ''
    if '10' in ans:
        hint = 'If the ball costs 10 cents, and the bat costs one dollar more than the ball,
        how much does the bat cost? If that is the cost of the bat, how much do the ball and
        bat cost together?'
    elif '.05' in ans:
        hint = 'Make sure to enter the number of cents as a whole number.'

    if hint:
        hint = "&lt;font color='blue'&gt;Hint: {0}&lt;/font&gt;".format(hint)
        new_cmap.set_hint_and_mode(aid, hint, 'always')
        </script>
        <p>If a bat and a ball cost $1.10 together, and the bat costs $1.00 more than the
        ball, how much does the ball cost? Enter your answer in cents, and include only
        the number (that is, do not include a $ or a ¢ sign).</p>
        <p>
            <customresponse cfn="test_str" expect="5">
                <textline correct_answer="5" label="How much does the ball cost?"/>
                <hintgroup hintfn="hint_fn"/>
            </customresponse>
        </p>
    </text>
</problem>

```

8.37.2 Problem with Adaptive Hint XML

Template

```

<problem>
  <text>
    <script type="text/python" system_path="python_lib">
def test_str(expect, ans):
    print expect, ans
    ans = ans.strip('"')
    ans = ans.strip('\'')
    return expect == ans.lower()

def hint_fn(answer_ids, student_answers, new_cmap, old_cmap):
    aid = answer_ids[0]
    ans = str(student_answers[aid]).lower()
    print 'hint_fn called, ans=', ans
    hint = ''
    if 'incorrect answer 1' in ans:
        hint = 'hint for incorrect answer 1'
    elif 'incorrect answer 2' in ans:
        hint = 'hint for incorrect answer 2'

    if hint:
        hint = "&lt;font color='blue'&gt;Hint: {0}&lt;/font&gt;".format(hint)
        new_cmap.set_hint_and_mode(aid, hint, 'always')
    </script>
    <p>TEXT OF PROBLEM</p>

```

```

<p>
  <customresponse cfn="test_str" expect="ANSWER">
    <textline correct_answer="answer" label="LABEL TEXT"/>
    <hintgroup hintfn="hint_fn"/>
  </customresponse>
</p>
</text>
</problem>

```

Note: If the hints that you supply include characters, the letters must be lowercase.

Tags

- `<text>`: Surrounds the script and text in the problem.
- `<customresponse>`: Indicates that this problem has a custom response.
- `<textline>`: Creates a response field in the LMS where the student enters a response.
- `<hintgroup>`: Specifies that the problem contains at least one hint.

Tag: `<customresponse>`

Attributes

(none)

Children

- `<textline>`
- `<hintgroup>`

Tag: `<textline>`

Attributes

Attribute	Description
label (required)	Contains the text of the problem.
size (optional)	Specifies the size, in characters, of the response field in the LMS.
hidden (optional)	If set to “true”, students cannot see the response field.
correct_answer (optional)	The answer to the problem. To supply a correct_answer value that includes letters, all letters must be lowercase . (Students’ responses to the problem are not case sensitive. They can contain both uppercase and lowercase letters.)

Children

(none)

Tag: `<hintgroup>`

Attributes

Attribute	Description
hintfn	Must be set to hint_fn (that is, the tag must appear as <code><hintgroup hintfn="hint_fn"/></code>).

8.38 Problem Written in LaTeX

Note: EdX does not support this problem type.

Warning: This problem type is a prototype, and is not supported. By default, the ability to create these problems is not enabled in Studio. You must change the advanced settings in your course before you can create problems with LaTeX. Use this problem type with caution.

If you have a problem that is already written in LaTeX, you can use this problem type to easily convert your code into XML. After you paste your code into the LaTeX editor, you make a few adjustments.

Note: If you want to use LaTeX to typeset mathematical expressions in problems that you haven't yet written, use any of the other problem templates together with [MathJax](#). For more information about how to create mathematical expressions in Studio using MathJax, see [A Brief Introduction to MathJax in Studio](#).

Estimate the energy savings (in J/y) if all the people (3×10^8) in the U. S. switched from U. S. code to low flow shower heads.

Energy saved =

0.52

✓

0.52

Reset
Hide Answer(s)

8.38.1 Create a Problem Written in LaTeX

To create a problem written in LaTeX, follow these steps.

1. Enable the policy key in your course.
 - (a) In Studio, click **Settings**, and then click **Advanced Settings**.
 - (b) In the field for the **Enable LaTeX Compiler** policy key, change **false** to **true**.
 - (c) At the bottom of the page, click **Save Changes**.
2. In the unit where you want to create the problem, click **Problem** under **Add New Component**, and then click the **Advanced** tab.
3. Click **Problem Written in LaTeX**.
4. In the component editor that appears, click **Edit**.
5. In the lower left corner of the component editor, click **Launch LaTeX Source Compiler**.
6. Replace the example code with your own code. You can also upload a Latex file into the editor from your computer by clicking **Upload** in the bottom right corner.

7. In the lower left corner of the LaTeX source compiler, click **Save & Compile to edX XML**.

8.39 Protex Protein Builder Tool

Note: EdX does not support this tool.

The Protex protein builder asks students to create specified protein shapes by stringing together amino acids. In the example below, the goal protein shape is a simple line.

DESIGNING PROTEINS IN TWO DIMENSIONS (1 point possible)

The protein builder allows you string together the building blocks of proteins, amino acids, and see how that string will form into a structure. You are presented with a goal protein shape, and your task is to try to re-create it. In the example below, the shape that you are asked to form is a simple line.

Amino Acids

Ala A	Arg R	Asn N	Asp D	Cys C
Gln Q	Glu E	Gly G	His H	Ile I
Leu L	Lys K	Met M	Phe F	Pro P
Ser S	Thr T	Trp W	Tyr Y	Val V

Amino Acid Sequence

Folded Protein

Target Shape

Be sure to click "Fold" to fold your protein before you click "Check".

You have used 1 of 10 submissions

8.39.1 Create the Protein Builder Tool

To create the protein builder, follow these steps.

1. Under **Add New Component**, click **Problem**, and then click **Blank Advanced Problem**.
2. In the component that appears, click **Edit**.
3. In the component editor, paste the problem component code from the section that follows.

4. Make any changes that you want, and then click **Save**.

8.39.2 Protein Builder Tool Code

```
<problem>
  <p>The protein builder allows you string together the building blocks of proteins, amino acids, a
  <p>Be sure to click "Fold" to fold your protein before you click "Check".</p>

<script type="loncapa/python">

def protex_grader(expect,ans):
    import json
    ans=json.loads(ans)
    if "ERROR" in ans["protex_answer"]:
        raise ValueError("Protex did not understand your answer. Try folding the protein.")
    return ans["protex_answer"]=="CORRECT"

</script>

<text>
  <customresponse cfn="protex_grader">
    <designprotein2dinput width="855" height="500" target_shape="W;W;W;W;W;W;W;W"/>
  </customresponse>
</text>
<solution>
  <p>
    Many protein sequences, such as the following example, fold to a straight line.You can play ar
  </p>
  <ul>
    <li>
      Stick: RRRRRRR
    </li>
  </ul>
</solution>
</problem>
```

In this code:

- **width** and **height** specify the dimensions of the application, in pixels.
- **target_shape** lists the amino acids that, combined in the order specified, create the shape you've asked students to create. The list can only include the following letters, which correspond to the one-letter code for each amino acid. (This list appears in the upper-left corner of the protein builder.)

A	R	N	D
C	Q	E	G
H	I	L	K
M	F	P	S
T	W	Y	V

8.40 Qualtrics Survey Tool

Note: EdX offers full support for this tool.

You can administer Qualtrics surveys to your learners in your edX course. The Qualtrics survey appears in an iframe inside the course.

How do you feel about today's course topic?

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Today's topic was relevant to the overall course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The instructor explained the topic clearly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
I feel confident that I can complete the homework assignment related to today's topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

POWERED BY QUALTRICS

Course staff can view the overall results of the survey as well as responses from individual learners.

Note: To use a Qualtrics survey, you must have a Qualtrics license. Qualtrics licenses are available for a fee at the [Qualtrics website](#). If you want to include a survey but you do not have a Qualtrics license, you can use the [edX survey tool](#) or a [Google form](#).

For more information, see the following sections.

- [Add a Qualtrics Survey to Your Course](#)
- [View Survey Responses](#)

Be sure to review all supplemental materials to make sure that they are accessible before making them available through your course. For more information, see [Accessibility Best Practices for Developing Course Content](#).

8.40.1 Add a Qualtrics Survey to Your Course

To add a Qualtrics survey to your course, you must *create the survey in Qualtrics*, and then *create an HTML component in Studio*.

Create the Qualtrics Survey

Note: Because Qualtrics is a third-party tool, the following steps might change without notice. See the [Qualtrics website](#) for the most up-to-date Qualtrics documentation.

1. Using your Qualtrics account, create your survey.
2. Add the statements and options that you want the survey to include.
3. Add the **user ID** element. This element imports data from your course into Qualtrics.
 - (a) At the top of the page, make sure the **Edit Survey** tab is selected, and then select **Survey Flow**.
 - (b) In the upper left corner, select **Add a New Element Here**.
 - (c) Select **Embedded Data**.
 - (d) Under **Set Embedded Data**, replace **Enter Embedded Data Field Name Here** with `uid`.
 - (e) Select **Save Flow**.
4. At the top of the page, make sure **Edit Survey** is selected, and then select **Launch Survey**.
5. On the page that opens, select **Activate Survey** in the upper right corner.
6. On the page that opens, locate the URL that is listed under **Your Anonymous Survey Link**. You will add this URL to the HTML component for your survey in Studio.

Note: If you need to find this URL in the future, open your survey in Qualtrics, and then select the **Distribute Survey** tab at the top of the page.

Create the HTML Component in Studio

1. Open the unit where you want the survey to appear.
2. Under **Add New Component**, select **HTML**, and then select **IFrame Tool**.
3. Select **Edit** to open the component editor, and then select **HTML** in the menu bar.
4. At the end of the instructions, locate the example iframe element, and replace the placeholder values with the values for your survey. The iframe element starts with the following text.

```
<iframe title="Euler Line Demo"
```

- In the `title` attribute, replace `Euler Line Demo` with the title of your survey.
- In the `src` attribute, replace the placeholder URL with the URL from step 6 in *Create the Qualtrics Survey*.
- In the `src` attribute, add the following value to the end of the URL.

```
&uid=%%USER_ID%%
```

The resulting `src` attribute resembles the following example.

```
src="https://qtrial2015az1.az1.qualtrics.com/SE/?SID=SV_9N27VuruRdNcpHT&uid=%%USER_ID%%"
```

- Replace the values in the `width` and `height` attributes with values that allow your survey to appear the way you want it to. For example, you might change `width` to 800 and `height` to 1000.
 - (Optional) If your survey might be taller than the value that you set for `height`, in the `scrolling` attribute, change the value to `yes`. If you do not change the value to `yes` and your survey is taller than the `height` value, learners cannot scroll down to respond to all the survey statements.
 - Leave the other default values, and then select **OK** at the bottom of the HTML source code editor to return to the component editor.
1. In the component editor, delete all of the default instructional text, or replace it with introductory text for your Qualtrics survey.
 2. Select **Save**.

8.40.2 View Survey Responses

You can view both overall survey responses and responses for individual learners.

View Overall Responses

To view your overall survey results and analyze data, open your survey on the [Qualtrics website](#).

View Survey Responses for an Individual Learner

To view a specific learner's survey responses, you must download data both from the Instructor Dashboard and from Qualtrics, and then review the data.

Download Data from the Instructor Dashboard

1. In the LMS, go to the Instructor Dashboard.
2. Select the **Data Download** page.
3. Under **Data Download**, select **Get Student Anonymized IDs CSV**. If you receive a prompt, specify the location where you want to save the file.

The .csv file is saved to your computer. The file has the following name.

```
<course name>_<course number>_<year>_<term>_anon-ids.csv
```

For more information about anonymized student IDs, see [Accessing Anonymized Learner IDs](#).

4. Under **Reports**, select **Download profile information as a CSV**.
5. When the profile information report appears in the list under **Reports Available for Download**, select the report to download the .csv file to your computer. The file has the following name.

```
<course name>_<course number>_<year>_<term>_student_profile_info_<date and time>.csv
```

For more information about accessing learner data, see [Learner Data](#).

Download Data from Qualtrics

Note: Because Qualtrics is a third-party tool, the following steps might change without notice. See the [Qualtrics website](#) for the most up-to-date Qualtrics documentation.

1. In Qualtrics, select the **View Results** tab.
2. On the page that opens, select **Download Data** in the upper left corner of the page.
3. On the page that opens, clear the **Compress the desired format into a .zip file before downloading** check box. Accept all the other default values.
4. Under **Format**, select the **This is a Comma Separated Values format...** link to download the .csv file.

Review the Data

To associate learners' responses with their learner profiles, open the three .csv files that you have downloaded in a program such as Microsoft Excel.

- The Qualtrics file has a **uid** column that contains each learner's anonymized ID, as well as columns that contain each learner's answers to the survey.
- The anonymized user ID file (<course name>_<course number>_<year>_<term>_anon-ids.csv) contains each learner's anonymized ID and the learner's edX user ID.
- The student profile data file (<course name>_<course number>_<year>_<term>_student_profile_info_<date and time>.csv) contains each learner's edX user ID and profile information, such as user name and real name.

To merge the data in the three spreadsheets so that you can see a learner's edX user ID, profile information, and survey responses in one place, you can use functions such as VLOOKUP in Microsoft Excel.

8.41 Randomized Content Blocks

If your course has [content libraries](#) enabled and you have access to a library whose content you want to use, you can reference that library to create randomized assignments for students.

To create a randomized assignment, you add one or more randomized content blocks to a course unit. For each randomized content block, specify a library from which to draw the content, and indicate the number and optionally the type of problem to randomly give each student.

The libraries that you create or have access to are listed on the **Libraries** tab on the Studio Home page. For details about content libraries, see [Working with Content Libraries](#).

For details about using content library components in a course, see these topics.

- *Use Components from Libraries in a Course*
- *Enable Content Libraries*
 - *Add a Randomized Content Block to Your Course*
- *View the Matching Components in a Randomized Content Block*
- *Editing Components in Randomized Content Blocks*
- *Getting the Latest Version of Library Content*
- *Preview the Randomized Content in Student View*
- *View a Specific Student's Assigned Problems from a Randomized Content Block*
- *Adjust Grades for a Problem from a Randomized Content Block*

8.41.1 Use Components from Libraries in a Course

To create randomized assignments that make use of components from content libraries, you must have at least **User** level access to the libraries that you want to use. If you do not have access to a library, members of your course team who have **Admin** access to that library can grant you access.

The libraries that you create or have access to are listed on the **Libraries** tab on the Studio Home page. For details about content libraries, see [Working with Content Libraries](#).

Using components from content libraries in your course involves two steps.

1. *Enable Content Libraries*
2. *Add a Randomized Content Block to Your Course*

Note: After adding a randomized content block to your course, be aware that if components in the source library change, you must manually update the components in the course outline if you want to keep the components synchronized with the version in the library.

For details about working with randomized content blocks in your course, see these topics.

- *View the Matching Components in a Randomized Content Block*
- *Editing Components in Randomized Content Blocks*
- *Getting the Latest Version of Library Content*
- *Preview the Randomized Content in Student View*
- *View a Specific Student's Assigned Problems from a Randomized Content Block*
- *Adjust Grades for a Problem from a Randomized Content Block*

8.41.2 Enable Content Libraries

Before you can add a randomized content blocks to your course, you must enable the content library tool in Studio.

To enable the content library tool in Studio, you add the "library_content" key to the **Advanced Module List** on the **Advanced Settings** page. For more information, see [Enable Additional Exercises and Tools](#).

Add a Randomized Content Block to Your Course

After you *enable content libraries* you can add library content to your courses using the Randomized Content Block advanced component.

1. In Studio, open the course in which you want to add randomized problems from a content library.
2. Select **Content**, and then select **Outline**.
3. In the unit where you want to add a set of randomized problems, select **Add New Component**
4. Select **Advanced**, and then select **Randomized Content Block**.

The randomized content block is added to your unit.

5. Select **Edit**.
6. In the randomized content block settings, specify the details of the content you want to add in this block.
 - For **Count**, enter the number of problems to display to each student.
 - For **Display Name**, enter the name that you want students to see for this block.
 - For **Library**, select the library from which you want to draw problems.
 - For **Problem Type**, from the drop down list select a specific type of problem to be drawn from the library. Select **Any Type** if you do not want to specify a particular type of problem.

Editing: Randomized Content Block

Count
Enter the number of components to display

Display Name
Display name for this module

Libraries
Enter a library ID for each library from

Problem Type
Choose a problem type to fetch from the library. If "Any Type" is selected no filtering is applied.

Save **Cancel**

- For **Scored**, from the drop down list select **True** or **False** to indicate whether the assignment should be graded.

Note: Grading is subject to the setting of this unit's subsection or section. If the subsection or section is not graded, selecting **True** here has no impact. If the subsection or section is graded, this assignment is graded, even if you have selected **False**.

1. Select **Save** when you have finished specifying the details of your randomized content block.

To view the list of components in the source library that match your filter settings, see [View the Matching Components in a Randomized Content Block](#).

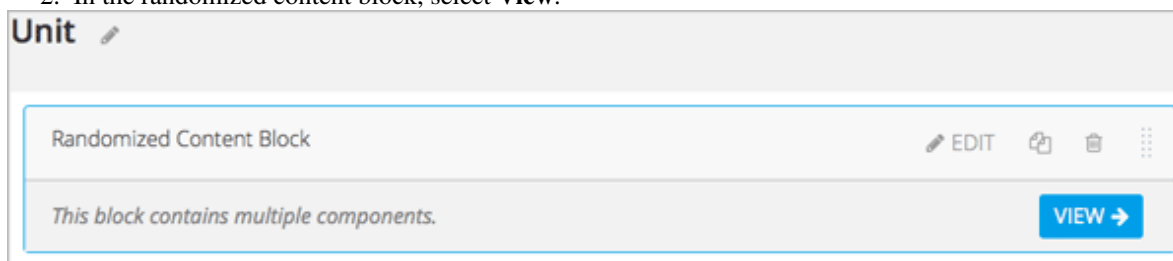
To view the entire contents of the library in Studio, see [View the Contents of a Library](#).

8.41.3 View the Matching Components in a Randomized Content Block

In a unit that uses a randomized content block, you can view the list of all components that match the filters specified in that block.

For example, if you have specified in the randomized content block that you want to provide each student with 3 multiple choice problems, you see all the multiple choice problems that exist in the referenced library. In other words, you see every problem in the library that could potentially be provided to a student.

1. In Studio, navigate to the unit containing the randomized content block that references your library.
2. In the randomized content block, select **View**.



You see all components that match the specifications in the randomized content block. The text at the top of the list of components indicates how many of these components are randomly selected and provided to each student.

To view the contents of a library in Studio, see [View the Contents of a Library](#).

To view the randomized content that was assigned to a specific learner, see [Specific Student View](#).

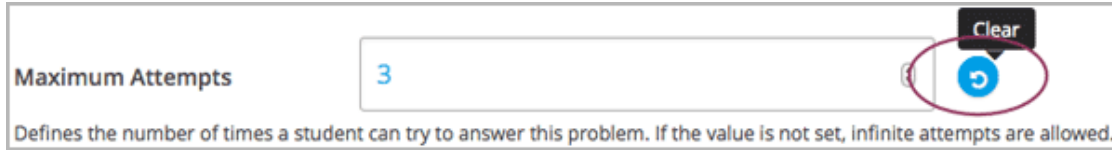
8.41.4 Editing Components in Randomized Content Blocks

In Studio, in the course unit that uses a randomized content block, you can edit each component within the randomized content block in the same way as you do for any other component in your course.

Note: Be aware that if you make changes on a component's **Editor** tab, if you update the randomized content block with the latest version of components from a library, these changes are overwritten. Only changes to a component's **Settings** tab are retained when you update the component. For details about getting the latest versions of library content in a randomized content block, see [Getting the Latest Version of Library Content](#).

The settings of a component that is supplied in a randomized content block are initially inherited from the component in the content library that it is drawn from. In the randomized content block, you can modify component settings so that they are different from the "source" component in the library.

You can also reset a component's settings to the library default. If a component's settings have been changed from the default settings in the library, a **Clear** icon is shown next to the setting field.



Maximum Attempts

3

Clear

Defines the number of times a student can try to answer this problem. If the value is not set, infinite attempts are allowed.

Select **Clear** to restore the library default setting for that field.

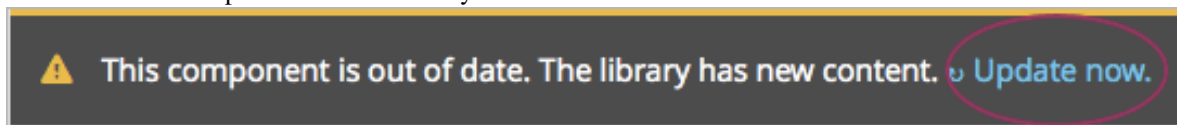
8.41.5 Getting the Latest Version of Library Content

If you modify the contents of a library that is referenced by randomized content blocks in one or more courses, those courses do not automatically use the updated content. You can bring the randomized content blocks up to date with the version in the library.

Warning: Be careful when you modify problems after they have been released. Changes that you make to published problems can affect the student experience in the course, as well as analysis of course data.

Note: Be aware that although you can retain changes to the settings of components in a randomized content block, changes to the **Editor** tab in components are overwritten if you update the component to the latest library version. If you do not want to bring components in the randomized content block up to date with the latest version in the library, you do not need to take any action.

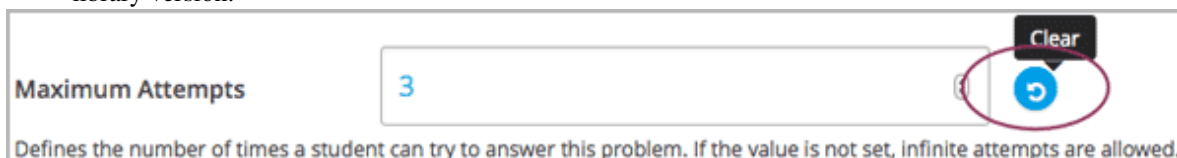
- If the components in the randomized content block have not been edited in the course outline, when you next open the randomized content block in the course outline, you see a message indicating that the component is out of date in comparison with the library.



To update your randomized content block components to the latest versions in the content library, select **Update now**.

The randomized content block is brought up to date with the latest contents of the library that it references.

- If you edited only the settings of components in the randomized content block in your course so that they are different from the original version in the library, you do not lose your changes if you select **Update now**. In this case, the changes that you made in the randomized content block in the course outline are kept, but a **Clear** option becomes available next to the changed field in the component. However, any changes you made on the **Editor** page of components in a randomized content block are lost if you select **Update now** to get the latest library version.



Maximum Attempts

3

Clear

Defines the number of times a student can try to answer this problem. If the value is not set, infinite attempts are allowed.

To clear any edits made in the course outline and bring your edited components up to date with the version in the library, select **Clear**.

The value in that component field is reset to the current value in the library.

8.41.6 Preview the Randomized Content in Student View

You can preview course content before a course is live or before you publish specific units, to test how content will appear to students when it is released. To view the number and type of components from a randomized content block as students would see them, follow the steps described in the [Preview a Unit](#) topic.

8.41.7 View a Specific Student's Assigned Problems from a Randomized Content Block

In a live course, to view the components that are assigned to a specific student from a randomized content block, follow the steps described in the [Specific Student View](#) topic.

8.41.8 Adjust Grades for a Problem from a Randomized Content Block

To adjust a grade or reset the attempts for a problem that was assigned from a randomized content block, you can view the course as a specific student to see the actual problems that they were assigned.

Obtain the username or email address for the learner whose grades you want to adjust, and follow the steps described in the [Specific Student View](#) topic to view the actual problems in the course that this student was assigned.

In the **Specific student** course view in the LMS for the student whose username or email you entered, locate the components from the randomized content block. Follow the steps described in [Adjust Grades](#) to rescore the learner's submission, reset attempts, or delete the learner's state for a problem.

8.42 Recommender Tool

Note: EdX offers full support for this tool.

The recommender provides learners with a list of online resources related to the course content. These resources are jointly managed by course team members and the learners.

- [Overview](#)
- [Enable the Recommender Tool](#)
- [Add a Recommender](#)

8.42.1 Overview

The most common use of the recommender is for remediation of errors and misconceptions, followed by providing additional, more advanced resources.

For example, if a learner is working through a physics problem, the recommender could be used to show links to concepts used in the problem on Wikipedia, PhET, and OpenStax, as well as in the course itself. The recommender can help fill complex knowledge gaps and help move learners in the right direction.

Learners and course team members can complete the following tasks with the recommender.

- Add new resources.
- Edit existing resources and work jointly to improve the quality of resources (for example, give an informative resource summary).

- Manage quality by voting for high quality resources or flagging resources as spam or abuse.

Course team members can endorse useful resources or remove irrelevant entries.

If you use the recommender, you should inform learners through course content or [course updates](#) about the tool.

An example of a recommender in a course follows. The upper part of the figure illustrates a question in a problem set where the recommender is attached. The middle of the figure shows a list of resources and several gadgets for users to work on the resources. The bottom portion shows additional information about a given resource on mouse-over event.

The figure illustrates the workflow of the recommender tool in an Open edX course. It is divided into three main sections:

- Question in p-set:** This section shows a programming problem titled "ALPHABETICAL SUBSTRINGS (15 points possible)". It asks the user to write a program that finds the longest substring of a given string 's' where the letters occur in alphabetical order. Example strings provided are 'azcbobegghakl' and 'abcabcd'. Input fields show the expected output: 'beggh' and 'abc'.
- List of resources:** This section displays a list of recommended resources with up and down arrows for voting. The resources listed are:
 - "String count with overlapping occurrences" (29 votes)
 - "String Basics - Indexing, Slicing, Loops" (7 votes)
 - "string.split function" (4 votes)
 Annotations point to the "Up and down vote" mechanism and the "Add new resource >>" button.
- Resource details:** This section shows a detailed view of the "string.split function" resource. It includes the resource title, a summary, a thumbnail image, and a table of contents. The main content area shows the Python documentation for the 're' module, specifically the "7.2. re — Regular expression operations" section. Annotations point to the "Resource title", "Resource summary", and "Resource thumbnail".

Additional annotations on the right side of the image point to specific UI elements:

- Edit resources:** Points to the edit icon (pencil) next to a resource.
- Staff-endorsed resource:** Points to the green checkmark icon next to a resource.
- Flag problematic resources:** Points to the flag icon next to a resource.
- Add resources:** Points to the "Add new resource >>" button.

Course team members should be sure to review all supplemental materials to assure that they are accessible before making them available through your course. For more information, see [Accessibility Best Practices for Developing Course Content](#).

8.42.2 Enable the Recommender Tool

Before you can add a recommender component to your course, you must enable the recommender tool in Studio.

To enable the recommender tool in Studio, you add the "recommender" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

8.42.3 Add a Recommender

To add a recommender to a course, follow these steps.

1. Go to the unit in the course outline where you want to add the recommender.
 2. Under **Add New Component**, select **Advanced**.
 3. Select **recommender**.
 4. In the component that appears, select **Edit**, and then specify settings as needed.
 - Whether to take users on an introduction tour when they see the tool the first time. If selected, the first time (and only the first time) a user sees the recommender, there will be a short guided tutorial.
 - Whether to disable the user interface functions which are under development. Because these are untested and under development, please leave these disabled unless otherwise advised by edX staff.
 - How many resources you want to show in each page of the resource list.
 - How many page icons you want to show in the pagination control (that is, the page range). The icons for pages from (current page - page range) to (current page + page range) will be shown.
1. Select **Save**.
 2. Optionally, open the unit in the LMS and suggest some resources.

8.43 Survey Tool

Note: EdX offers full support for this tool.

This section describes how to include surveys in your course.

- *Overview*
- *Enable the Survey Tool*
 - *Enable the Survey Tool in OLX*
- *Add a Survey in edX Studio*
- *Add a Survey in OLX*
 - *survey Element Attributes*
- *Editing Published Surveys*
- *View Survey Results*

8.43.1 Overview

You can include surveys in your course to collect learner responses to multiple questions.

For a survey, you configure multiple question and multiple possible answers. The set of answers is used for each question in the survey. If you need to ask only one question, use the [Poll Tool](#).

The following example survey has three questions, each with the same three possible answers.

SURVEY			
	Yes	No	Maybe
Are you enjoying the course?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would you recommend this course to your friends?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think you will learn a lot?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit

After learners submit their answers to the survey, they see the survey results that have been gathered at this time, unless the survey has been configured to hide results.

SURVEY			
	Yes	No	Maybe
Are you enjoying the course?	50%	0%	50%
Would you recommend this course to your friends?	0%	100%	0%
Do you think you will learn a lot?	50%	0%	50%

Submit

Results gathered from 2 respondents.

8.43.2 Enable the Survey Tool

Before you can add a survey to your course, you must enable the survey tool in Studio or OLX.

To enable the survey tool in Studio, you add the "survey" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see [Enable Additional Exercises and Tools](#).

Alternatively, you can use OLX to enable the survey tool.

Enable the Survey Tool in OLX

To enable the survey tool, you edit the XML file that defines the course structure.

Open the XML file for the course in the `course` directory. In the `course` element's `advanced-modules` attribute, add the string `survey`.

For example, the following XML code enables the survey tool.

```
<course advanced_modules="['survey','poll']" display_name="Sample Course"
  start="2015-01-01T00:00:00Z">
  ...
</course>
```

8.43.3 Add a Survey in edX Studio

You must *enable the survey tool* before you add the component.

1. On the Course Outline page, open the unit where you want to add the survey.
2. Under **Add New Component** click **Advanced**, and then select **Survey**.

The new component is added to the unit, with the default survey that contains three answer fields and three questions.

SURVEY	Yes	No	Maybe
Are you enjoying the course?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would you recommend this course to your friends?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think you will learn a lot?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submit

3. In the new component, select **Edit**.
4. In the **Display Name** field, enter the name for the component.
5. In the **Feedback** field, enter text that learners see after they submit responses.
6. In the **Private Results** field, to hide survey results from learners, select **True**. If you leave the default value, **False**, learners see survey results after they submit responses.
7. In the **Maximum Submissions** field, to allow learners to submit responses more than once, change the value. Enter **0** to allow unlimited responses.

Note: If you allow learners to submit responses more than once, you should set **Private Results** to **True**. Otherwise, learners will be able to change their responses after seeing others' responses.

8. Configure answers for the survey. Each answer is displayed to learners as a column, with a radio button they can select. Each answer is used for each survey question.
 - (a) In each **Answer** field, enter the text for the column heading that learners will see.
 - (b) To add answers, select **Add answer** at the bottom of the editor. New answers are added at the bottom of the list.
 - (c) The top answer in the list is displayed to learners as the left-most answer column in the survey, and the bottom answer is displayed in the right-most column. To change the order of answers, select the up and down buttons next to each answer.
 - (d) To remove an answer, select **Delete** next to the answer.
9. Configure questions for the survey. Each question is displayed to learners in the left-most column.
 - (a) You must enter either text or an image path, or both, for each question. To enter an image, use the *Studio URL* for the image.
 - (b) The survey template contains three questions. To add questions, select **Add question** at the bottom of the editor. New questions are added at the bottom of the list.
 - (c) If you use an image, you must enter useful alternative text in the **Image alternate text** field for non-sighted users.
 - (d) Questions are displayed to learners as rows in the order you configure them. To change the order of questions, select the up and down buttons next to each question.
 - (e) To remove a question, select **Delete** next to the question.

10. Select **Save**.

8.43.4 Add a Survey in OLX

To add a survey XBlock in OLX, you create the survey element. You can embed the survey element in the vertical element, or you can create the survey element as a stand-alone file that you reference in the vertical.

The following example shows the OLX definition for a survey with two questions.

```
<survey
  url_name="unique identifier for the survey"
  xblock-family="xblock.v1"
  questions="[
    [\"unique code for question 1\",
      {
        \"img\": \"Static URL to image\",
        \"img_alt\": \"Alternative text for image\",
        \"label\": \"Text of question 1\"
      }
    ],
    [\"unique code for question 2\",
      {
        \"img\": \"Static URL to image\",
        \"img_alt\": \"Alternative text for image\",
        \"label\": \"Text of question 2\"
      }
    ]
  ]"
  feedback="Feedback displayed to learner after submission"
  private_results="false"
  block_name="Display name for survey"
  max_submissions="1"
  answers="[
    [
      \"Unique identifier for answer 1\",
      \"Answer text\"
    ],
    [
      \"Unique identifier for answer 2\",
      \"Answer text\"
    ]
  ]"
/>
```

survey Element Attributes

The following table describes the attribute of the survey element.

Attribute	Description
<code>url_name</code>	The unique identifier of the survey.
<code>xblock-family</code>	The XBlock version used. Must be <code>xblock.v1</code> .
<code>questions</code>	<p>An array of questions in the survey. Each question has a unique identifier, and a dictionary that defines values for the following names.</p> <ul style="list-style-type: none"> <code>img</code>, the static URL of the question image. <code>img_alt</code>, the alternative text for the image. <code>label</code>, the question text. <p>Each question must have a value for <code>img</code> or <code>label</code>, or both.</p>
<code>answers</code>	<p>An array of answers in the survey. Each answer has a unique identifier, and a dictionary that defines values for the following names.</p> <ul style="list-style-type: none"> <code>img</code>, the static URL of the answer image. <code>img_alt</code>, the alternative text for the image. <code>label</code>, the answer text. <p>Each answer must have a value for <code>img</code> or <code>label</code>, or both.</p>
<code>feedback</code>	The text shown to learners after they submit a response.
<code>private_results</code>	Whether the survey results are shown to learners (<code>true</code>) or not (<code>false</code>).
<code>block_name</code>	The display name for the survey.
<code>max_submissions</code>	The number of times a learner can submit survey answers. Use 0 to allow unlimited submissions. If you use a value other than 1, set <code>private_results</code> to <code>true</code> . Otherwise, learners will be able to change their responses after seeing others' responses.

8.43.5 Editing Published Surveys

Do not publish a survey until you have completed and tested it. You should avoid changing a survey after learners have begun using it.

If you must edit a survey after learners have submitted answers, take into account the following implications.

- If you edit the value of a question or answer, previous submissions are associated with the new question or answer value. This change can result in an inaccurate picture of the responses.
- If you change the survey so that previous submissions are invalid, by removing a question or answer, those submissions are deleted when learners next view the unit. Learners with invalid submissions are permitted to submit new responses.

8.43.6 View Survey Results

When you view the survey as a course staff member, you can view results of the survey inside the course.

Select **View results** in the survey.

SURVEY	Yes	No	Maybe
Are you enjoying the course?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would you recommend this course to your friends?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think you will learn a lot?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Submit](#)

[View results](#)

The results of the survey are then displayed.

SURVEY	Yes	No	Maybe
Are you enjoying the course?	50%	0%	50%
Would you recommend this course to your friends?	0%	100%	0%
Do you think you will learn a lot?	50%	0%	50%

[Submit](#)

Results gathered from 2 respondents.

8.44 Text Input Problem

Note: EdX offers full support for this problem type.

- *Overview*
- *Analyzing Performance on Multiple Choice Problems*
- *Creating a Text Input Problem*
- *Use Feedback in a Text Input Problem*
- *Use Hints in a Text Input Problem*
- *Multiple Responses in Text Input Problems*
- *Add Text after the Text Response Field*
- *Case Sensitivity and Text Input Problems*
- *Response Field Length in Text Input Problems*
- *Regular Expressions in Text Input Problems*
- *Text Input Problem XML*
- *Deprecated Hinting Method*

8.44.1 Overview

In text input problems, learners enter text into a response field. The response can include numbers, letters, and special characters such as punctuation marks. Because the text that the learner enters must match the instructor's specified

answer exactly, including spelling and punctuation, we recommend that you specify more than one correct answer for text input problems to allow for differences in capitalization and typographical errors.

TEXT INPUT (1/1 point)

What was the first post-secondary school in China to allow both male and female students?

Nanjing Higher Normal Ir

✓

Answer: Nanjing Higher Normal Institute **or** National Central University **or** Nanjing University

EXPLANATION

Nanjing Higher Normal Institute first admitted female students in 1920.

Check

Hide Answer

8.44.2 Analyzing Performance on Multiple Choice Problems

For the text input problems in your course, you can use edX Insights to review aggregated learner performance data and examine submitted answers. For more information, see [Using edX Insights](#).

8.44.3 Creating a Text Input Problem

You can create text input problems in the simple editor or in the advanced editor. You can set up a problem in the simple editor, and then switch to the advanced editor to add more configuration options in XML. However, you cannot switch back to the simple editor from the advanced editor. Therefore, you might want to format the problem as completely as possible before you begin to use the advanced editor.

Use the Simple Editor to Create a Text Input Problem

To use the *simple editor* to create a text input problem, follow these steps.

1. In the unit where you want to create the problem, under **Add New Component** select **Problem**.
2. Select one of the two text input problem templates.
 - From the list of **Common Problem Types**, select **Text Input**.
 - From the list of **Common Problems with Hints and Feedback**, select **Text Input with Hints and Feedback**. For more information, see [Use Feedback in a Text Input Problem](#).

Studio adds the problem to the unit.
1. Select **Edit**. The simple editor opens.
2. Replace the sample problem text with your own text.
3. Determine the text that describes the question you want learners to answer, and surround that text with two pairs of angle brackets (`>>question<<`). This text identifies the question for screen readers, reports, and Insights.

4. Select the text of the problem's answer, and then select **Text Input** from the toolbar. An equals sign (=) appears next to the answer.
You can identify more than one correct answer. For more information, see [Multiple Responses in Text Input Problems](#).
5. To provide an explanation, select the explanation text and then select **Explanation** from the toolbar. [explanation] appears before and after the explanation text.
6. Select **Settings** and provide an identifying **Display Name** for the problem.
7. Define additional settings for the problem. For more information, see [Problem Settings](#).
8. Select **Save**.

For the example problem illustrated above, the following text displays in the problem component.

```
>>What was the first post-secondary school in China to allow both male and female students?<<

= Nanjing Higher Normal Institute
or= National Central University
or= Nanjing University

[explanation]
Nanjing Higher Normal Institute first admitted female students in 1920.
[explanation]
```

Use the Advanced Editor to Edit a Text Input Problem

To use the advanced editor to edit a text input problem, follow these steps.

1. Follow the steps for creating the problem in the [simple editor](#).
2. Select **Advanced Editor**, and then edit the XML to add the tags and attributes you want. An example follows.

Problem Code:

```
<problem>
  <p>What was the first post-secondary school in China to allow both male and female students?</p>

  <stringresponse answer="Nanjing Higher Normal Institute" type="ci" >
    <additional_answer>National Central University</additional_answer>
    <additional_answer>Nanjing University</additional_answer>
    <textline label="What was the first post-secondary school in China to allow both male and female students?" size="20"/>
  </stringresponse>
  <solution>
    <div class="detailed-solution">
      <p>Explanation</p>
      <p>Nanjing Higher Normal Institute first admitted female students in 1920.</p>
    </div>
  </solution>
</problem>
```

8.44.4 Use Feedback in a Text Input Problem

You can add feedback in a text input problem using the simple editor or the advanced editor. For an overview of feedback in problems, see [Adding Feedback and Hints to a Problem](#).

In text input problems, you can provide feedback for each option that a learner can select.

Use feedback on correct answers to reinforce why the answer is correct.

Use feedback on incorrect answers as an opportunity to address common learner misconceptions. Feedback for text input questions should also provide guidance to the learner on how to arrive at the correct answer.

Configure Feedback in the Simple Editor

In the *simple editor*, you configure answer feedback with the following syntax. When you create a new text input problem, select the template **Text Input with Hints and Feedback**. This template has example feedback syntax that you can replace.

```
= Correct Answer {{Feedback for learners who select this answer.}}
not= Incorrect Answer {{Feedback for learners who select this answer.}}
```

For example, the following problem has feedback for the correct answer and two common incorrect answers.

```
>>What is the largest state in the U.S. in terms of land area?<<

=Alaska {{Alaska is the largest state in the U.S. in terms of not only land
area, but also total area and water area. Alaska is 576,400 square miles,
more than double the land area of the second largest state, Texas.}}

not=Texas {{While many people think Texas is the largest state in terms of
land area, it is actually the second largest and contains 261,797 square
miles.}}

not=California {{California is the third largest state and contains 155,959
square miles.}}
```

Configure Feedback in the Advanced Editor

In the *advanced editor*, you configure answer feedback with the following syntax.

```
<stringresponse answer="Correct Answer" type="ci" >
  <correcthint>Hint for correct answer.</correcthint>
  <stringequalhint answer="Incorrect Answer">
    Hint for incorrect answer.
  </stringequalhint>
</stringresponse>
```

For example, the following problem has feedback for the correct answer and two common incorrect answers.

```
<problem>

<p>What was the first post-secondary school in China to allow both male and female students?</p>
<stringresponse answer="Alaska" type="ci" >
  <correcthint>
    Alaska is the largest state in the U.S. in terms of not only land
    area, but also total area and water area. Alaska is 576,400 square
    miles, more than double the land area of the second largest state,
    Texas.
  </correcthint>
</stringresponse>
</problem>
```

```

</correcthint>
<stringequalhint answer="Texas">
  While many people think Texas is the largest state in terms of land
  area, it is actually the second largest of the 50 U.S. states
  containing 261,797 square miles.
</stringequalhint>
<stringequalhint answer="California">
  California is the third largest state in the U.S. in terms of land
  area containing 155,959 square miles.</stringequalhint>
<textline label="What is the largest state in the U.S. in terms of land
  area?" size="20"/>
</stringresponse>
</problem>

```

Customize Feedback Labels

By default, the feedback labels shown to learners are **Correct** and **Incorrect**. If you do not define feedback labels, learners see these terms when they submit an answer, as in the following example.

TEXT INPUT WITH HINTS AND FEEDBACK (1 point possible)

What is the largest state in the U.S. in terms of land area?

✖

Incorrect:

While many people think Texas is the largest state in terms of land area, it is actually the second largest of the 50 U.S. states containing 261,797 square miles.

You can configure the problem to override the default labels. For example, you can configure a custom label for a specific wrong answer.

TEXT INPUT WITH HINTS AND FEEDBACK (1 point possible)

What is the largest state in the U.S. in terms of land area?

✖

Close but wrong:

While many people think Texas is the largest state in terms of land area, it is actually the second largest of the 50 U.S. states containing 261,797 square miles.

Note: The default labels **Correct** and **Incorrect** are displayed in the learner's requested language. If you provide custom labels, they are displayed to all users as you configure them and are not translated into different languages.

Customize Feedback Labels in the Simple Editor

In the *simple editor*, you configure custom feedback labels with the following syntax.

```
not=Answer {{Label:: Feedback}}
```

For example, the following feedback is configured to use a custom label.

```
not=Texas {{Close but wrong:: While many people think Texas is the largest
state in terms of land area, it is actually the second largest of the 50 U.S.
states, containing 261,797 square miles.}}
```

Customize Feedback Labels in the Advanced Editor

In the *advanced editor*, you configure custom feedback labels with the following syntax.

```
<stringequalhint answer="Incorrect Answer" label="Custom Label">
  Feedback
</stringequalhint>
```

For example, the following feedback is configured to use a custom label.

```
<stringequalhint answer="Texas" label="Close but wrong">
  While many people think Texas is the largest state in terms of land
  area, it is actually the second largest of the 50 U.S. states containing
  261,797 square miles.
</stringequalhint>
```

8.44.5 Use Hints in a Text Input Problem

You can add hints in a text input problem, using the simple editor or the advanced editor. For an overview of hints in problems, see *Adding Feedback and Hints to a Problem*.

Configure Hints in the Simple Editor

In the simple editor, you configure hints with the following syntax.

```
||Hint 1||
||Hint 2||
||Hint n||
```

Note: You can configure any number of hints. The learner views one hint at a time and views the next one by selecting **Hint** again.

For example, the following problem has two hints.

```
||A fruit is the fertilized ovary from a flower.||
||A fruit contains seeds of the plant.||
```

Configure Hints in the Advanced Editor

In the advanced editor, you configure each hint in the `<hint>` element within the `<demandhint>` element.

```
<demandhint>
  <hint>Hint 1</hint>
  <hint>Hint 2</hint>
  <hint>Hint 3</hint>
</demandhint>
```

For example, the following XML shows two hints.

```
<demandhint>
  <hint>A fruit is the fertilized ovary from a flower.</hint>
  <hint>A fruit contains seeds of the plant.</hint>
</demandhint>
```

8.44.6 Multiple Responses in Text Input Problems

You can specify more than one correct response for text input problems. For example, instead of requiring learners to enter “Dr. Martin Luther King, Junior” exactly, you can also allow answers of “Martin Luther King,” “Doctor Martin Luther King,” and other variations. To do this, you can use the simple editor or the advanced editor.

Simple Editor

To specify additional correct responses in the simple editor, include “or= ” before each additional correct response.

```
>>What African-American led the United States civil rights movement during
the 1960s?<<
= Dr. Martin Luther King, Jr.
or= Dr. Martin Luther King, Junior
or= Martin Luther King, Jr.
or= Martin Luther King
```

Advanced Editor

To specify additional correct responses in the advanced editor, add an `<additional_answer>` for each correct response inside the opening and closing `<stringresponse>` tags.

```
<problem>

<p>What African-American led the United States civil rights movement during the 1960s?</p>

<stringresponse answer="Dr. Martin Luther King, Jr." type="ci" >
  <additional_answer>Dr. Martin Luther King, Junior</additional_answer>
  <additional_answer>Martin Luther King, Jr.</additional_answer>
  <additional_answer>Martin Luther King</additional_answer>
  <textline label="What African-American led the United States civil rights
    movement during the 1960s?" size="20"/>
</stringresponse>
</problem>
```


8.44.7 Add Text after the Text Response Field

You might want to include a word, phrase, or sentence after the answer field in a text input problem to help guide your students or resolve ambiguity.

To do this, you must use the *advanced editor*.

In the problem, locate the `textline` element. This element creates the response field for the problem and is a child of the `stringresponse` element. An example follows.

```
<stringresponse answer="Ashmun" type="ci" >
  <textline label="What Pennsylvania school was founded in 1854 to provide
    educational opportunities for African-Americans?" size="20" />
</stringresponse>
```

To add text after the answer field, add the `trailing_text` attribute together with the text that you want to use inside the `textline` element.

```
<stringresponse answer="Ashmun" type="ci" >
  <textline label="What Pennsylvania school was founded in 1854 to provide educational
    opportunities for African-Americans?" size="20" trailing_text="Institute" />
</stringresponse>
```

8.44.8 Case Sensitivity and Text Input Problems

By default, text input problems do not require a case sensitive response. You can change this and require a case sensitive answer.

To make a text input response case sensitive, you must use *The Advanced Editor*.

In the advanced editor, you see that the `type` attribute of the `stringresponse` element equals `ci`, for “case insensitive”. An example follows.

```
<stringresponse answer="Michigan" type="ci">
  <textline size="20"/>
</stringresponse>
```

To make the response case sensitive, change the value of the `type` attribute to `cs`.

```
<stringresponse answer="Michigan" type="cs">
  <textline size="20"/>
</stringresponse>
```

8.44.9 Response Field Length in Text Input Problems

By default, the response field for text input problems is 20 characters long.

You should preview the unit to ensure that the length of the response input field accommodates the correct answer, and provides extra space for possible incorrect answers.

If the default response field length is not sufficient, you can change it using the *advanced editor*.

In the advanced editor, in the XML block for the answer, you see that the `size` attribute of the `textline` element equals 20.

```
<stringresponse answer="Democratic Republic of the Congo" type="ci">
  <textline size="20"/>
</stringresponse>
```

To change the response field length, change the value of the `size` attribute.

```
<stringresponse answer="Democratic Republic of the Congo" type="ci">
  <textline size="40"/>
</stringresponse>
```

8.44.10 Regular Expressions in Text Input Problems

You can configure a text input problem to allow a regular expression as an answer. To do this, you modify the problem's XML in the Advanced Editor.

The regular expression that the learner enters must contain the part of the answer that the course team specifies. For example, if you specify `<answer="example answer" type="regex">`, correct answers include `example answered`, `two example answers`, or even `==example answer==`, but not `examples` or `example answer`.

You can add `regex` to the value of the `type` attribute, for example: `type="ci regex"` or `type="regex"` or `type="regex cs"`. In this case, any answers or hints are treated as regular expressions.

8.44.11 Text Input Problem XML

Template

```
<problem>
  <p>Problem text</p>
  <stringresponse answer="Correct answer 1" type="ci regex">
    <additional_answer>Correct answer 2</additional_answer>
    <additional_answer>Correct answer 3</additional_answer>
    <textline size="20" label="label text"/>
    <correcthint>Provides feedback when learners submit the correct response.</correcthint>
    <stringequalhint answer="Incorrect answer 1">Provides feedback when learners submit the spec
    <stringequalhint answer="Incorrect answer 2">Provides feedback when learners submit the spec
    <textline label="Which U.S. state has the largest land area?" size="20"/>
  </stringresponse>

  <demandhint>
    <hint>The first text string to display when learners request a hint.</hint>
    <hint>The second text string to display when learners request a hint.</hint>
  </demandhint>
</problem>
```

Tags

- `<stringresponse>`: Indicates that the problem is a text input problem. The `<stringresponse>` tag has the following child tags.
 - `<textline>`: Creates the response field in the LMS where the learner enters a response.
 - `<additional_answer>` (optional): Specifies an additional correct answer for the problem. A problem can contain an unlimited number of additional answers.
 - `<correcthint>` (optional): Specifies feedback for the correct answer.
 - `<stringequalhint>` (optional): Specifies feedback for an incorrect answer.
- `<demandhint>` (optional): Specifies one or more hints that learners can request to help them arrive at the correct answer. The `<demandhint>` tag has a child tag of `<hint>`.

Tag: `<stringresponse>`

Indicates that the problem is a text input problem.

Attributes

Attribute	Description
answer (required)	Specifies the correct answer. To designate the answer as a regular expression, add “regex” to the type attribute. If you do not add “regex” to the type attribute, the learner’s answer must match the value in this attribute exactly.
type (optional)	Specifies whether the problem requires a case sensitive response and if it allows regular expressions. <ul style="list-style-type: none"> • If the <code><stringresponse></code> tag includes <code>type="ci"</code>, the problem is not case sensitive. • If the tag includes <code>type="cs"</code>, the problem is case sensitive. • If the tag includes <code>type="regex"</code>, the problem allows regular expressions. A type attribute in a <code><stringresponse></code> tag can also combine these values. For example, <code><stringresponse type="regex cs"></code> specifies that the problem allows regular expressions and is case sensitive.

Children

- `<textline />` (required)
- `<additional_answer>` (optional)
- `<correcthint>` (optional)
- `<stringequalhint>` (optional)

Tag: `<textline />`

Creates a response field in the LMS where the learner enters a response.

Attributes

Attribute	Description
label (required)	Contains the text of the problem.
size (optional)	Specifies the size, in characters, of the response field in the LMS.
hidden (optional)	If set to “true”, learners cannot see the response field.
correct_answer (optional)	Lists the correct answer to the problem.
trailing_text	Adds the text that you specify after the response field.

Children

(none)

Tag: <additional_answer>

Specifies an additional correct answer for the problem. A problem can contain an unlimited number of additional answers.

Attributes

(none)

Children

(none)

Tag: <correcthint>

Indicates that the course team has provided hints for certain common incorrect answers.

Attributes

(none)

Children

(none)

Tag: <stringequalhint>

Specifies the feedback for an incorrect answer.

Attributes

Attribute	Description
answer (required)	The text of the incorrect answer.

Children

(none)

Tag: <demandhint>

Specifies one or more hints that learners can request to help them arrive at the correct answer.

Attributes

(none)

Children

Tag: <hint>

Contains the text of a hint. The LMS shows each of the defined hints to the learners in the order that the <hint> tags are included within the <demandhint> tag.

8.44.12 Deprecated Hinting Method

The following example shows the XML format with the `<hintgroup>` element that you could use in the past to configure hints for text input problems. Problems using this XML format will continue to work in the edX Platform. However, edX recommends that you use the new way of configuring hints documented above.

```
<problem>
  <p>Problem text</p>
  <stringresponse answer="Correct answer 1" type="ci regexp">
    <additional_answer>Correct answer 2</additional_answer>
    <additional_answer>Correct answer 3</additional_answer>
    <textline size="20" label="label text"/>
    <hintgroup>
      <stringhint answer="Incorrect answer A" type="ci" name="hintA" />
      <hintpart on="hintA">
        <startouttext />Text of hint for incorrect answer A<endouttext />
      </hintpart >
      <stringhint answer="Incorrect answer B" type="ci" name="hintB" />
      <hintpart on="hintB">
        <startouttext />Text of hint for incorrect answer B<endouttext />
      </hintpart >
      <stringhint answer="Incorrect answer C" type="ci" name="hintC" />
      <hintpart on="hintC">
        <startouttext />Text of hint for incorrect answer C<endouttext />
      </hintpart >
    </hintgroup>
  </stringresponse>
  <solution>
    <div class="detailed-solution">
      <p>Explanation or Solution Header</p>
      <p>Explanation or solution text</p>
    </div>
  </solution>
</problem>
```

8.45 Word Cloud Tool

Note: EdX offers provisional support for this tool.

In a word cloud, students enter words into a field in response to a question or prompt. The words that all of the students enter then appear instantly as a colorful graphic, with the most popular responses appearing largest. The graphic becomes larger as more students answer. Students can both see the way their peers have answered and contribute their thoughts to the group.

For example, the following word cloud was created from students' responses to a question in a HarvardX course.

This exercise first appeared in HarvardX's PH278x: Human Health and Global Environmental Change course, spring 2013.

In a word or two, state why you think addressing climate change has been so difficult. Please enter each word into a separate box.

Your words:
Inconvenience 0%, Ignorance 4%
Total number of words:



- *Enable the Word Cloud Tool*
- *Create a Word Cloud*

8.45.1 Enable the Word Cloud Tool

Before you can add a word cloud to your course, you must enable the word cloud tool.

To enable the word cloud tool in Studio, you add the "word_cloud" key to the **Advanced Module List** on the **Advanced Settings** page. (Be sure to include the quotation marks around the key value.) For more information, see *Enable Additional Exercises and Tools*.

8.45.2 Create a Word Cloud

To create a word cloud, follow these steps.

1. In the unit where you want to create the problem, select **Advanced** under **Add New Component**.

2. In the list of problem types, select **Word Cloud**.
3. In the component that appears, select **Edit**.
4. In the component editor, specify the settings that you want. You can leave the default value for everything except **Display Name**.
 - **Display Name:** This name appears as a heading above the problem.
 - **Inputs:** The number of text boxes into which students can enter words, phrases, or sentences.
 - **Maximum Words:** The maximum number of words that the word cloud displays. If students enter 300 different words but the maximum is set to 250, only the 250 most commonly entered words appear in the word cloud.
 - **Show Percents:** The number of times that students have entered a given word as a percentage of all words entered appears near that word.
5. Select **Save**.

8.46 Write-Your-Own-Grader Problem

Note: EdX offers provisional support for this problem type.

This section provides information about writing your own grader directly in a problem component.

- *Overview*
- *Create a Custom Python-Evaluated Input Problem Studio*
- *Script Tag Format*

8.46.1 Overview

In custom Python-evaluated input (also called “write-your-own-grader” problems), the grader uses a Python script that you create and embed in the problem to evaluate a learner’s response or provide hints. These problems can be any type. Numerical input and text input problems are the most common write-your-own-grader problems.

CUSTOM PYTHON-EVALUATED INPUT (2/4 points)

This question has two parts.

Part 1: Enter two integers that sum to 10.

❌ Answer: 3

❌ Answer: 7

Part 2: Enter two integers that sum to 20.

✔️

✔️

EXPLANATION

For part 1, any two numbers of the form n and $10-n$, where n is any integer, will work. One possible answer would be the pair 0 and 10.

For part 2, any pair x and $20-x$ will work, where x is any real number with a finite decimal representation. Both inputs have to be entered either in standard decimal notation or in scientific exponential notation. One possible answer would be the pair 0.5 and 19.5. Another way to write this would be $5e-1$ and $1.95e1$.

You have used 3 of 5 submissions

Custom Python-evaluated input problems can include the following advanced problem types.

- *Chemical Equation Problem*
- *Custom JavaScript Problem*
- *Gene Explorer Tool*
- *Molecule Editor Tool*
- *Protex Protein Builder Tool*

8.46.2 Create a Custom Python-Evaluated Input Problem Studio

1. In the unit where you want to create the problem, select **Problem** under **Add New Component**, and then select the **Advanced** tab.

2. Select **Custom Python-Evaluated Input**.
3. In the component that appears, select **Edit**.
4. In the component editor, edit the problem in *Script Tag Format*.
5. Select **Save**.

8.46.3 Script Tag Format

The script tag format encloses a Python script that contains a “check function” in a `<script>` tag, and adds the `cfn` attribute of the `<customresponse>` tag to reference that function.

This section contains the following information about using the `<script>` tag.

- *The check Function*
- *Example with the Script Tag*
- *Example of the check Function Returning a Dictionary*
- *Script Tag Attributes*
- *Create a Custom Python-Evaluated Input Problem in Script Tag Format*
- *Award Partial Credit*
- *Create a Randomized Custom Python-Evaluated Input Problem*

The check Function

The check function in a `<script>` tag accepts two arguments.

- `expect` is the value of the `expect` attribute of `<customresponse>`. If `expect` is not provided as an argument, the function must have another way to determine if the answer is correct.
- `answer` is one of the following two options.
 - The value of the answer the learner provided, if the problem only has one response field.
 - An ordered list of answers the learner provided, if the problem has multiple response fields.

The check function can return any of the following values to indicate whether the learner’s answer is correct.

- `True`: Indicates that the learner answered correctly for all response fields.
- `False`: Indicates that the learner answered incorrectly. All response fields are marked as incorrect.
- `"Partial"`: Indicates that the learner’s answer was partially correct. By default, the learner receives 50% of the points for the problem. For more information, see *Award Half Credit*.
- A dictionary of the form `{ 'ok': True, 'msg': 'Message' }`. If the dictionary’s value for `ok` is set to `True`, all response fields are marked correct. If it is set to `False`, all response fields are marked incorrect. If it is set to `"Partial"`, the learner receives 50% of the problem points. The `msg` is displayed below all response fields, and it can contain XHTML markup.
- A dictionary of the form

```
{ 'overall_message': 'Overall message',
  'input_list': [
    { 'ok': True, 'msg': 'Feedback for input 1'},
    { 'ok': False, 'msg': 'Feedback for input 2'},
    { 'ok': 'Partial', 'msg': 'Feedback for input 3'}
    ... ] }
```

The last form is useful for responses that contain multiple response fields. It allows you to provide feedback for each response field individually, as well as a message that applies to the entire response.

Example with the Script Tag

In the following example, `<customresponse>` tags reference the `test_add_to_ten` and `test_add` functions that are in the `<script>` tag.

Important: Python honors indentation. Within the `<script>` tag, the `def check_func(expect, ans) :` line must have no indentation.

```
<problem>

<script type="loncapa/python">

def test_add(expect, ans):
    try:
        a1=int(ans[0])
        a2=int(ans[1])
        return (a1+a2) == int(expect)
    except ValueError:
        return False

def test_add_to_ten(expect, ans):
    return test_add(10, ans)

</script>

<p>Enter two integers that sum to 10. </p>
<customresponse cfn="test_add_to_ten">
    <textline size="10"/><br/>
    <textline size="10"/>
</customresponse>

<p>Enter two integers that sum to 20: </p>
<customresponse cfn="test_add" expect="20">
    <textline size="40" correct_answer="11" label="Integer #1"/><br/>
    <textline size="40" correct_answer="9" label="Integer #2"/>
</customresponse>

<solution>
    <div class="detailed-solution">
        <p>Explanation</p>
        <p>Any set of integers on the line  $(y = 10 - x)$  and  $(y = 20 - x)$ 
            satisfies these constraints.</p>
        <p>You can also add images within the solution clause, like so:</p>
        
    </div>
</solution>

</problem>
```

Example of the check Function Returning a Dictionary

The following example shows a check function that returns a dictionary.

```
def check(expect, answer_given):
    check1 = (int(answer_given[0]) == 1)
    check2 = (int(answer_given[1]) == 2)
    check3 = (int(answer_given[2]) == 3)
    return {'overall_message': 'Overall message',
            'input_list': [
                {'ok': check1, 'msg': 'Feedback 1'},
                {'ok': check2, 'msg': 'Feedback 2'},
                {'ok': check3, 'msg': 'Feedback 3'} ] }
```

The function checks that the user entered 1 for the first input, 2 for the second input, and 3 for the third input. It provides feedback messages for each individual input, as well as a message displayed below the entire problem.

Script Tag Attributes

The following table explains the important attributes and values in the preceding example.

<code><script type="loncapa/python"></code>	Indicates that the problem contains a Python script.
<code><customresponse cfn="test_add_to_ten"></code>	Indicates that the function <code>test_add_to_ten</code> is called when the learner checks the answers for this problem.
<code><customresponse cfn="test_add" expect="20"></code>	Indicates that the function <code>test_add</code> is called when the learner checks the answers for this problem and that the expected answer is 20.
<code><textline size="10" correct_answer="3"/></code>	This tag includes the <code>size</code> , <code>correct_answer</code> , and <code>label</code> attributes. The <code>correct_answer</code> attribute is optional.

Create a Custom Python-Evaluated Input Problem in Script Tag Format

To create a custom Python-evaluated input problem using a `<script>` tag, follow these steps.

1. In the component editor, modify the example as needed.
2. Select **Save**.

Problem Code:

```
<problem>
<p>This question has two parts.</p>

<script type="loncapa/python">

def test_add(expect, ans):
    try:
        a1=int(ans[0])
        a2=int(ans[1])
        return (a1+a2) == int(expect)
    except ValueError:
        return False

def test_add_to_ten(expect, ans):
    return test_add(10, ans)

</script>

<p>Part 1: Enter two integers that sum to 10. </p>
<customresponse cfn="test_add_to_ten">
```

```

        <textline size="10" correct_answer="3" label="Integer #1"/><br/>
        <textline size="10" correct_answer="7" label="Integer #2"/>
</customresponse>

<p>Part 2: Enter two integers that sum to 20. </p>
<customresponse cfn="test_add" expect="20">
    <textline size="10" label="Integer #1"/><br/>
    <textline size="10" label="Integer #2"/>
</customresponse>

<solution>
    <div class="detailed-solution">
        <p>Explanation</p>
        <p>For part 1, any two numbers of the form <i>n</i> and <i>10-n</i>,
        where <i>n</i> is any integer, will work. One possible answer would
        be the pair 0 and 10.</p>
        <p>For part 2, any pair <i>x</i> and <i>20-x</i> will work, where <i>
        x</i> is any real number with a finite decimal representation. Both
        numbers have to be entered either in standard decimal notation or in
        scientific exponential notation. One possible answer would be the
        pair 0.5 and 19.5. Another way to write this would be 5e-1 and 1.95e1.</p>
    </div>
</solution>
</problem>

```

Templates

The following template includes answers that appear when the learner selects **Show Answer**.

```

<problem>

<script type="loncapa/python">
def test_add(expect,ans):
    a1=float(ans[0])
    a2=float(ans[1])
    return (a1+a2)== float(expect)
</script>

<p>Problem text</p>
<customresponse cfn="test_add" expect="20">
    <textline size="10" correct_answer="11" label="Integer #1"/><br/>
    <textline size="10" correct_answer="9" label="Integer #2"/>
</customresponse>

    <solution>
        <div class="detailed-solution">
            <p>Solution or Explanation Heading</p>
            <p>Solution or explanation text</p>
        </div>
    </solution>
</problem>

```

The following template does not return answers when the learner selects **Show Answer**. If your problem does not include answers for the learner to see, make sure to set **Show Answer** to **Never** in the problem component.

```

<problem>

<script type="loncapa/python">
def test_add(expect,ans):

```

```

    a1=float(ans[0])
    a2=float(ans[1])
    return (a1+a2)== float(expect)
</script>

<p>Enter two real numbers that sum to 20: </p>
<customresponse cfn="test_add" expect="20">
    <textline size="10" label="Integer #1"/><br/>
    <textline size="10" label="Integer #2"/>
</customresponse>

    <solution>
        <div class="detailed-solution">
            <p>Solution or Explanation Heading</p>
            <p>Solution or explanation text</p>
        </div>
    </solution>
</problem>

```

Award Partial Credit

You can configure a custom Python-evaluated input problem so that learners who give a partially correct answer receive partial credit for the problem. You can award 50% of the points for the problem, or you can award a different percentage of points. For more information, see the following sections.

- [Award Half Credit](#)
- [Award a Percentage of Credit](#)

Award Half Credit

You can configure a problem to award 50% of the possible points. To provide a learner with a more granular score, see [Award a Percentage of Credit](#).

The check function must return the value "Partial" in one of the following ways.

- Return the value "Partial" directly.
- Return the value "Partial" in the dictionary that is returned, in the following form.

```
{ 'ok': 'Partial', 'msg': 'Message' }
```

- Return the value "Partial" as part of the input list for multi-part problems.

```

{ 'overall_message': 'Overall message',
  'input_list': [
    { 'ok': True, 'msg': 'Feedback for input 1'},
    { 'ok': False, 'msg': 'Feedback for input 2'},
    { 'ok': 'Partial', 'msg': 'Feedback for input 3'}
    ... ] }

```

With all of these options, True awards learners with 100% of the available points for the problem, 'Partial' with 50%, and False with 0%.

For more information about check function return values, see [The check Function](#).

Award a Percentage of Credit

You can configure a problem to return a percent value as a grade. This method provides greater flexibility in assigning the learner a score than *awarding half credit*.

In the following example, the learner's score equals the answer divided by 100.

The screenshot shows a web browser window displaying a problem titled "DUPLICATE OF 'CUSTOM PYTHON-EVALUATED INPUT' (68/100 points)". Below the title, a message states: "In the following problem, the learner receives a score that equals the answer / 100." The instruction "Enter a number between 0 and 100." is followed by a text input field containing the number "68". To the right of the input field is a green asterisk icon. Below the input field, the text "Your grade is 68.0%" is displayed. At the bottom left, there is a "Check" button.

The following code shows the configuration of this problem.

```
<problem>
<p>In the following problem, the learner receives a score that equals the
  answer / 100. If the learner's answer is greater than 100 or less than 0,
  the score equals 0.</p>

<script type="loncapa/python">

def give_partial_credit(expect, ans):
    ans = float(ans)
    if ans > 100 or ans < 0:
        # Assign a score of zero if the answer is less than zero or over 100.
        ans = 0
    grade = ans/100
    return {
        'input_list': [
            { 'ok': True, 'msg': 'Your grade is ' + str(ans) + '%', 'grade_decimal':grade},
        ]
    }
</script>

<p>Enter a number between 0 and 100.</p>
<customresponse cfn="give_partial_credit">
  <textline points="100" size="40" label="Ans1"/><br/>
</customresponse>
</problem>
```

This example illustrates the following points.

- The `points` attribute of the `<customresponse>` element specifies that the question is worth 100 points.
- The `give_partial_credit` function checks that the answer is between 0 and 100, and if so divides the

learner's answer by 100 to determine the grade.

- The `input_list` that is returned specifies that:
 - The answer is acceptable and can receive partial or full credit, with the item `'ok' : True`.
 - The learner receives the message `Your grade is` followed by the percent grade, with the item `'msg' : 'Your grade is ' + str(ans) + '%'`.
 - The grade assigned is the learner's answer divided by 100, with the item `'grade_decimal': grade`.

You can enhance and apply this example for your own partial credit problems.

Create a Randomized Custom Python-Evaluated Input Problem

You can create a custom Python-evaluated input problem that randomizes variables in the Python code.

Note: In the problem settings, you must set the **Randomization** value to something other than **Never** to have Python variables randomized. See [Randomization](#) for more information.

The following example demonstrates using randomization with a Python-evaluated input problem.

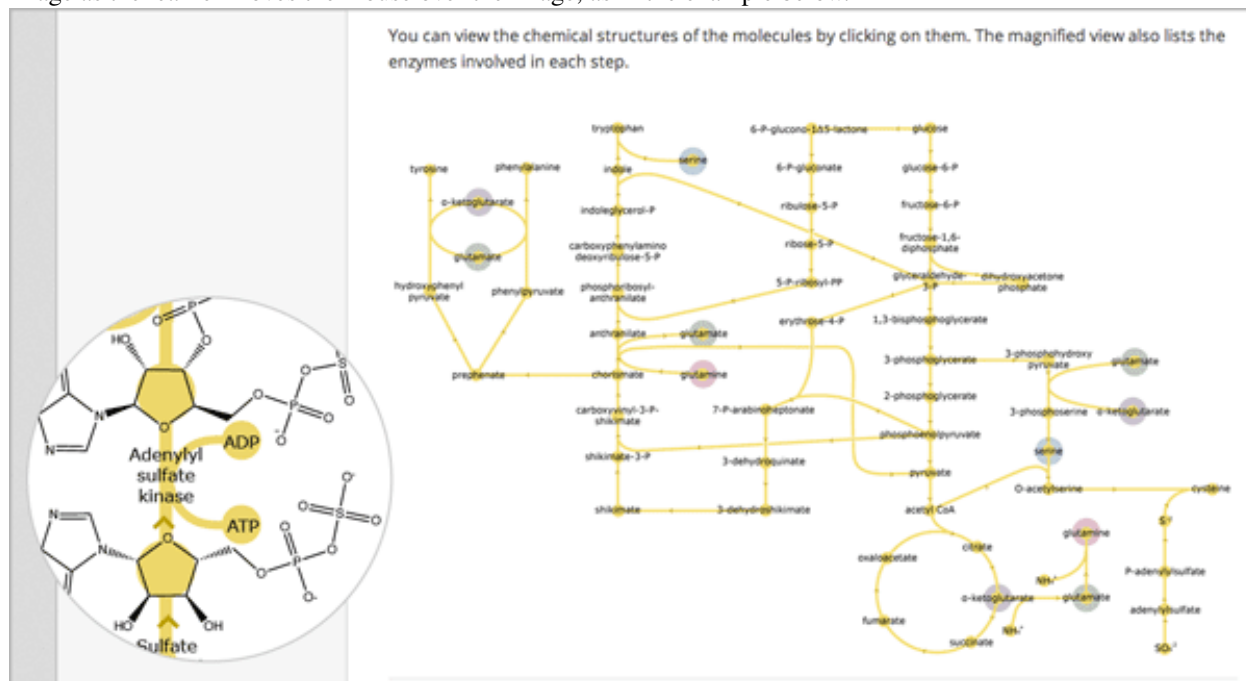
Note: This example uses the method `random.randint` to generate random numbers. You can use any standard Python library for this purpose.

```
<problem>
  <p>Some problems in the course will utilize randomized parameters.
  For such problems, after you check your answer you will have the option
  of resetting the question, which reconstructs the problem with a new
  set of parameters.</p>
  <script type="loncapa/python">
x1 = random.randint(0, 100)
x2 = random.randint(0, 100)
y = x1+x2
  </script>
  <p>Let (x_1 = $x1) and (x_2 = $x2). What is the value of (x_1+x_2)?</p>
  <numericalresponse answer="$y">
    <responseparam type="tolerance" default="0.01%" name="tol"
      description="Numerical Tolerance"/>
    <textline size="10"/>
  </numericalresponse>
  <solution>
    <p><b>Explanation:</b></p>
  </solution>
</problem>
```

8.47 Zooming Image Tool

Note: EdX offers full support for this tool.

You can present information to your learners with an image. If your image is very large or very detailed, learners might not be able to see all the information in the image. You can use the zooming image tool to enlarge areas of your image as the learner moves the mouse over the image, as in the example below.



8.47.1 Components of a Zooming Image Tool

To create a zooming image tool, you need the following files.

- The image that you want learners to see when they access the unit.
- The image that appears in the magnified area when a learner clicks the regular image. This image can be larger than the regular image.
- The `jquery.loupeAndLightbox.js` JavaScript file. Every zooming image tool uses this JavaScript file, and you do not need to make any changes to it. To download this file, right-click <http://files.edx.org/jquery.loupeAndLightbox.js>, and then select **Save Link As** to save the file on your computer.

8.47.2 Create a Zooming Image Tool

1. Upload your regular-sized image file, your small image file, and the `jquery.loupeAndLightbox.js` file to the **Files & Uploads** page. For more information about how to do this, see [Adding Files to a Course](#).
2. Under **Add New Component**, select **HTML**, and then select **Zooming Image Tool**.
3. In the new component that appears, select **Edit**.
4. In the component editor, replace the default problem text with your own text.
5. Select **HTML** from the toolbar to edit the HTML source code.
6. Scroll down in the file, and then replace the following placeholders with your own content.

- Replace the following file name and path with the name and path of the image that you want to appear magnified when the user hovers over the regular image.

`https://studio.edx.org/c4x/edx/DemoX/asset/pathways_detail_01.png`

For example, your file name and path might be `/static/Image1.jpg`.

- Replace the following file name and path with the name and path of the image that you want to appear when the page opens.

`https://studio.edx.org/c4x/edx/DemoX/asset/pathways_overview_01.png`

For example, your file name and path might be `/static/Image2.jpg`.

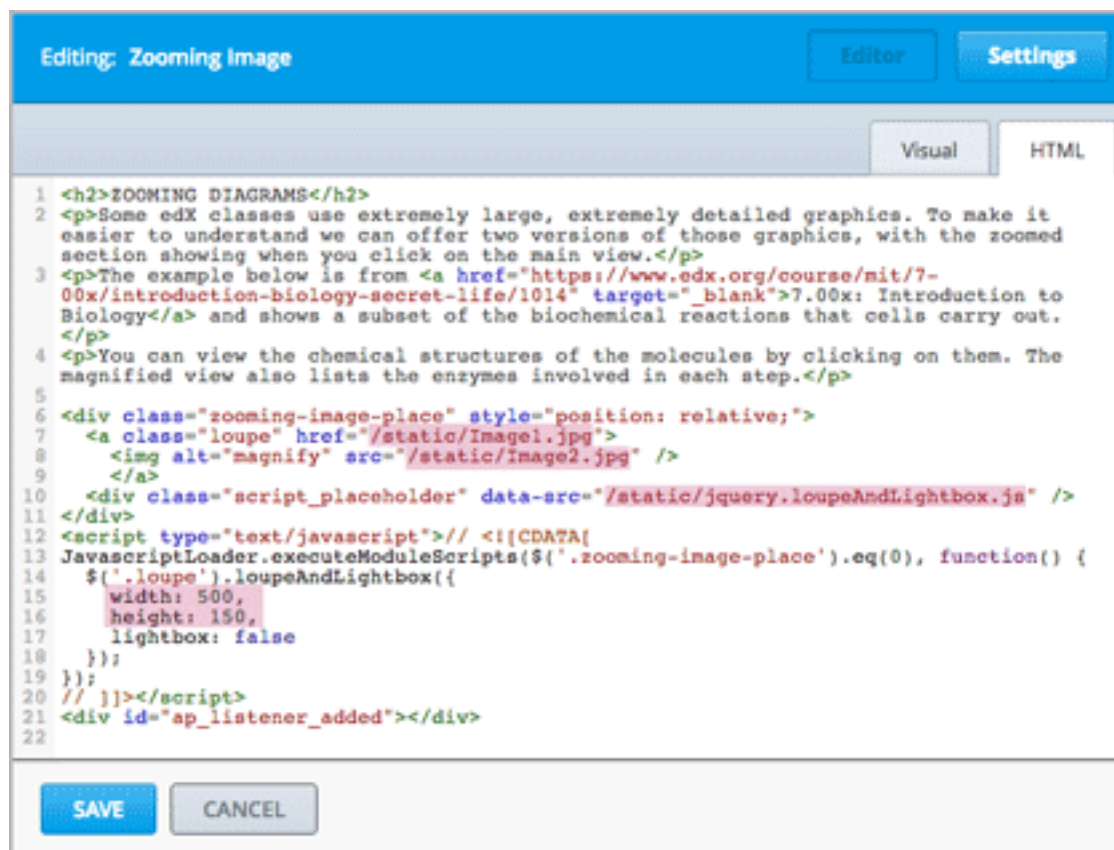
- Replace the following name and file path with the name and path of the JavaScript file for your course.

`https://studio.edx.org/c4x/edx/DemoX/asset/jquery.loupeAndLightbox.js`

Because you uploaded the `jquery.loupeAndLightbox.js` file to the **Files & Uploads** page, your file name and path is `/static/jquery.loupeAndLightbox.js`.

- (Optional) If you want the magnified area to be larger or smaller, change the `width` and `height` values from 350 to larger or smaller numbers. For example, you can change both numbers to 450. Or, if you want a horizontal oval instead of a circle, you can change the `width` value to a number such as 500 and the `height` value to a number such as 150.

The HTML in your zooming image tool might resemble the following.



equations).

- For inline equations, you can do either of the following.
 - Surround your Mathjax expression with backslashes and **parentheses**.
`\(equation \)`
 - Surround your Mathjax expression with `[mathjaxinline]` tags. Note that these tags use square brackets (`[]`).
`[mathjaxinline] equation [/mathjaxinline]`
- For display equations, you can do either of the following.
 - Surround your Mathjax expression with backslashes and **brackets**.
`\[equation \]`
 - Surround your Mathjax expression with `[mathjax]` tags. Note that these tags use square brackets (`[]`).
`[mathjax] equation [/mathjax]`

You can use MathJax in HTML (text) components and in problem components.

Note: Complete MathJax documentation (together with a testing tool) can be found at <http://www.onemathematicalcat.org/MathJaxDocumentation/TeXSyntax.htm>.

8.48.1 HTML (Text) Components

In the HTML component editor, you can use MathJax both in Visual view and in HTML view.

Editing: Text

EditorSettings

Heading 3

B

I

U

☰

☰

☰

☰

☰

☰

☰

☰

VisualHTML

Inline Example

You can add equations such as $\nabla \times \mathcal{A}$ inline with the rest of your text.

Display Example

Even though the expression $\frac{\mu_0 I}{4\pi} \int \frac{d\vec{l} \times \hat{r}}{r^2}$ appears inline in the editor, the brackets mean that it will appear on its own line on the unit page in Studio and in the LMS.

SAVE

CANCEL

HTML component editor: Visual view

Editing: Text

EditorSettings

VisualHTML

```

1 <h3>Inline Example</h3>
2 <p>You can add equations such as  $\nabla \times \mathcal{A}$  inline with the rest of your text.</p>
3 <h3>Display Example</h3>
4 <p>Even though the expression  $\frac{\mu_0 I}{4\pi} \int \frac{d\vec{l} \times \hat{r}}{r^2}$  appears
   inline in the editor, the brackets mean that it will appear
   on its own line on the unit page in Studio and in the LMS.
   </p>

```

SAVE

CANCEL

HTML component editor: HTML view

EditDelete

Inline Example

You can add equations such as $\mathcal{B} = \nabla \times \mathcal{A}$ inline with the rest of your text.

Display Example

Even though the expression

$$\mathcal{B} = \frac{\mu_0 I}{4\pi} \int \frac{d\vec{l} \times \hat{r}}{r^2}$$

appears inline in the editor, the brackets mean that it will appear on its own line on the unit page in Studio and in the LMS.

Studio: Unit page

Inline Example

You can add equations such as $\mathcal{B} = \nabla \times \mathcal{A}$ inline with the rest of your text.

Display Example

Even though the expression

$$\mathcal{B} = \frac{\mu_0 I}{4\pi} \int \frac{d\vec{l} \times \hat{r}}{r^2}$$

appears inline in the editor, the brackets mean that it will appear on its own line on the unit page in Studio and in the LMS.

LMS

8.48.2 Problem Components

In the problem component editor, you can use MathJax both in the Simple Editor and in the Advanced Editor.

In the example problem below, note that the Einstein equation in the explanation is enclosed in backslashes and parentheses, so it appears inline with the text. The Navier-Stokes equation is enclosed in backslashes and brackets, so it appears on its own line.

Editing: Multiple Choice Editor Settings

H1 ABC 123 Advanced Editor

This nonsensical question is for demonstration purposes only.

Which of the following equations is the most complex?

() $E = mc^2$

() $A = \pi r^2$

(x) $\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$

() $V = IR$

[explanation]
Although a true understanding of Einstein's equation $E = mc^2$ relating mass and energy requires years of study, the Navier-Stokes equation $\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$ is computationally more complex (and frequently gives students nightmares).
[explanation]

SAVE CANCEL

Problem component editor: Simple Editor

Editing: Multiple Choice Editor Settings

```

1 <problem>
2 <p>This nonsensical question is for demonstration
3   purposes only.</p>
4 <p>Which of the following equations is the most
5   complex?</p>
6 <multiplechoiceresponse>
7   <choicegroup type="MultipleChoice">
8     <choice correct="false">( E = m c^2 )</choice>
9     <choice correct="false">( A = \pi r^2 )</choice>
10    <choice correct="true">( \rho \left( \frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = - \nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f} )</choice>
11    <choice correct="false">( V = I R )</choice>
12  </choicegroup>
13 </multiplechoiceresponse>
14 <p></p>
15 <h2>Explanation</h2>
16 <p>Although a true understanding of Einstein's
17   equation ( E = m c^2 ) relating mass and energy
18   requires years of study, the Navier-Stokes equation [
19   \rho \left( \frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = - \nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f} ] is computationally more complex (and
20   frequently gives students nightmares).</p>
21 </problem>

```

SAVE CANCEL

Problem component editor: Advanced Editor

Edit Delete

MULTIPLE CHOICE (1 point possible)

This nonsensical question is for demonstration purposes only.

Which of the following equations is the most complex?

☐ $E = mc^2$

☐ $A = \pi r^2$

☒ $\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$

☐ $V = IR$

EXPLANATION

Although a true understanding of Einstein's equation $E = mc^2$ relating mass and energy requires years of study, the Navier-Stokes equation

$$\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$$

is computationally more complex (and frequently gives students nightmares).

Check Save

Studio: Unit page

MULTIPLE CHOICE (1 point possible)

This nonsensical question is for demonstration purposes only.

Which of the following equations is the most complex?

☐ $E = mc^2$

☐ $A = \pi r^2$

☒ $\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$

☐ $V = IR$

EXPLANATION

Although a true understanding of Einstein's equation $E = mc^2$ relating mass and energy requires years of study, the Navier-Stokes equation

$$\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$$

is computationally more complex (and frequently gives students nightmares).

Check Save

LMS

Adding Course Assets

Use the topics in this section to learn about managing assets in your course.

For information on how to develop your course content in the Studio Outline, see *Developing Your Course*.

9.1 Adding Files to a Course

To use images and other files in your course, you upload the files to your course by using Studio, and then you add links to the files in the course content. You can also use uploaded files in the bulk email messages that you send from the LMS using the instructor dashboard.

- *File Size*
- *Upload a File*
- *Use File URLs to Reference Uploaded Files*
- *Sort Uploaded Files*
- *Filter Listed Files*
- *Find a File*
- *Lock a File*
- *Delete a File*

9.1.1 File Size

The maximum size for an uploaded file is 50 MB.

We recommend that you use standard compression tools to reduce PDF and image file sizes before you add the files to your course. If you have to use files that are larger than 50 MB after compression, contact your edX partner manager.

If you have video or audio files or large data sets to share with your students, use YouTube or another hosting service to host these files. Do not use the Files & Uploads page to add these files to your course. If you are an edX partner and you need to store large data sets, contact your edX partner manager.

9.1.2 Upload a File

You upload files on the **Files & Uploads** page in Studio.

Note: Ensure that you obtain copyright permissions for files and images you upload to your course, and that you cite sources appropriately.

To upload a file, follow these steps.

1. Create or locate the file on your computer.

Note: When URLs are generated for uploaded files, the file name becomes part of the URL and is visible to students when they access the file. Avoid using file names that contain information about the file contents that you do not want to share, such as “Answerkey.pdf”.

2. From the **Content** menu, select **Files & Uploads**.
3. Select **Upload New File**.
4. Select **Choose File**, and then select the file or files that you want to upload.

Note: If you upload a file that has the same name as an existing course file, the original file is overwritten without warning.

5. To upload additional files, select **Load Another File** and repeat the previous step.

When you are finished, select the **X** to close the window.

The **Files & Uploads** page refreshes to show the uploaded file.

9.1.3 Use File URLs to Reference Uploaded Files

To use an uploaded file for your course, you add a reference to one of the URLs that is assigned to it. On the **Files & Uploads** page, the **URL** column lists a **Studio** URL and a **Web** URL for each file you upload.

- To add a file or image to a component, a course update, or a course handout, you use the **Studio** URL.

For more information, see [Add an Image to an HTML Component](#).

- To provide a link to the file or image from outside the course, including in the body of an email message that you send to course participants from the LMS, you use the **Web** URL. Be sure that you do not use the `/static/` URL in an email message.

For more information about sending email messages, see [Send an Email Message to Course Participants](#).

Note: You can lock a file if you do not want to allow access to that file from outside your course. When you lock a file, the web URL only allows file access to learners who are signed in and enrolled in your course. For more information, see [Lock a File](#).

To copy a URL from the file list, select the URL in the **URL** column and copy it.

9.1.4 Sort Uploaded Files

On the **Files & Uploads** page, you can sort your files by any column that has a blue column header. For example, to sort the list by name, select the **Name** column header.

Change the sort order by selecting a sortable column header. The direction of the arrow in the column header indicates whether the order is ascending or descending. Each time you select the column header, the sort order reverses.

The current sort order is shown at the top of the file list, and the active sort column header is underlined.

9.1.5 Filter Listed Files

You can filter the list of files by type so that only a selected type of file is visible. The list remains in the current sort order.

Type	File Types Include
Images	.gif, .ico, .jpg, .jpeg, .png, .tif, or .tiff
Documents	.pdf, .txt, Microsoft Office and Open Office documents, presentations, or spreadsheets
Other	Files not included in the other types, such as .html, .js, or .json

To filter the list of files by type, follow these steps.

1. On the **Files & Uploads** page, select the **Type** column header.
2. In the drop-down list, select the type of file that you want to view.

The list refreshes to show only the type of file you selected, and the column header changes to reflect the type of file that you have filtered by.

To reset the list and view files of all types, select **Show All** in the **Type** drop-down list.

9.1.6 Find a File

The **Files & Uploads** page lists up to 50 files. If your course has more than 50 files, additional files are listed on other pages.

The range of the files listed on the page, and the total number of files, are shown at the top of the page.

You can navigate through the pages in these ways.

- Select the < or > control to navigate to the previous or next page.
- Specify the number of the page you want to view.



9.1.7 Lock a File

By default, anyone can access a file you upload if they know the web URL, even if they are not enrolled in your course. You can prevent outside access to a file by locking the file. When you lock a file, the web URL only allows learners who are enrolled in your course and signed in to edX to access the file.

To lock a file, select the lock icon in the right column.

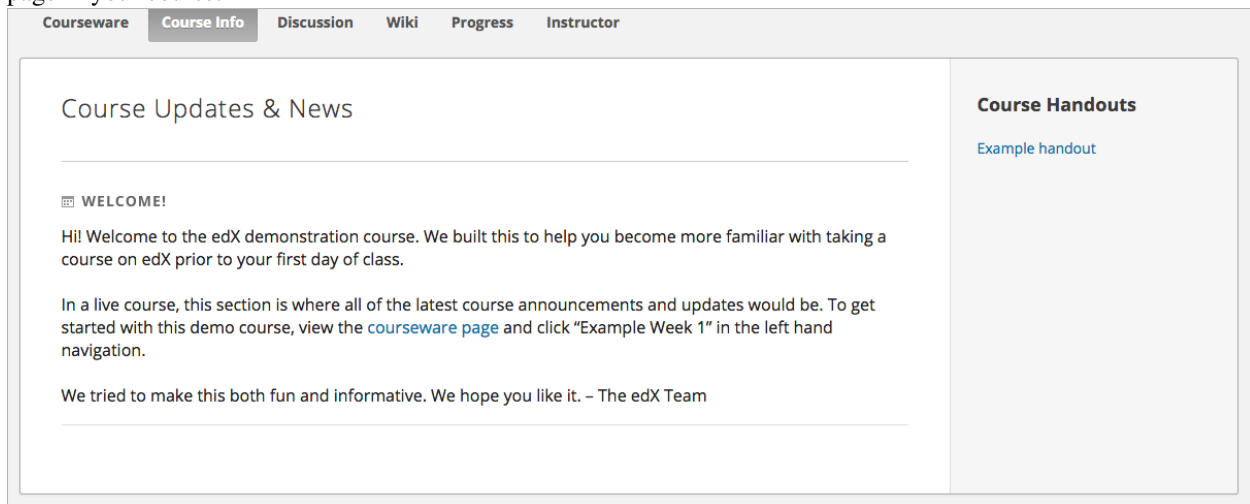
9.1.8 Delete a File

To delete a file, select the **X** in the row for file. You are prompted to confirm the deletion.

Warning: After you delete a file, links to the file from course content will be broken. You must update links to files that you need to delete.

9.2 Adding Course Updates and Handouts

You add course updates and identify handouts in Studio. Learners see the course updates and handouts on the **Home** page in your course.



Section Contents

- [Add a Course Update](#)
- [Identify a Course Handout](#)

9.2.1 Add a Course Update

You add updates to notify learners of upcoming exams or deadlines, changes in the course schedule, or to make other announcements. Updates are visible to enrolled learners as soon as you post them.

Each update requires a date for identification and sorting purposes. In the LMS, updates display on the **Home** page in reverse chronological order (most recent at the top), based on the date associated with each update.

To add a course update, follow these steps.

1. From the **Content** menu, select **Updates**.
2. Select **New Update**.
3. Create your update in the text editor that opens.
 - Enter text for the update, using HTML tags for formatting. This editor is like the *raw HTML editor* that is provided for HTML components. The *visual editor* is not provided.

Note: If you copy text from another source and paste it into the text editor, proofread the result carefully. Some applications automatically change quotation marks and apostrophes from the “straight” version to the “smart” or “curly” version. The editor requires “straight” quotation marks and apostrophes.

- Specify a date for this update. By default, today's date is already entered. You can change the date using the calendar tool, or by entering some other valid date. This date is used only for identification and sorting purposes and does not control when the date becomes visible to learners.
4. Select **Post**. Your update appears on your course's **Home** page immediately.
 1. Optionally, choose whether to send a notification about your update to the edX mobile app.
 - Learners can choose to turn off notifications for individual courses or for all courses. The **Home** page continues to show all updates.
 - All updates appear on the **Home** page, even if you do not send notifications.

9.2.2 Identify a Course Handout

You can identify previously uploaded files as handouts for your course. Learners see a link on the **Home** page for each course handout.

Before you identify a course handout, you *add the file* to your course and copy its Studio URL. You can open the Studio **Files & Uploads** page in another browser window to make this process easier.

To identify a course handout, follow these steps.

1. From the **Content** menu, select **Updates**.
2. In the **Course Handouts** panel, select **Edit**.
3. In the editor that opens, use HTML formatting to add a link to the previously uploaded file. An example follows.

```
<p><a href="/static/Syllabus_Fall2016.pdf" target="_blank">Syllabus</a></p>
<p><a href="/static/Glossary_v3.pdf" target="_blank">Glossary</a></p>
```

4. Select **Save**.

9.3 Adding Pages to a Course

This topic describes the pages, or tabs, that are included in your course by default, how you can modify them, and how you can add more pages to your course.

- *Default Pages*
- *New Pages*
 - *Add a Page*
- *Hiding or Showing the Wiki or Progress Page*
 - *Hide or Show the Wiki or Progress Pages*
- *Reorder Pages*
- *Delete a Page*
- *Code for a Dynamic HTML Schedule*

9.3.1 Default Pages

By default, your course includes these pages.

- Home
- Course

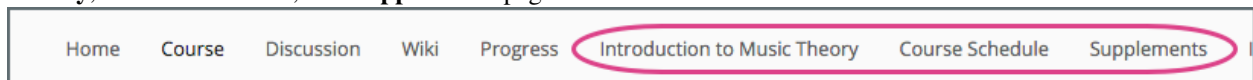
- Discussion
- Wiki
- Progress

You can *change the order* of the **Discussion**, **Wiki**, and **Progress** pages, and you can *hide* the **Wiki** and **Progress** pages. You can also add more pages.

9.3.2 New Pages

You can add pages to your course. Each page appears for learners in the navigation bar for your course.

For example, the following navigation bar includes the default pages as well as the additional **Introduction to Music Theory**, **Course Schedule**, and **Supplements** pages.



You can create other pages for the grading policy, course slides, or any other purpose. More examples of pages you can add follow.

- A dynamic HTML calendar, using the template in *Code for a Dynamic HTML Schedule*.
- An instant hangout. See *Google Instant Hangout Tool* for more information.

Add a Page

To add a page, follow these steps.

1. In Studio, from the **Content** menu, select **Pages**. A page titled **Pages** opens. This page contains a list of the pages that appear in the navigation bar in your course.
2. Select **Add a New Page**. A page with the title **Empty** is added to the list.
3. In the row for the new page, select **Edit**. The HTML editor opens.
4. Enter content for your page.

For more information about using the editor, see *Options for Editing HTML Components*.

Note: If you copy text from another source and paste it into the HTML editor, be sure to proofread the result carefully. Some applications automatically change quotation marks and apostrophes from the “straight” version to the “smart” or “curly” version. The HTML editor requires “straight” quotation marks and apostrophes.

5. Select **Settings** to edit the **Display Name**. The display name is the name of the page visible to learners in the course.
6. Select **Save**.

The new page is immediately available to learners if the course has started.

9.3.3 Hiding or Showing the Wiki or Progress Page

By default, your course includes a **Wiki** page and a **Progress** page. For more information about how you can use these pages in a course, see *Using the Course Wiki* or *A Learner’s View of Course Progress*.

As part of your course design, you can decide whether you want to learners to have access to these pages. You can hide the pages, and if you change your mind, you can show the pages again.

Note: The information on the **Progress** page can be motivating for learners, particularly in courses that include graded subsections, but also for courses that include only ungraded exercises. Before choosing to hide the **Progress** page for your course, consider the possible effect on learner engagement.

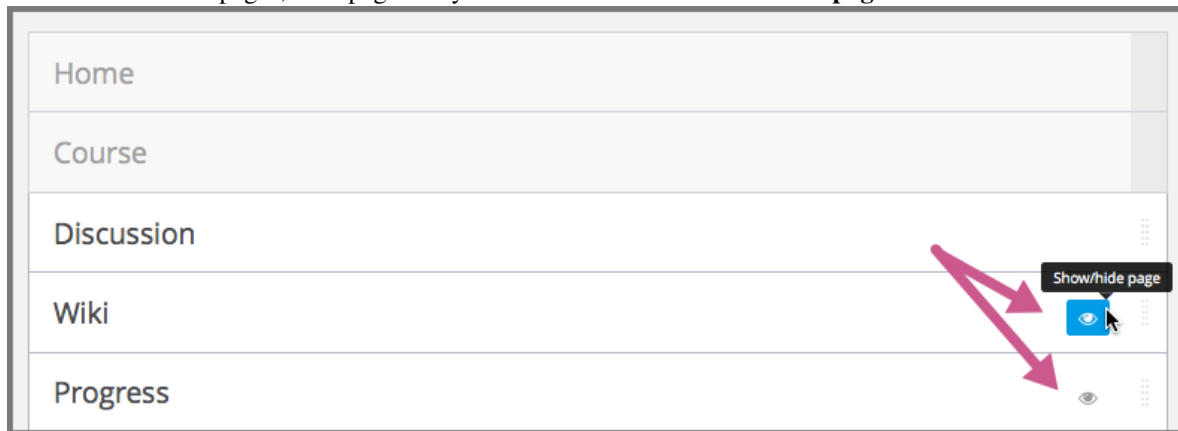
As a best practice, you should avoid changing the visibility of these pages after your course starts. For example, your course includes the **Wiki** page when it starts. A learner adds a page to the course wiki, and bookmarks the new page. If you then hide the **Wiki** page, the learner's bookmark will continue to provide access to the course wiki.

Hide or Show the Wiki or Progress Pages

To hide or show the **Wiki** or **Progress** pages, follow these steps.

1. Select **Content**, and then **Pages**.

On the list of pages, each page that you can hide includes a **Show/hide page** icon.



Note: The options to show or hide a page are available only for the **Wiki** and **Progress** pages.

2. Select the **Show/hide page** icon to hide a page. The appearance of the icon changes to indicate that the page is now hidden, as shown in this example.



3. Select the **Show/hide page** icon again to make the page visible.

9.3.4 Reorder Pages

To reorder the pages in your course you can drag a page to different location in the list of pages and drop it there.

To move a page, move your pointer over the **Drag to reorder** icon for the page. Your pointer changes to a four-headed arrow. Then select and drag the page to the location that you want.

Note: You cannot change the order of the **Home** or **Course** pages.

9.3.5 Delete a Page

You can only delete a page that the course team added to the course. To delete a page, select the **Delete** icon for the page. You are prompted to confirm the deletion.

Note: You cannot delete any of the *default pages*. However, you can *hide* the **Wiki** and the **Progress** pages.

9.3.6 Code for a Dynamic HTML Schedule

You can use the following code in a page to provide a dynamic HTML schedule in your course.

Note: To paste the following code into a page, use the *raw HTML editor*. Do not paste the code directly into the visual editor.

```
<div class= "syllabus">

<table style="width: 100%">
  <col width="10%">
  <col width="15%">
  <col width="10%">
  <col width="30%">
  <col width="10%">
  <col width="15%">
  <col width="10%">

<!-- Headings -->
  <thead>
    <td class="day"> Wk of </td>
    <td class="topic"> Topic </td>
    <td class="reading"> Read </td>
    <td class="video"> Lecture Sequence </td>
    <td class="slides"> Slides </td>
    <td class="assignment"> HW/Q </td>
    <td class="due"> Due </td>
  </thead>

<!-- Week 1 Row 1 -->
  <tr class="first">
    <td class="day">10/22</td>
    <td class="topic">Topic 1</td>
    <td class="reading">Ch. 1</td>
    <td class="video"><a href="#">L1: Title</a></td>
    <td class="slides"><a href="#">L1</a></td>
    <td class="assignment"><a href="#">HW 1</a></td>
    <td class="due">11/04</td>
  </tr>

<!-- Week 1 Row 2 -->
  <tr>
    <td class="day"> </td>
    <td class="topic"></td>
    <td class="reading"></td>
    <td class="video"><a href="#">L2: Title</a></td>
```

```

        <td class="slides"><a href="#">L2</a></td>
        <td class="assignment">        </td>
        <td class="due">        </td>
    </tr>

    <tr> <td class="week_separator" colspan=7> <hr/> </td> </tr>

<!-- Week 2 Row 1 -->
    <tr>
        <td class="day">10/29</td>
        <td class="topic">Topic 2</td>
        <td class="reading">Ch. 2</td>
        <td class="video"> <a href="#">L3: Title</a></td>
        <td class="slides"><a href="#">L3</a></td>
        <td class="assignment"><a href="#">Quiz 1</a></td>
        <td class="due">11/11</td>
    </tr>

<!-- Week 2 Row 2 -->
    <tr>
        <td class="day"></td>
        <td class="topic"></td>
        <td class="reading"></td>
        <td class="video"><a href="#">L4: Title</a></td>
        <td class="slides"><a href="#">L4</a> </td>
        <td class="assignment"></td>
        <td class="due"></td>
    </tr>
    <tr> <td class="week_separator" colspan=7> <hr/> </td> </tr>

<!-- Week 3 Row 1 -->
    <tr>
        <td class="day">11/05</td>
        <td class="topic">Topic 3</td>
        <td class="reading">Ch. 3</td>
        <td class="video"><a href="#">L5: Title</a></td>
        <td class="slides"><a href="#">L5 </a></td>
        <td class="assignment"><a href="#">HW 2</a></td>
        <td class="due">11/18 </td>
    </tr>

<!-- Week 3 Row 2 -->
    <tr>
        <td class="day"> </td>
        <td class="topic"> </td>
        <td class="reading"></td>
        <td class="video"><a href="#">L6: Title</a></td>
        <td class="slides"><a href="#">L6 </a></td>
        <td class="video"></td>
        <td class="assignment"></td>
        <td class="due"></td>
    </tr>
    <tr> <td class="week_separator" colspan=7> <hr/> </td> </tr>

<!-- Week 4 Row 1 -->
    <tr>
        <td class="day">11/12</td>
        <td class="topic">Topic 4</td>

```

```

        <td class="reading">Ch. 4</td>
        <td class="video"><!--<a href="#">L7: Title</a>--> L7: Title</td>
        <td class="slides"><!--<a href="#">L7</a>-->L7</td>
        <td class="assignment"><!--<a href="#">Quiz 2</a>-->Quiz 2</td>
        <td class="due"> 11/25 </td>

    </tr>

<!-- Week 4 Row 2 -->
    <tr>
        <td class="day"></td>
        <td class="topic"></td>
        <td class="reading"></td>
        <td class="video"><!--<a href="#">L8: Title</a>-->L8: Title</td>
        <td class="slides"><!--<a href="#">L8</a>-->L8</td>
        <td class="assignment"></td>
        <td class="due"></td>

    </tr>
    <tr> <td class="week_separator" colspan=7> <hr/> </td> </tr>

<!-- Week 5 Row 1 -->
    <tr>
        <td class="day">11/19</td>
        <td class="topic">Topic 5</td>
        <td class="reading">Ch. 5</td>
        <td class="video"><!--<a href="#">L9: Title</a>-->L9: Title</td>
        <td class="slides"><!--<a href="#">L9</a>-->L9</td>
        <td class="assignment"><!--<a href="#">HW 3</a>-->HW 3</td>
        <td class="due"> 12/02 </td>

    </tr>

<!-- Week 5 Row 2 -->
    <tr>
        <td class="day"></td>
        <td class="topic"></td>
        <td class="reading"></td>
        <td class="video"><!--<a href="#">L10: Title</a>-->L10: Title</td>
        <td class="slides"><!--<a href="#">L10</a>-->L10 </td>
        <td class="assignment"></td>
        <td class="due"></td>

    </tr>
    <tr> <td class="week_separator" colspan=7> <hr/> </td> </tr>

<!-- Week 6 Row 1 -->
    <tr>
        <td class="day">11/26</td>
        <td class="topic">Topic 6</td>
        <td class="reading">Ch. 6</td>
        <td class="video"><!--<a href="#">L11: Title</a>-->L11: Title </td>
        <td class="slides"><!--<a href="#">L11</a>-->L11</td>
        <td class="assignment"><!--<a href="#">HW 4</a>-->HW 4</td>
        <td class="due">12/09</td>

    </tr>

<!-- Week 6 Row 2 -->
    <tr>
        <td class="day"> </td>
        <td class="topic"> </td>
        <td class="reading"></td>

```

```

<td class="video"><!--<a href="#">L12: Title</a-->L12: Title</td>
<td class="slides"><!--<a href="#">L12</a-->L12</td>
<td class="assignment"></td>
<td class="due"></td>
</tr>
</table>
</div>

```

9.4 Textbooks

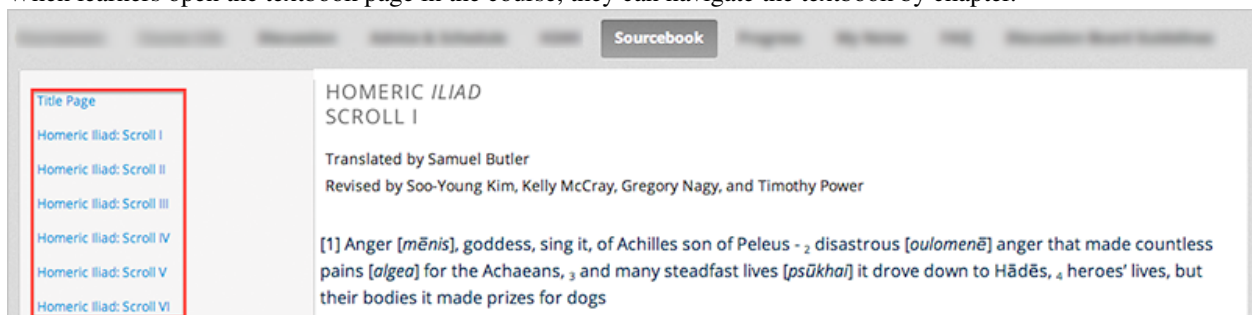
You can add PDF textbooks to your course.

Note: Do not use image files (for example, .png files) as textbooks for your course, as they are not accessible to screen readers. For more information, review [Creating Accessible PDF Documents](#).

Each textbook that you add is displayed to learners as a page, or tab, in the course navigation bar.

EdX recommends that you upload a separate PDF for each chapter of your textbook.

When learners open the textbook page in the course, they can navigate the textbook by chapter.



9.4.1 Add a Textbook

Note: When you add a textbook to your course, Studio automatically adds each PDF file that you upload to the **Files & Uploads** page.

1. Prepare PDFs of your textbook on your computer.
2. On the **Content** menu, select **Textbooks**.
3. Select either **Add your first textbook** or **New Textbook**.
4. On the page that opens, enter the **Textbook Name**.
5. Enter the **Chapter Name**.
6. Next to **Chapter Asset**, select **Upload PDF** to upload a PDF from your computer, and then follow the prompts to upload your file.
7. To add more chapters, select **Add a Chapter** and repeat steps 5 and 6.
8. Select **Save**.

9.4.2 Delete a Textbook

Note: This method deletes the entire textbook. To delete an individual chapter, see [Delete a Chapter](#).

1. On the **Content** menu, select **Textbooks**.
2. On the **Textbooks** page, hover the cursor over the textbook that you want to delete, and then select the trash can icon.
3. In the confirmation dialog box, select **Delete**.

Note: When you add a textbook to your course, Studio adds each PDF file that you upload to the **Files & Uploads** page. After you delete your textbook on the **Textbooks** page, edX strongly recommends that you [lock](#) or [delete](#) the PDF files for the textbook on the **Files & Uploads** page to avoid copyright issues.

9.4.3 Delete a Chapter

1. On the **Content** menu, select **Textbooks**.
2. On the **Textbooks** page, hover the cursor over the textbook that contains the chapter that you want to delete, and then select **Edit**.
3. On the textbook editing page, locate the chapter that you want to delete, and then select the X icon next to that chapter.

Textbook Name *

Introduction to Music Theory

provide the title/name of the text book as you would like your students to see it

Chapter Name *

Modes

provide the title/name of the chapter that will be used in navigating

Chapter Asset *

/static/Modes.pdf

upload a PDF file or provide the path to a Studio asset file

Note: When you add a textbook to your course, Studio adds each PDF file that you upload to the **Files & Uploads** page. After you delete a chapter on the **Textbooks** page, edX strongly recommends that you [lock](#) or [delete](#) the PDF file for the chapter on the **Files & Uploads** page to avoid copyright issues.

9.5 Using the Course Wiki

Wikis provide a way for the course team and learners to access, share, and collaboratively edit information both about, and for, your course.

- *About the Course Wiki*
- *Managing the Course Wiki*
- *Showing or Hiding the Wiki*
- *Controlling Access to the Wiki*
- *Setting Permissions for Wiki Articles*
- *Seeding the Wiki*
- *Adding a Wiki Article*
- *Editing a Wiki Article*
- *Searching for Wiki Articles*
- *Managing Versions of Wiki Articles*
- *Locking a Wiki Article*
- *Deleting a Wiki Article*

9.5.1 About the Course Wiki

Every course has a wiki that you can set up in a way appropriate for your course. If you have specific expectations for how the wiki should be used, communicate these expectations to your learners and staff. You can *seed the wiki* with specific content and provide a skeleton structure and some exemplars. At the beginning of the course, explain how you want the course wiki to be used, and provide clear instructions and guidelines for its use.

Common uses for the course wiki might include the following activities.

- Sharing answers to course FAQs and collecting new FAQs.
- Sharing editable course information, such as download and installation instructions for software required for the course
- Providing shared access to learner-created resources, perhaps as part of a collaborative exercise.
- Sharing errata for the course.
- Collecting suggestions for future runs of the course.

As learners and course team members create and edit wiki articles, they contribute to a repository of information about your course that can be immediately useful to other learners, or useful for you and your course team as you develop other courses or future runs of the same course.

The wiki for each course is a “child” wiki of the edX-wide wiki. From within any course wiki, select the top level **Wiki** link in the breadcrumb trail at the top of the page to visit the edX-wide wiki.

9.5.2 Managing the Course Wiki

Keep these points in mind as you design the wiki for your course.

- Be clear about the purpose for the wiki or for different parts of the wiki. For example, are some parts of the wiki only for disseminating information? If that is the case, then make sure that only your course team has write access for those articles.
- Decide whether some parts of the wiki are intended for learner collaboration or learner input. Make sure that learners are able to create and edit wiki articles in those sections, and use text to clearly indicate to learners that these pages can be edited.
- Think about the different tasks that will be performed by people in different roles. Typically you want your course team to have some privileges that learners do not have. For example, course team members can delete wiki articles, but learners cannot.

Members of the course team can perform these tasks to manage the wiki.

- *Show or Hide the Wiki*
- *Control Wiki Access*
- *Seed the Wiki*
- *Lock a Wiki Article*
- *Delete a Wiki Article*
- *Purge a Wiki Article*
- *Restore a Deleted Wiki Article*

All users, including learners, can perform the following tasks, depending on the permissions that you set for an article.

- *Add a Wiki Article*
- *Edit a Wiki Article*
- *Manage Versions of a Wiki Article*
- *Search for Wiki Articles*

9.5.3 Showing or Hiding the Wiki

When you create a course, a wiki is included by default, and a **Wiki** page is visible at the top of the course page. If you do not want to use the course wiki, you can hide the **Wiki** page at the top of the course.

To show or hide the wiki in the course tabs, follow these steps.

1. Open your course in Studio.
2. Select **Content**, then **Pages**.
3. Select the eye icon in the **Wiki** row. The **Wiki** page is hidden when the eye icon has a slash through it. You can show the **Wiki** page again by selecting the eye icon.

When you hide the wiki in your course, any existing articles remain in the edX- wide wiki, but the **Wiki** page is removed from your course pages.

9.5.4 Controlling Access to the Wiki

You can control access to the wiki in various ways: by changing access to the wiki as a whole, by changing the read/write permissions settings of articles within the wiki, or by locking articles.

To change access to the course wiki, follow these steps.

1. Open your course in Studio.
2. Select **Settings**, then **Advanced Settings**.
3. Scroll down to the **Allow Public Access to Wiki** field. This Boolean setting is set to False by default, meaning that only course team members and enrolled learners can see the course wiki. If you change the value of this field to True, then any registered edX user can access the course wiki, even if they are not enrolled in your course. However, public users would have to explicitly navigate to your wiki via the edX-wide wiki structure, or a link that has been provided to them.

To modify viewing or editing permissions for specific groups of users by article, see *Setting Permissions for Wiki Articles*.

To lock an article and prevent further editing, see *Locking a Wiki Article*.

9.5.5 Setting Permissions for Wiki Articles

To prevent certain groups of users from being able to add or edit articles, you need to modify the read/write permissions for articles. For example, as a member of the course team, you likely want to prevent learners from creating wiki articles at the top level, so you should remove write access to course-level wiki articles for most users. (Top-level wiki articles are children of the edX-wide wiki, and cannot be found within the course wiki).

To modify the permissions for wiki articles, follow these steps.

1. View the live version of your course.
2. Select **Wiki**.
3. Navigate to the article whose permissions you are modifying, and then select **Settings**.
4. In the **Permissions** section of the **Settings** page, select or clear the checkboxes for read or write access for **Group** or **Other**.
5. At the bottom of the page, select the **Save changes** button for the **Permissions** section.

Note that there are two different **Save changes** buttons, one near the top of the page for the **Notifications** section, and one at the bottom of the page for the **Permissions** section. If you are modifying permissions, make sure you select the **Save changes** button at the bottom of the page for your changes to be saved.

Groups Used in Wiki Permissions

There are three groups for each course, managed by adding users to these groups on the **Membership** page of the Instructor Dashboard.

- Beta Testers (by default there are no beta testers until you add them)
- Admins (by default, the course author is always in this group)
- Staff (these are course team members)

The permissions for the **Others** group apply to users who are not in the three course groups, including learners.

9.5.6 Seeding the Wiki

To ensure that learners get the most out of your course wiki, design the wiki space before the course starts by seeding the course wiki with articles that give it the desired structure.

For example, you could create wiki articles to mirror the course outline. At the top level, you could provide a course outline, FAQs, and links to the main articles for each section. In the child articles for each section, you could provide information specific to the units and components in that section, and a page for learners to share their feedback and experiences. This section describes how you can contribute to the course wiki.

9.5.7 Adding a Wiki Article

When you add an article to the wiki, be aware of what level you are currently viewing, to make sure that you add your new article to the correct level in the course wiki.

To move down a level in the wiki, select **See all children**; to move up, select the appropriate level in the wiki breadcrumb trail links at the top of the page.

Add Articles at the Same Level

To add a wiki article at your current level, follow these steps. If you do not have permissions to add an article, when you select **Add Article**, a message indicates “Permission Denied”.

1. In your course, select **Wiki**.
2. Navigate to the level where you want to add a new article.
3. Select the **Add Article** button near the top right of the page.
4. On the new article page, add a title for the page, and optionally a few keywords to create a “slug” that provides a more specific location identifier for your article.
5. Add contents to the article. You can enter plain text and use Markdown syntax to add formatting. For help with Markdown syntax, select the link to the cheat sheet at the upper right corner of the **Contents** field.
6. When you have finished entering content for your wiki article, select **Create Article**.

Add Articles Below the Current Level

To add a child article to your current article, follow these steps. If you do not have permissions to add an article, when you select **Add Article**, a message indicates “Permission Denied”.

1. In your course, select **Wiki**.
2. Navigate to the level above where you want to add the new child article.
3. Select **See all children**.
4. Select the **Add Article** button under the wiki title.
5. On the new article page, add a title for the page, and optionally a few keywords to create a “slug” that provides a more specific location identifier for your article.
6. Add contents to the article. You can enter plain text and use Markdown syntax to add formatting. For help with Markdown syntax, select the link to the cheat sheet at the upper right corner of the **Contents** field.
7. When you have finished entering content for your wiki article, select **Create Article**.

9.5.8 Editing a Wiki Article

If you have permissions to edit an article, you see an **Edit** button and icon to the right of the article content.

To make changes to a wiki article, follow these steps.

1. In your course, select **Wiki**.
2. Navigate to the article you want to edit.
3. Select **Edit**.
4. Make your changes. For help with Markdown syntax, select the link to the cheat sheet at the upper right corner of the **Contents** field.
5. In the **Summary** field at the bottom left, below the **Contents** field, enter a short description of the changes you made. This description appears in the **Changes** list, and helps other users of the wiki understand what changes you made to the article.
6. When you have finished making edits, select **Save changes**.

9.5.9 Searching for Wiki Articles

A **Filter** field is available only if any level of the wiki contains multiple articles.

Enter a text string in the **Filter** field to find a list of all articles with that text string in their titles.

9.5.10 Managing Versions of Wiki Articles

The wiki includes a change history for each article. You can view each past version of the article, roll back to a selected earlier version of the article, or merge the current version of the article with a selected earlier version.

View a List of Previous Versions of a Wiki Article

1. In your course, select **Wiki**.
2. Navigate to the wiki article for which you want to see the change history.
3. Select **Changes**. Previously saved versions of the current article are listed, with the most recent at the top.

View a Previous Version of a Wiki Article

1. On the **Changes** page for your wiki, select the revision of the article that you want to view.
2. Select **Preview this revision** to see the article as it appeared after the revision was made.

See Line by Line Changes in a Previous Version

1. On the **Changes** page for your wiki, select the revision of the article that you want to view.
2. Select the linked date, time, and author information to see the line-by-line changes made in that revision. Text that is highlighted in red has been replaced by the text that is highlighted in green below it.

Replace a Current Version with a Previous Version

1. On the **Changes** page for your wiki, select the revision of the article that you want to roll back to.
2. Select **Switch to selected version** to replace the current version with the selected one.

Combine a Current Version with a Previous Version

1. On the **Changes** page for your wiki, select the revision of the article that you want to merge with the current version.
2. Select **Merge selected with current** to combine the current and the selected versions.

9.5.11 Locking a Wiki Article

Locking a wiki article prevents further changes from being made to it. To lock a wiki article either after you create it, or after you make specific edits, follow these steps.

1. View the live version of your course.
2. Select **Wiki**.

3. Navigate to the article you want to lock, and then select **Settings**.
4. In the **Permissions** section of the **Settings** page, select the **Lock article** checkbox.
5. At the bottom of the page, select the **Save changes** button for the **Permissions** section.

9.5.12 Deleting a Wiki Article

Only course team members can delete articles. In addition, you can only delete an article if you have permissions to edit that article. If you have the required permissions, you see a **Delete article** button at the bottom of the **Edit** page.

To delete an article, follow these steps.

1. View the live version of your course.
2. Select **Wiki**.
3. Navigate to the article you want to delete, and then select **Edit**.
4. Select **Delete article**.
5. On the deletion confirmation page, select **Yes, I am sure**.
6. Optionally, also select the **Purge** checkbox. For details, see [Purging a Wiki Article](#).
7. Select **Delete article** to confirm the deletion.

Purging a Wiki Article

When you delete and purge an article, it is completely removed from the wiki, with no option to undo the deletion. Select this option only if you are sure you will not want to restore the content.

To purge an article as you delete it, select the **Purge** checkbox on the deletion confirmation page.

Restoring a Deleted Wiki Article

Articles that have been deleted but not purged can be restored. A link to the article remains visible at the level at which it was created.

To restore a deleted article, select the link to the article and select **Restore**.

Choosing Enhanced Capabilities For Your Course

Use the topics in this section to learn about options for enhancing your course experience for learners.

For information on how to develop your course content in the Studio Outline, see *Developing Your Course*.

10.1 Including Learner Cohorts

10.1.1 Using Cohorts in Your Courses

This section provides an introduction to using cohorts.

- *Overview*
- *Options for Assigning Learners to Cohorts*

Overview

To create smaller communities in your course, or design different course experiences for different groups of learners, you can *set up cohorts* in your course.

In discussion topics that are divided by cohort, learners can also communicate and share experiences privately within the cohort that they are assigned to. Cohort-specific discussion opportunities can help learners develop a sense of community, provide specialized experiences, and encourage deeper, more meaningful course involvement.

If you use cohorts in your course, you define a set of cohorts that reflect communities of learners, then select a strategy for *assigning learners to cohorts*.

Note:

- Every learner must be assigned to a cohort. This ensures that every learner has the ability to read and contribute to course discussion topics.
- Each learner can be in one and only one cohort.

To provide learners with a consistent experience throughout the course run, do not change cohort configuration or a learner's cohort assignment after your course begins.

For more information about using cohorts, see the following topics.

- *Enabling and Configuring the Cohorts Feature*

- [Setting Up Discussions in Courses with Cohorts](#)
- [Managing Discussions in Courses with Learner Cohorts](#)

For information about discussions in general, see [Managing Course Discussions](#).

Options for Assigning Learners to Cohorts

Learners are assigned to cohorts either automatically or manually, depending on the types of cohorts that you create. Manual cohorts do not have learners assigned to them unless you manually add learners. Automatic cohorts have learners randomly assigned to them if learners do not belong to any cohort by the time they access the course content (including the course **Discussion** page or content-specific discussion topics). If you have not created any automated cohorts by the time learners access course content, a default automated cohort is created and used for automatic assignment, so that no learner in the course is without a cohort.

Determine the basic strategy that you will use to create cohorts. An automated assignment strategy means that you create cohorts to which learners are assigned automatically and randomly. A manual assignment strategy means that you create cohorts to which learners are assigned only when you or your course team manually adds them. You can use a hybrid assignment method by creating a combination of automated and manual cohorts. Typically, your purpose in including the cohort feature determines which assignment option you use for your course.

Note: You can add learners manually to any cohort, whether it was created as an automated cohort or a manual cohort.

Note: Although you can change the assignment method of a cohort at any time after you create it, you should have a cohort assignment strategy in mind as you design your course, and only make changes to cohorts while the course is running if absolutely necessary. Be aware of the implications of changing cohort configuration while your course is running. For more information, see [Altering Cohort Configuration in a Running Course](#). In general, to provide learners with a consistent experience throughout the course run, do not change cohort configuration or a learner's cohort assignment after your course begins.

For more information about strategies for assigning learners to cohorts, see the following topics.

- [Automated Assignment: Making MOOC Discussions Manageable](#)
- [Manual Assignment: Grouping by Common Characteristics](#)
- [Hybrid Assignment: Accommodating Small Groups Within a Course](#)
- [Ensuring That All Learners Are Assigned: The Default Cohort](#)

Automated Assignment: Making MOOC Discussions Manageable

In very large courses, the number of posts that are made to course discussion topics can make for a daunting amount of daily reading. In such courses, dividing the enrollees into separate cohorts makes the volume of posts, responses, and comments by the members of each cohort more manageable, and is more likely to foster community feeling.

If you use the automated assignment strategy, you create several “auto” (automated) cohorts. Learners are automatically and randomly assigned to one of the auto cohorts when they first view any course content on the **Course** or **Discussion** page. In this way, each learner who engages with the course content or its discussion community is assigned to a cohort. No learner who participates in these ways remains unassigned.

The following guidelines are based on the experiences of MOOC teams that have used cohorts in this way. They are suggested to help you determine how many automated cohorts to define for your course.

- Each cohort should be large enough to inspire lively participation and diverse points of view, but small enough to allow a sense of community to develop. Cohorts formed by random assignment tend to be successful if they include between 200 and 500 members.
- For every 10,000 students who enroll, approximately 200 to 400 students remain active in the discussions throughout the course run.
- Divide the estimated total enrollment of the course run by 10,000.
- Use the result as the number of automated cohorts to create.

For example, two days before it starts, a course has an enrollment of 80,000 students. To create small communities within the discussions, the course team enables cohorts and then creates eight automated cohorts. As learners visit the **Discussion** page or view the course content, they are randomly assigned to one of the eight cohorts. In divided discussion topics, learners read and respond only to contributions made by other members of the same cohort.

For more information, see [Implementing an Automated Assignment Strategy](#).

Manual Assignment: Grouping by Common Characteristics

In SPOCs and other courses with small- to medium-sized enrollments, known existing commonalities can be used to identify cohorts. An example is a course that enrolls learners from different companies or with different educational backgrounds, or members of alumni or parent groups. When learners are assigned to cohorts on the basis of a characteristic that they share, they can privately discuss applications for what they are learning and explore resources and ideas that are of particular interest.

To implement this assignment strategy, you identify the “real-world” cohorts that your learners already belong to. You enable cohorts and then create “manual” cohorts to represent each of the real-world cohorts. You then manually assign each enrolled learner to a cohort. Every learner in your course, including those who enroll after the course starts, must be assigned to a cohort.

Note: To ensure that every learner is assigned to a cohort, you can set up a single automated cohort, as described for the [hybrid assignment strategy](#). If you do not create an automated cohort, the system automatically creates a [default cohort](#) and assigns learners to it if necessary.

For more information, see [Implementing a Manual Assignment Strategy](#).

Hybrid Assignment: Accommodating Small Groups Within a Course

For some courses, the manual assignment strategy is not feasible to execute, and the automated assignment strategy does not accommodate existing cohorts in the student body. The enrollment might be too large to complete manual assignments effectively, or only some of the learners might have strong defining characteristics among an otherwise diverse student body. For these courses, you can use a hybrid of the two strategies to implement cohorts.

An example is a course that enrolls members of an alumni association. The alumni want an opportunity to have private interactions, so manual assignment of those learners to a cohort makes sense. For other learners in the class, manual assignment is not needed: you can create one or more automated cohorts for the remaining learners in the course.

Before you implement the hybrid strategy, you identify the characteristics that define existing cohorts in the student body. You also decide whether you want the remaining learners in the course to be divided into their own, similarly-sized cohorts, or if you want them all to be in just one other cohort.

After you enable cohorts, you create a manual cohort for each student group that you identified. You manually assign learners who belong to each group to the corresponding cohort. You also set up automated cohorts for the other learners in the course, or rely on the default automated cohort. Any learners who are not assigned to a manual cohort are automatically assigned to one of the automated cohorts or to the default cohort when they first view any course

content, including the course **Discussion** page or content-specific discussion topics. For best results when you use this strategy, you should complete all manual cohort assignments before the course starts and before learners begin viewing course content and discussion topics.

For more information, see *Implementing an Automated Assignment Strategy* and *Implementing a Manual Assignment Strategy*.

Ensuring That All Learners Are Assigned: The Default Cohort

If you enable cohorts in your course, all learners must be assigned to a cohort. To ensure that there are no learners in the course without a cohort, the system automatically creates a default cohort and assigns learners to it if necessary.

The default cohort is created only if you have not created at least one automated assignment cohort in your course by the time that the first learner accesses your course content. Learners who have not been manually assigned to a cohort when they access the course content are automatically assigned to the default cohort.

Learners who are in the default cohort see a cohort name of “Default Group” in discussion posts. If you want learners to see a different name for the default cohort, you can change its name. For details about renaming cohorts, see *Rename a Cohort*.



You can check the *learner profile information report* for your course to see if any learners are assigned to the default cohort, and change their cohort assignments. Note, however, that in divided discussion topics learners can only see posts by members of their currently assigned cohort: when a learner is reassigned, posts that he previously saw will seem to have “disappeared”. To avoid negatively affecting the learner experience, any cohort assignment changes should be done as early in the course run as possible, so that learners’ views of discussion posts and contributions remain consistent over time.

10.1.2 Enabling and Configuring the Cohorts Feature

This section provides information about setting up cohorts in your course.

- *Overview*
- *Implementing an Automated Assignment Strategy*
- *Implementing a Manual Assignment Strategy*
- *Enabling Cohorts in your Course*
- *Adding Cohorts*
- *Assign Learners to Cohorts Manually*
- *Assign Learners to Cohorts by Uploading a .csv File*
- *Altering Cohort Configuration in a Running Course*
- *Change Student Cohort Assignments*
- *Rename a Cohort*
- *Changing the Assignment Method of a Cohort*
- *Disable Cohorts in Your Course*

Overview

To use cohorts in your course, you must select a strategy for assigning your learners to cohorts: automated assignment, manual assignment, or a hybrid approach. For more information, see [Options for Assigning Learners to Cohorts](#).

Note: Although you can change the assignment method for cohorts at any time, you should have a strategy in mind as you design your course, and only make changes to cohorts while the course is running if absolutely necessary.

You must also decide whether course-wide and content-specific discussion topics should be divided by cohort or unified for all learners.

After you decide on a cohort strategy for your course, complete these configuration steps (as applicable).

1. [Enable cohorts](#).
2. Determine the method you want to use to assign students to cohorts.
 - [Implement an automated assignment strategy](#)
 - [Implement a manual assignment strategy](#) and [manually assign enrolled learners](#) to the cohorts that you create
 - [Use a combination of automated and manual assignment](#)
3. Optionally, identify the discussion topics that you want to be divided by cohort.
 - Course-wide discussion topics are unified by default, but you can specify that they are [divided by cohort](#).
 - Content-specific discussion topics are divided by cohort by default. You do not need to take any action if you want [all content-specific discussions](#) to be divided by cohort. You only need to change settings if you want to make [only a few discussion topics divided by cohort](#) and make the remaining topics unified.

You complete these procedures on the **Cohorts** tab on the Instructor Dashboard.

For an optimal learner experience, you should make sure that configuration of the cohort feature is as complete as possible before the start date of your course. If you need to make changes to the way you have configured cohorts while your course is running, be aware of the implications of your changes. For more information, see [Altering Cohort Configuration in a Running Course](#).

Implementing an Automated Assignment Strategy

To implement an automated assignment strategy of learners to cohorts, you [enable the cohort feature](#) for your course, and [create cohorts](#) that have the **Automatic assignment method**. To add learners to these cohorts, you do not need to take any action: the system automatically and randomly assigns learners to the available automatic cohorts when they first access any course content or discussion on the **Course** or **Discussion** pages. Learners who access the **Home** page or other course pages such as a **Textbook** page do not receive a cohort assignment until they view course content or discussions.

Note: You can [add learners manually](#) to any cohort, whether it was created as an automated cohort or a manual cohort.

For a scenario using an automated assignment strategy, see [Automated Assignment: Making MOOC Discussions Manageable](#). For a scenario using a combination of automated and manual assignment to cohorts, see [Hybrid Assignment: Accommodating Small Groups Within a Course](#).

Automated Cohorts

The first time a learner views course content on the **Course** or **Discussion** page, if she is not already assigned to a cohort, she is randomly assigned to one of the automated cohorts. If no automated cohorts exist, the system creates a *default cohort* and assigns the learner to this cohort.

Note: The default cohort is created to ensure that every learner is assigned to a cohort. To avoid having to re-assign learners from the default cohort to other cohorts, make sure you create the automated cohorts that you want before the course starts.

Implementing a Manual Assignment Strategy

To implement a manual assignment strategy of learners to cohorts, you *enable the cohort feature* for your course, and *create cohorts* that have the **Manual assignment method**. Then, you manually assign enrolled learners to the appropriate cohorts.

Note: You can only add learners to a cohort manually if they have enrolled in your course.

Manual assignments should be as complete as possible before your course starts. If learners enroll after your course starts, you should continue to assign new learners to cohorts. If you need to make changes to the way you have configured cohorts while your course is running, see *Altering Cohort Configuration in a Running Course*.

For a scenario using a manual assignment strategy, see *Manual Assignment: Grouping by Common Characteristics*. For a scenario using a combination of automated and manual assignment to cohorts, see *Hybrid Assignment: Accommodating Small Groups Within a Course*.

Enabling Cohorts in your Course

To enable cohorts in your course, follow these steps.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Select **Enable Cohorts**.

You can now *add cohorts* to your course.

Warning: Be very careful in deciding to enable the cohort feature in a live course, because doing so affects the course experience for learners. Learners might no longer have access to course and discussion topics that were previously visible to them.

If you must make changes to cohort configuration while your course is running, be sure you understand the consequences of doing so. For details, see *Altering Cohort Configuration in a Running Course*.

Adding Cohorts

After you enable the cohorts feature for your course, you can add cohorts. To add a cohort to your course, follow these steps.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Click **Add Cohort**.

3. Enter a name for the cohort.

Note: Learners can see the name of the cohort they are assigned to. The message “This post is visible only to {cohort name}” appears with each post in discussion topics that are divided by cohort. See [Read the Cohort Indicator in Posts](#).

4. Specify whether learners are automatically or manually assigned to this cohort.
5. Optionally, select **Select a Content Group** to associate the cohort with a [content group](#). For information about creating cohort-specific course content by associating cohorts with content groups, see [Creating Cohort-Specific Course Content](#).
6. Select **Save**.

Continue implementing your cohort strategy by creating additional cohorts as applicable, and specifying the assignment method for each cohort.

Note: When your course starts, you must have at least one cohort in your course that has automatic assignment. If you have not created at least one automated assignment cohort in the course by the time that the first learner accesses your course content, edX creates a default cohort to which learners are automatically assigned.

For details about adding learners to a cohort by uploading a .csv file, see [Assign Learners to Cohorts by Uploading a .csv File](#).

For a report that includes the cohort assignment for every enrolled learner, review the learner profile information for your course. See [Download or View Learner Data](#).

Note: You cannot delete cohorts, but you can change their names or the way in which learners are assigned to them. If you need to make changes to the way you have configured cohorts while your course is running, see [Altering Cohort Configuration in a Running Course](#).

Assign Learners to Cohorts Manually

If you have implemented a manual assignment strategy for cohorts in your course, make sure your manual assignments are as complete as possible before your course starts. Making changes to cohort assignments after the course starts affects the course experience for learners.

To manually assign learners to cohorts in your course, follow these steps.

Note: You can only add learners to a cohort manually if they have enrolled in your course.

1. View the live version of your course. For example, in Studio click **View Live**.
2. Select **Instructor**, then select **Cohorts**.
3. Scroll to the **Cohort Management** section at the bottom.
4. From the **Select a cohort** list, select the cohort to which you want to manually assign students.
5. On the **Manage Students** tab, under **Add students to this cohort** enter the username or email address of a single student, or enter multiple usernames or addresses separated by commas or new lines. You can copy data from a .csv file of email addresses or usernames, and paste it into this field.

6. Select **Add Students**. The learners you added are assigned to the selected manual cohort. A message appears to indicate the number of learners who were added to the cohort. Because learners can belong to only one cohort, the message also indicates the number of learners whose assignment to another cohort was changed as a result of your adding them to another cohort using this procedure.

For a report that includes the cohort assignment for every enrolled learner, review the learner profile information for your course. See [Download or View Learner Data](#).

Assign Learners to Cohorts by Uploading a .csv File

Uploading a .csv file containing a list of learners and the cohorts that you want to assign them to is another way of assigning learners to cohorts manually. For details about the other manual assignment method, see [Assign Learners to Cohorts Manually](#).

Note: You can only add learners to a cohort using a .csv file if they have enrolled in your course.

Any assignments to cohorts that you specify in the .csv files you upload will overwrite or change existing cohort assignments. The configuration of your cohorts should be complete and stable before your course begins. You should also complete manual cohort assignments as soon as possible after any learner enrolls, including any enrollments that occur while your course is running. To understand the effects of changing cohort assignments after your course has started, see [Altering Cohort Configuration in a Running Course](#).

Note: Be aware that the contents of the .csv file are processed row by row, from top to bottom, and each row is treated independently.

For example, if your .csv file contains conflicting information such as Student A being first assigned to Cohort 1, then later in the spreadsheet being assigned to Cohort 2, the end result of your .csv upload is that Student A is assigned to Cohort 2. However, the upload results file will count Student A twice in the “Students Added” count: once when they are added to Cohort 1, and again when they are added to Cohort 2. Before submitting a file for upload, check it carefully for errors.

The requirements for the .csv file are summarized in this table.

Requirement	Notes
Valid .csv file	The file must be a properly formatted comma-separated values file: <ul style="list-style-type: none"> • The file extension is .csv. • Every row must have the same number of commas, whether or not there are values in each cell.
File size	The file size of .csv files for upload is limited to a maximum of 2MB.
UTF-8 encoded	You must save the file with UTF-8 encoding so that Unicode characters display correctly. See Creating a Unicode-encoded .csv File .
Header row	You must include a header row, with column names that exactly match those specified in “Columns” below.
One or two columns identifying students	You must include at least one column identifying students: either “email” or “username”, or both. If both the username and an email address are provided for a student, the email address has precedence. In other words, if an email address is present, an incorrect or non- matching username is ignored.
One column identifying the cohort	You must include one column named “cohort” to identify the cohort to which you are assigning each student. The specified cohorts must already exist in Studio.
	Columns with headings other than “email”, “username” and “cohort” are ignored.

To manually add enrolled learners to cohorts by uploading a .csv file, follow these steps.

1. View the live version of your course. For example, in Studio, select **View Live**.
2. Select **Instructor**, then select **Cohorts**.
3. From the **Select a cohort** list, select the cohort to which you are adding students.
4. Select **Assign students to cohorts by uploading a CSV file**, then select **Browse** to navigate to the .csv file you want to upload.
5. Select **Upload File and Assign Students**. A status message is displayed above the **Browse** button.
6. Verify your upload results on the **Data Download** page.

Under **Reports Available for Download**, locate the link to a .csv file with “cohort_results” and the date and time of your upload in the filename. The list of available reports is sorted chronologically, with the most recently generated files at the top.

The results file provides the following information:

Column	Description
Cohort	The name of the cohort to which you are assigning learners.
Exists	Whether the cohort was found in the system. TRUE/FALSE. If the cohort was not found (value is FALSE), no action is taken for students you assigned to that cohort in the .csv file.
Students Added	The number of learners added to the cohort during the row by row processing of the .csv file.
Students Not Found	A list of email addresses or usernames (if email addresses were not supplied) of learners who could not be matched by either email address or username and who were therefore not added to the cohort.

For a report that includes the cohort assignment for every enrolled learner, review the learner profile information for your course. See [Download or View Learner Data](#).

Creating a Unicode-encoded .csv File

Make sure the .csv files that you upload are encoded as UTF-8, so that any Unicode characters are correctly saved and displayed.

Note: Some spreadsheet applications (for example, MS Excel) do not allow you to specify encoding when you save a spreadsheet as a .csv file. To ensure that you are able to create a .csv file that is UTF-8 encoded, use a spreadsheet application such as Google Sheets, LibreOffice, or Apache OpenOffice.

Altering Cohort Configuration in a Running Course

The configuration of cohorts should be complete and stable before your course begins. Manual cohort assignments should be completed as soon as possible after any learner enrolls, including any enrollments that occur while your course is running.

If you decide that you must alter cohort configuration after your course starts and activity in the course discussion begins, be sure that you understand the consequences of these actions.

- [Change Student Cohort Assignments](#)
- [Rename a Cohort](#)
- [Delete a Cohort](#)
- [Changing the Assignment Method of a Cohort](#)
- [Disable Cohorts in Your Course](#)

Change Student Cohort Assignments

After your course starts and learners begin to contribute to the course discussion, each post that they add is visible either to everyone or to the members of a single cohort. When you change the cohort that a learner is assigned to, there are three results.

- The learner continues to see the posts that are visible to everyone.
- The learner sees the posts that are visible to his new cohort.

- The learner no longer sees the posts that are visible only to his original cohort.

The visibility of a post and its responses and comments does not change, even if the cohort assignment of its author changes. To a learner, it can seem that posts have “disappeared”.

To verify the cohort assignments for your learners, download the [student profile report](#) for your course. If changes are needed, you can [assign learners](#) to different cohorts manually on the **Cohorts** page of the Instructor Dashboard, or [upload cohort assignment changes](#) in a .csv file.

Rename a Cohort

You can change the name of any cohort, including the system-created default cohort.

To rename a cohort, follow these steps.

1. View the live version of your course. For example, in Studio select **View Live**.
2. Select **Instructor**, then select **Cohorts**.
3. From the **Select a cohort** list, select the cohort whose name you want to change.
4. On the **Settings** tab, in the **Cohort Name** field, enter a new name for the cohort.
5. Select **Save**. The name for the cohort is updated throughout the LMS and the course, including learner-visible views.

Delete a Cohort

You cannot delete cohorts. However, you can [rename a cohort](#), [change its assignment method](#), or move learners to other cohorts.

If you decide that you must alter cohort configuration after your course starts and learners begin viewing the course and the discussion topics, be sure that you understand the consequences of these actions. For more details, see [Altering Cohort Configuration in a Running Course](#).

Changing the Assignment Method of a Cohort

Although you can change the assignment method of a cohort at any time after you create it, you should have a strategy in mind as you design your course, and only make changes to cohorts while the course is running if absolutely necessary. Be aware of the implications of changing cohort configuration while your course is running. For more information, see [Options for Assigning Learners to Cohorts](#) and [Altering Cohort Configuration in a Running Course](#).

Note: When your course starts, you must have at least one cohort in your course that has automatic assignment. If you have not created at least one automated assignment cohort in the course by the time that the first learner accesses your course content, edX creates a default cohort to which learners are automatically assigned. If the [default group](#) is the only automated assignment cohort in your course, you cannot change its assignment method to **Manual**.

To change the assignment method of a cohort, follow these steps.

1. View the live version of your course. For example, in Studio select **View Live**.
2. Select **Instructor**, then select **Cohorts**.
3. From the **Select a cohort** list, select the cohort whose assignment method you want to change.
4. On the **Settings** tab, the current assignment method is selected. Change the assignment method by selecting the other option, either **Automatic** or **Manual**.

5. Select **Save**.

The cohort assignment method is updated.

Note: Changing the cohort assignment method has no effect on learners who are already assigned to this and other cohorts. Learners who access the course after you make this change are assigned to cohorts based on the new assignment method of this cohort combined with the assignment methods of all other cohorts.

Disable Cohorts in Your Course

Warning: Be very careful in deciding to disable the cohort feature if you previously had it enabled in a live course, because doing so affects the course experience for learners. Course materials and discussion posts that were shared only with members of particular cohorts are now visible to all learners in the course.

If you must make changes to the way you have configured cohorts while your course is running, be sure you understand the consequences of doing so. For details, see [Altering Cohort Configuration in a Running Course](#).

To disable cohorts in your course, follow these steps.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Clear the **Enable Cohorts** option.

All course content and discussion posts that were previously divided by cohort immediately become visible to all students.

10.1.3 Creating Cohort-Specific Course Content

This section provides information about setting up content for specific cohorts.

- [Overview](#)
- [Example: Cohort-Specific Course Content](#)
- [Content Groups](#)
- [Create Content Groups](#)
- [View Usage of a Content Group](#)
- [Delete Content Groups](#)
- [Specify Components as Visible Only to Particular Content Groups](#)
- [Associate Cohorts with Content Groups](#)
- [Preview Cohort-Specific Course Content](#)

Overview

If you have *enabled cohorts* in your course, you can create different course experiences for learners in different cohorts.

You can design your course so that some learners are given different content than others. You do this by creating *content groups* in Studio, and designating specific components in your course as visible only to one or more content groups. Then, if you associate one or more cohorts with a content group, only the learners in cohorts associated with that content group can see course content that you have designated for it.

For more details about content groups, see [Content Groups](#). For an example of cohort-specific course content, see [Example: Cohort-Specific Course Content](#).

Complete these steps to create cohort-specific content in your course.

In Studio

1. *Enable cohorts in your course.*
2. *Create content groups.*
3. *Specify course components as visible only to particular content groups.*

In the LMS

1. *Assign learners to cohorts.*
2. *Associate one or more cohorts with a content group.*
3. *Preview cohort-specific course content.*

Example: Cohort-Specific Course Content

Suppose that you create two *cohorts* in your course: University Alumni and Current University Students. Learners who are not in either of these cohorts are automatically placed into a third cohort, the default cohort, when they access the **Course** or **Discussion** tabs in the course. For more information about enabling cohorts in your course and assigning students to cohorts, see *Enabling and Configuring the Cohorts Feature*.

You intend all learners to have substantially the same course experience, with the exception that only learners in the two university-related cohorts will receive content that is specific to your university and therefore only of interest to them.

At the end of every section, you intend to include a video message from various university officials, including the university president and the dean of your college. These videos will be shown only to learners in the university and alumni cohorts. Also at the end of each section, you intend to include a quiz to test knowledge of the concepts taught in that section. The quiz will be shown to all learners enrolled in the course.

To achieve this, on the **Group Configurations** page in Studio you create one content group called “University-Specific Content”. In the Instructor Dashboard, on the **Cohorts** tab, you associate both the “University Alumni” and the “Current University Students” cohorts with the “University-Specific Content” content group.

Then, in your course outline, you change the visibility settings for the video component at the end of each section so that it is visible only to the “University-Specific Content” content group. You do not need to edit the visibility settings of the quiz component, because if no content group is specified in a component’s visibility settings, it is visible to all learners.

As a final step, you preview the course in the LMS to ensure that learners see the content that is intended for them. You confirm that when you view the course in the role of **Student** (in other words, any learner not in a content group), you see a quiz at the end of each section, but do not see the university-related videos. When you view the course as a learner in the “University-Specific Content” group, you see a university-related video as well as the quiz at the end of each section.

Content Groups

Content groups are virtual groupings of learners who will see a particular set of course content. You can use content groups to designate specific course content as visible to particular *cohorts* of learners.

You create content groups in Studio, and in your course outline you use the **Visibility Settings** to designate whether a component is selectively visible only to one or more content groups. Any course components that do not have an explicitly restricted visibility setting remain visible to all students, regardless of their cohort.

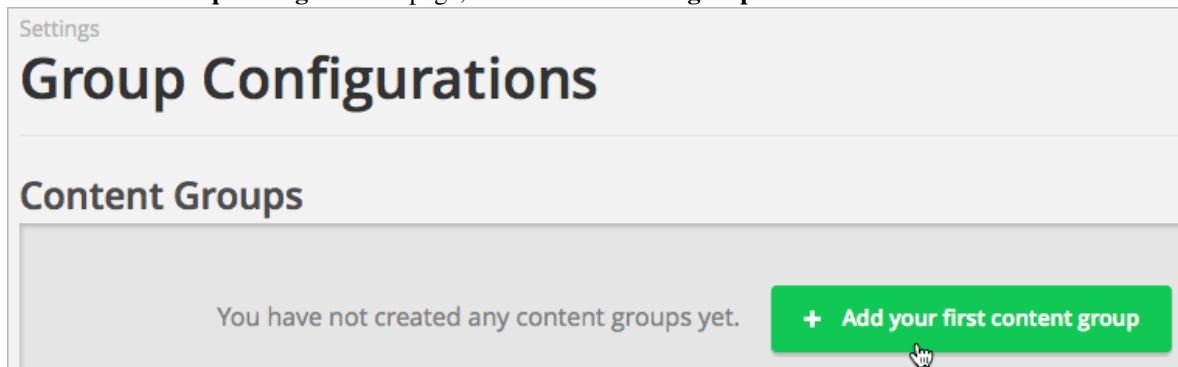
Content groups do not have an actual impact on the visibility of a course component until you associate them with one or more cohorts. If you have designated certain course content as visible to a content group, and in addition have associated that content group with one or more cohorts, then those cohorts will see the designated content.

For an example of using content groups to create cohort-specific course content, see [Example: Cohort-Specific Course Content](#).

Create Content Groups

To create a content group, follow these steps.

1. In Studio, select **Settings**, then select **Group Configurations**.
2. On the **Group Configurations** page, select **New content group**.



3. Enter a meaningful name for the content group, then select **Create**. The page refreshes to show the name of your new content group.
4. Repeat this step to create as many content groups as you want.

After you create a content group, you can work with your course outline to specify which components are visible to specific content groups. For details, see [Specify Components as Visible Only to Particular Content Groups](#).

On the Instructor Dashboard, you associate each content group with one or more cohorts. For details, see [Associate Cohorts with Content Groups](#).

View Usage of a Content Group

To view the units that are visible to a content group, follow these steps.

1. In Studio, select **Settings**, then select **Group Configurations**.
2. On the **Group Configurations** page, locate the content group for which you want to view the usage.

The content group's box displays whether the content group is used in this course. If it is used, you see the number of units that it is used in, and links to each unit.

3. Select each link to go to that unit in the **Course Outline**, where you can *specify whether that unit is visible to the content group*.

For details about previewing your course to ensure that learners in a cohort correctly see the content intended for them, see [Preview Cohort-Specific Course Content](#). For details about deleting content groups, see [Delete Content Groups](#).

Delete Content Groups

Note: You can delete a content group only if it is not in use in any course unit. To delete a content group that is currently in use, you must first remove it from any course unit visibility settings that use the content group. For information about seeing which units use a content group, see [View Usage of a Content Group](#).

1. In Studio, select **Settings**, then select **Group Configurations**.
2. On the **Group Configurations** page, locate the content group that you want to delete.
3. Move your cursor over the content group's box, then select the **Delete** icon.
4. In the confirmation message, select **Delete** again to confirm the deletion.

Specify Components as Visible Only to Particular Content Groups

After you create at least one content group, you can edit your course in Studio and modify the visibility settings of components that you want to make visible only to particular content groups.

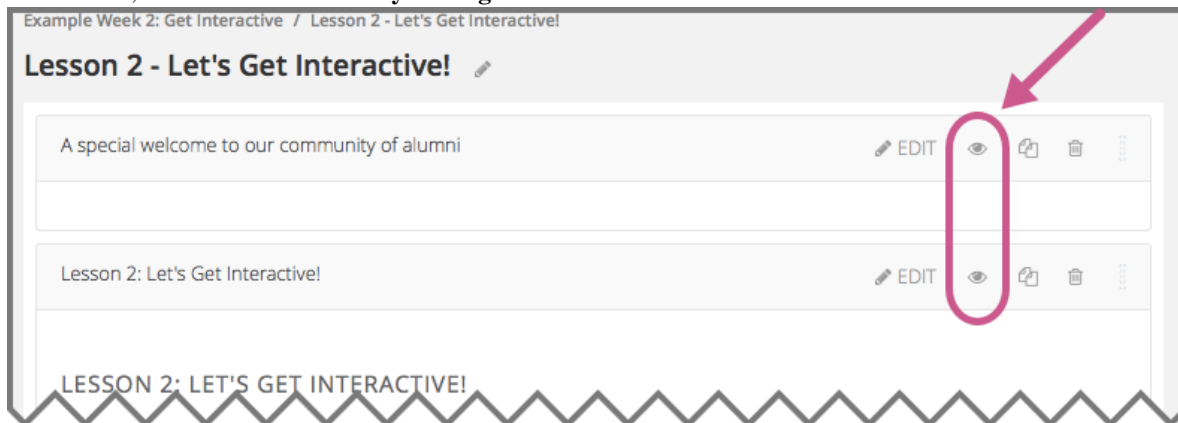
Note: You do not need to edit the visibility settings of components that are intended for all learners. Components that you do not explicitly indicate as visible to a group are visible to all learners enrolled in your course, regardless of the cohort that they belong to.

You can specify content as visible to content groups only at the component level in a unit. You cannot specify entire units, subsections, or sections for visibility to content groups.

In a separate task, you create cohorts and associate content groups with cohorts. Then, only the cohorts associated with content groups which you selected in a component's visibility settings can view the component. See [Associate Cohorts with Content Groups](#) for details about associating cohorts with content groups.

To specify components as visible only to particular content groups, follow these steps.

1. In Studio, select **Content**, then select **Outline**.
2. For each component that you want to make visible only to a particular content group or groups, select the unit name, then select the **Visibility Settings** icon.



3. In the **Editing visibility** dialog, select **Specific Content Groups**, then select the checkbox for each content group for which you want the current component to be visible.

Editing visibility for: Checkbox Problem

Make visible to:

☐ All Students and Staff

☒ **Specific Content Groups**

☒ **University-Specific Content**

Save Cancel

4. Select **Save**.

The **Visibility Settings** icon for the component is now black.



The publishing details for the course section in the sidebar indicate that some content is visible only to particular groups.

Draft (Unpublished changes)

Draft saved on Jan 14, 2015 at 21:40 UTC by staff

RELEASE:
Jan 01, 2013 at 00:00 UTC
with Section "Section"

WILL BE VISIBLE TO:
Staff and Students
☒ Some content in this unit is visible only to particular content groups
☐ Hide from students

For details about previewing your course to ensure that students in a cohort correctly see the content intended for them, see [Preview Cohort-Specific Course Content](#).

Note: In addition to visibility settings for content groups, a learner's ability to see a course component also depends on whether it is hidden from students, whether the unit is published, and the course's release date. For details about previewing course content in general, see [Preview Course Content](#).

Associate Cohorts with Content Groups

After you create a content group, you can associate it with one or more cohorts with which you want to share the same special content.

Note: A content group can be associated with more than one cohort; a cohort cannot be associated with more than one content group.

To associate a cohort with a content group, follow these steps:

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. From the cohorts drop down list, select the cohort to which you want to associate your content group.
3. Select the **Settings** tab for the selected cohort.
4. Under **Associated Content Group**, choose the **Select a Content Group** option.
5. From the content group drop down list, select the content group that you want your cohort to be associated with.

Cohort Name *

University Alumni

Cohort Assignment Method

☐ Automatic

☒ Manual

Associated Content Group

☐ No Content Group

☒ Select a Content Group **University-Specific Content**

Save **Cancel**

6. Select **Save**.

You have now associated your content group with a cohort. Any course content that you *designate as visible to that content group* is visible to students in the associated cohort or cohorts.

You can associate additional cohorts with the same or a different content group by repeating steps 3 to 7.

For an example of using content groups to create cohort-specific course content, see [Example: Cohort-Specific Course Content](#).

Preview Cohort-Specific Course Content

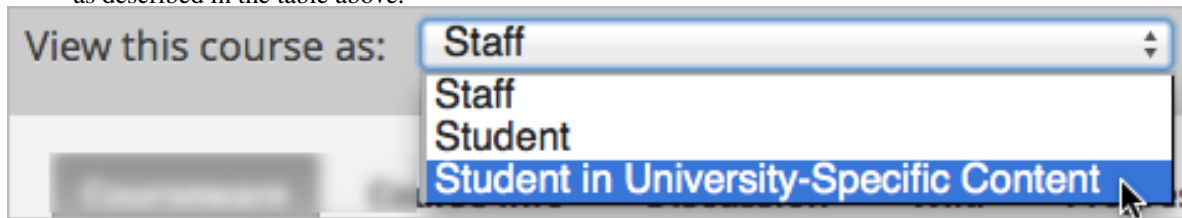
After you designate components as being visible only to certain content groups, you can preview your course content to ensure that each group correctly sees the content intended for them.

Note: In addition to visibility settings for content groups, a learner's ability to see a course component also depends on whether it is hidden from students, whether the unit is published, and the course's release date. For details about previewing course content in general, see [Preview Course Content](#).

You can view the course as a member of these groups.

Role	When You “View As” This Role
Staff	You see all content in the course, including content that is hidden from learners.
Student	You see any content that is intended for all students.
Specific Student	You see content that is intended for the student whose email or username you specify.
Student in <Content Group Name>	You see content that is intended for all learners, as well as any content specifically set to be visible to this content group.

1. In Studio, in the course outline, select **Preview**. You see your course section in the **Course** section of the LMS.
2. In the navigation bar at the top of the page, select one of the options in the **View this course as** drop down list, as described in the table above.



The course view refreshes and the content is presented as a member of the selected content group would see it.

After your course is live, you can also see the live version as a learner would see it, by selecting **View Live** from Studio. For more information, see [View Your Live Course](#).

10.1.4 Setting up Discussions in Courses with Cohorts

This section provides information about setting up discussions for specific cohorts.

- [Overview](#)
- [Course-Wide Discussion Topics and Cohorts](#)
- [Specify Whether Course-Wide Discussion Topics are Divided by Cohort](#)
- [Content-Specific Discussion Topics and Cohorts](#)
- [Specify that All Content-Specific Discussion Topics are Cohorted](#)
- [Specify that Some Content-Specific Discussion Topics are Divided by Cohort](#)

Overview

In courses that have cohorts enabled, discussion topics can be either divided by cohort, or unified and accessible to all learners.

Discussion topics that are divided by cohort are visible to all learners but the posts, responses, and comments within them are divided so that they are visible only to members of the same cohort. Posts, responses, and comments within unified discussion topics are visible to all learners in the course, regardless of cohort.

When you first enable cohorts in your course, the initial behavior for *course-wide discussion topics* is different from the behavior of *content-specific discussion topics*.

By default, course-wide discussion topics are unified because these discussions are generally used for posts that are of broad interest to all learners in the course. In contrast, content-specific discussion topics are by default divided by cohort. On the Instructor Dashboard, you can change discussion topics of either type to be divided or unified.

Warning: If you change the cohort settings of discussion topics in a live course after learners have begun reading and contributing to discussion posts, you are changing their course experience. Learners might see posts that were previously not visible to them, or they might no longer see posts that were previously available to all learners. If you make changes to cohort settings in a running course, be aware of the implications of your changes. For more details, see *Altering Cohort Configuration in a Running Course*.

For information about cohort settings for discussion topics, see the following topics.

- *Course-Wide Discussion Topics and Cohorts*
- *Specify Whether Course-Wide Discussion Topics are Divided by Cohort*
- *Content-Specific Discussion Topics and Cohorts*
- *Specify that All Content-Specific Discussion Topics are Cohorted*
- *Specify that Some Content-Specific Discussion Topics are Divided by Cohort*

For overview information about discussions in a course, see *Managing Course Discussions*. For information about using cohorts in a course and managing discussions that are divided by cohort, see *Using Cohorts in Your Courses* and *Managing Discussions in Courses with Learner Cohorts*.

Note: Making discussion topics divided by cohort, described in this and the following topics, only divides posts within the discussion topics by cohort; the discussion topics are still visible to all learners in the course. If you want to make specific content-specific discussion topics visible only to certain cohorts, you can implement content groups and change the visibility settings on the discussion components. For more details, see *Creating Cohort-Specific Course Content*.

Course-Wide Discussion Topics and Cohorts

When you first *create a course-wide discussion topic*, it is unified, and all learners in the course can post, read, respond, and comment in the topic without regard to their cohort assignments.

After you add a course-wide topic, you can configure it so that it is divided by cohort instead. For step-by-step instructions for specifying whether a course-wide discussion topic is unified or divided by cohort, see *Specify Whether Course-Wide Discussion Topics are Divided by Cohort*.

Example: Making Some Course-Wide Discussion Topics Divided by Cohort

Course-wide discussion topics are by default unified, so that all learners can participate. In some instances, however, you might decide that it makes sense to divide some course-wide discussion topics by cohort, so that members of each cohort only see and respond to posts made by learners in the same cohort.

For example, in addition to the system-supplied General topic, you add three new course-wide discussion topics, for a total of four discussion topics.

- General
- Course Q&A
- Announcements
- Brainstorming

The posts that you intend to make to the General and Course Q&A topics, and the subjects you expect learners to explore there, are appropriate for a unified learner audience.

However, you decide that it will be useful for the Announcements and Brainstorming topics to be divided by cohort. For information about specifying whether course-wide discussion topics are divided by cohort, see [Specify Whether Course-Wide Discussion Topics are Divided by Cohort](#).

You also decide to apply a naming convention so that learners will know the audience for the discussion topics before they add any posts. For information about naming conventions, see [Apply Naming Conventions to Discussion Topics](#).

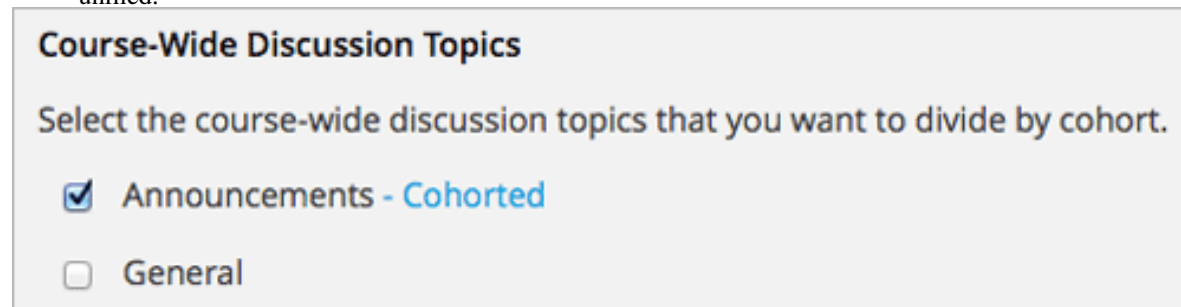
Specify Whether Course-Wide Discussion Topics are Divided by Cohort

When you [create course-wide discussion topics](#), they are by default unified, and all learners in the course can see and respond to posts from all other learners. You can change course-wide discussion topics to be divided by cohort, so that only members of the same cohort can see and respond to each other's posts.

To change the cohort settings for course-wide discussion topics, follow these steps.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Select **Specify whether discussion topics are divided by cohort**.
3. In the **Course-Wide Discussion Topics** section, select the checkbox next to each course-wide discussion topic that you want to divide by cohort. Clear the checkbox next to each course-wide discussion topic that you want to make unified.
4. Select **Save**.

The list of course-wide discussion topics is updated to show which topics are divided by cohort, and which are unified.



Course-Wide Discussion Topics

Select the course-wide discussion topics that you want to divide by cohort.

☒ Announcements - Cohorted

☐ General

For more information about managing discussions that are divided by cohort, see [Managing Discussions in Courses with Learner Cohorts](#).

Content-Specific Discussion Topics and Cohorts

When you enable the cohort feature for a course, and [create content-specific discussion topics](#) by adding discussion components to units in Studio, these content-specific discussion topics are by default divided by cohort. A learner who is assigned to one cohort cannot read or add to the posts, responses, or comments contributed by the members of another cohort.

If you want all content-specific discussion topics in your course to be divided by cohort, you do not need to take any action. For more information, see [Specify that All Content-Specific Discussion Topics are Cohorted](#).

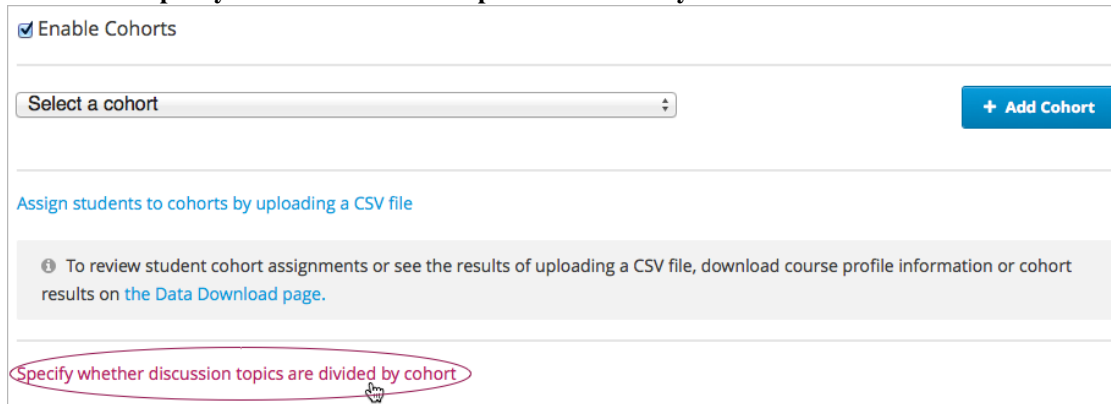
Alternatively, you can specify that you want most of the content-specific discussion topics in your course to be unified, and make [only a few discussion topics divided by cohort](#).

Specify that All Content-Specific Discussion Topics are Cohorted

The default behavior for content-specific discussion topics is that they are divided by cohort when you first *add them* in your course. If you want all content-specific discussion topics in your course to be divided by cohort, you do not need to take any action.

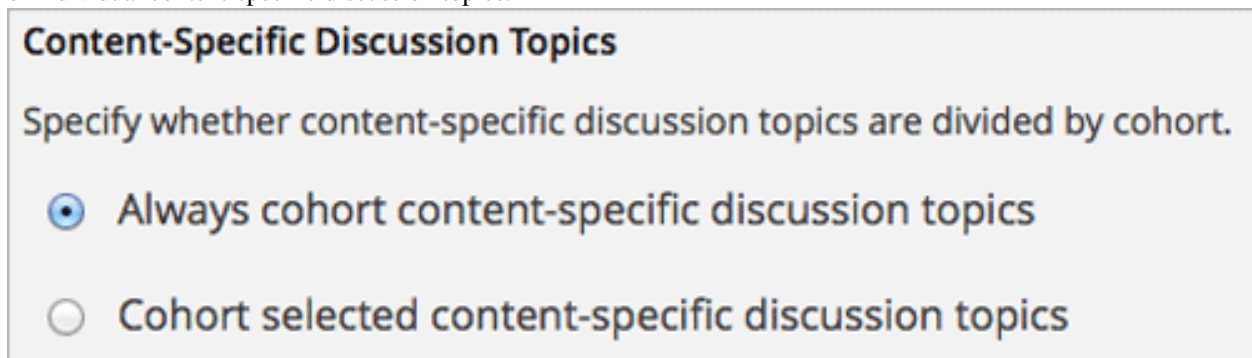
You can confirm this setting on the Instructor Dashboard **Cohorts** tab.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Select **Specify whether discussion topics are divided by cohort**.



In the **Content-Specific Discussion Topics** section, you see that the **Always cohort content-specific discussion topics** option is selected.

All content-specific discussion topics in your course are divided by cohort, and you cannot change the cohort settings of individual content-specific discussion topics.



For information about changing the cohort settings for your content-specific discussions to make all of them unified except a few, see *Specify that Some Content-Specific Discussion Topics are Divided by Cohort*.

Specify that Some Content-Specific Discussion Topics are Divided by Cohort

The default behavior for content-specific discussion topics is that they are divided by cohort when you first *add them* in your course.

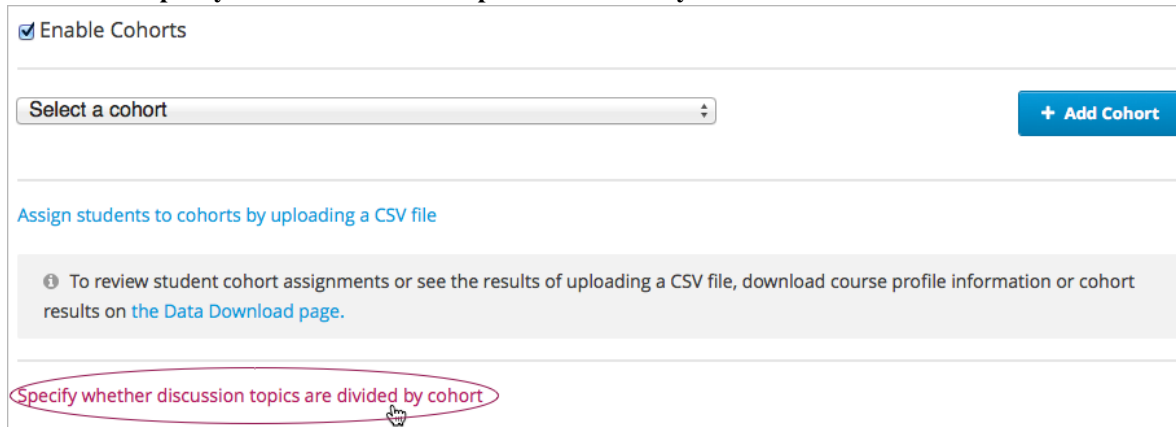
To make only a few of your content-specific discussion topics divided by cohort, you change the cohort settings for content-specific discussion topics to make them all unified, and then explicitly select only the topics that you want to be divided by cohort.

Warning: When you change the cohort setting from **Always Cohort Content- Specific Discussion Topics** to **Cohort Selected Content-Specific Discussion Topics**, you are making all content-specific discussion topics in your course unified, unless you explicitly change them to be divided by cohort before saving your changes. This means that any posts that were previously divided by cohort and restricted to viewing, responding, and commenting by members of the same cohort are now visible to all learners in your course.

If you make changes to cohort settings in a running course, be aware of the implications of your changes. For more details, see [Altering Cohort Configuration in a Running Course](#).

To specify that only some content-specific discussion topics in your course are divided by cohort, follow these steps.

1. In the LMS, select **Instructor**, then select **Cohorts**.
2. Select **Specify whether discussion topics are divided by cohort**.



☒ Enable Cohorts

Select a cohort + Add Cohort

Assign students to cohorts by uploading a CSV file

To review student cohort assignments or see the results of uploading a CSV file, download course profile information or cohort results on the [Data Download page](#).

Specify whether discussion topics are divided by cohort

3. In the **Content-Specific Discussion Topics** section, if it is not already selected, select **Cohort selected content-specific discussion topics**.

Warning: If you make changes to cohort settings in a running course, be aware of the implications of your changes. For more details, see [Altering Cohort Configuration in a Running Course](#).

All content-specific discussion topics that you add in your course are unified and visible to all learners. The list of content-specific discussion topics becomes editable.

4. Select the checkbox next to each content-specific discussion topic that you want to divide by cohort.

Content-Specific Discussion Topics

Specify whether content-specific discussion topics are divided by cohort.

- ☐ Always cohort content-specific discussion topics
- ☒ Cohort selected content-specific discussion topics

Week 1

- ☒ Discussion for Assignment 2 - Cohorted
- ☐ Discussion for Assignment 1

5. Select **Save**.

The changes to your content-specific discussions are saved. The content-specific discussion topics that you selected are saved as being divided by cohort. All other content-specific discussion topics are unified.

For more information about managing discussions that are divided by cohort, see *Managing Discussions in Courses with Learner Cohorts*.

10.1.5 Managing Discussions in Courses with Learner Cohorts

This section provides information about managing discussions when cohorts are enabled in your course.

- *Overview*
- *Identifying Who Can Read a Post*
- *Choosing the Visibility of a Post*
- *Viewing the Posts of a Cohort*

Overview

In courses that have cohorts enabled, every post has an indicator of who can read it: either all learners, or only the members of a single cohort. For learners, this is the only noticeable difference between discussions in courses that include cohorts when compared to courses that do not.

You can share the examples in the *Read the Cohort Indicator in Posts* section with your learners, along with the *Participating in Course Discussions* section of this guide.

Course team members who have the discussion admin, discussion moderator, or community TA role see the same indicator of who can read each post. Unlike the learners, however, team members with discussion privileges can read and contribute to every post, regardless of the cohort assignment of the learner who posted it.

Note: Course team members must have the Discussion Moderator or Discussion Admin role in addition to the Staff or Admin role to be able to view posts that are divided by cohort. For information about assigning discussion moderation roles, see [Assign Discussion Administration Roles](#).

Learners who have the Community TA role can read and contribute to all posts.

In courses with the cohort feature enabled, course team members who have discussion moderator or admin privileges can also:

- Choose who will be able to see the posts that they add to divided topics. See [Choosing the Visibility of a Post](#).
- Filter the posts that are listed on the **Discussion** page by cohort. See [Viewing the Posts of a Cohort](#).

All of the other options and features described in the [Managing Course Discussions](#) section continue to be available to the discussion moderation team.

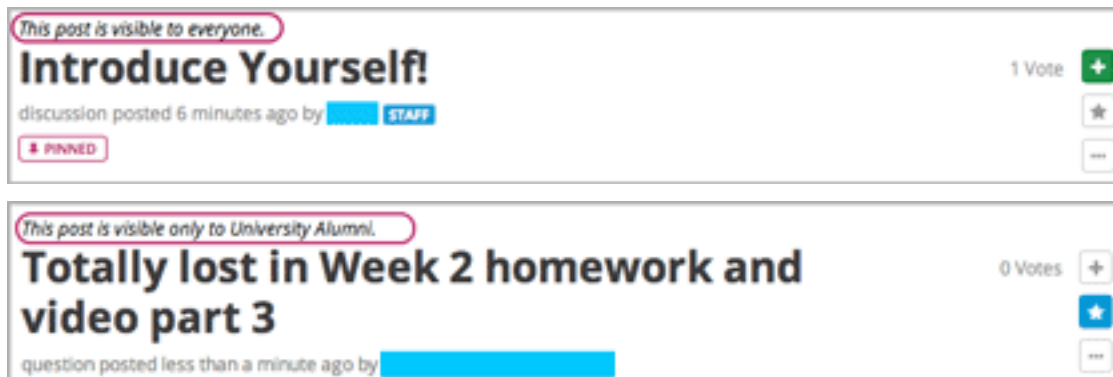
Identifying Who Can Read a Post

In a course that includes cohorts, all posts include a cohort indicator above the title. This indicator appears after any student or team member adds a post. Other than naming the cohorts carefully when you add them, no configuration is necessary to include this identifier.

Optionally, you can name your discussion topics to show students who will be able to view their posts. See [Apply Naming Conventions to Discussion Topics](#).

Read the Cohort Indicator in Posts

Every post includes a sentence that identifies whether everyone can see and contribute to it, or only the members of a cohort in the course. Examples follow.

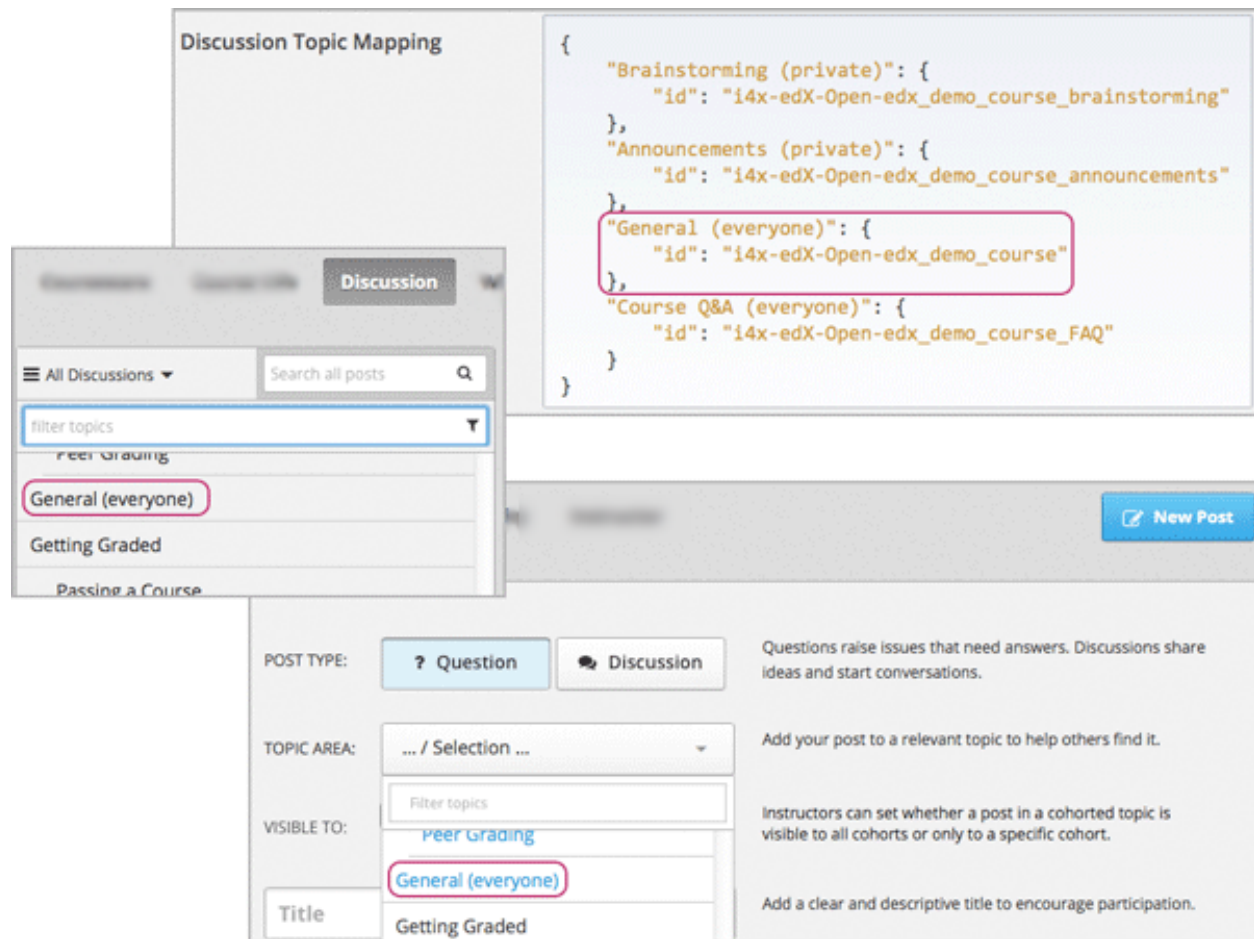


You see this identifier after you add your post. All of the responses and comments that other contributors add to a post are visible to the same group of people as the post itself.

Apply Naming Conventions to Discussion Topics

Optionally, course team members can give learners the audience context of their posts before they add them. Indicating who will be able to read posts in the names of the topics themselves can be useful when a cohort is particularly sensitive about the privacy of their conversations.

For example, you add “(everyone)” to the names of the unified course-wide discussion topics in your course.



When learners visit the **Discussion** page and use dropdown lists to select a course-wide topic, the topic names indicate who can see the posts, responses, and comments.

(In the illustration above, every topic name includes either “(everyone)” or “(private)”. You might find it necessary only to explicitly identify topics that have a unified audience for all posts.)

For more information about adding and configuring course-wide discussion topics, see [Create Course-Wide Discussion Topics](#) and [Specify Whether Course-Wide Discussion Topics are Divided by Cohort](#).

If desired, you could also apply a naming convention to the content-specific discussion topics that you add as Discussion components in Studio. For example, you could include an identifier like “(private)” or “(small group)” in the **Subcategory** name of every Discussion component that you add.

Editing: Pointing on a Picture: Let's Discuss!

Category: Basic Question Types

A category name for the discussion. This name appears in the left pane of the discussion forum for the course.

Display Name: Pointing on a Picture: Let's Discuss!

Display name for this module

Subcategory: Pointing on a Picture (private)

A subcategory name for the discussion. This name appears in the left pane of the discussion forum for the course.

Filter topics

All Discussions

Posts I'm Following

Basic Question Types

Selection from Options

Pointing on a Picture (private)

Numerical Input

POST TYPE: ? Question Discussion

TOPIC AREA: ... / Selection ...

Title

Basic Question Types

Selection from Options

Pointing on a Picture (private)

Enter your

New Post

Choosing the Visibility of a Post

If you have the discussion admin, discussion moderator, or community TA role, you can make posts to divided discussion topics visible to everyone who is enrolled in the course or to the members of a selected cohort only. When you *add a post*, the **Visible to** dropdown list appears above the **Title** field.

This example shows a new post being added to a content-specific discussion topic.

The screenshot shows the 'New Post' form in Open edX. At the top left is a 'Hide Discussion' link with a speech bubble icon. At the top right is a blue 'New Post' button with a pencil icon. Below this is the 'POST TYPE' section with two buttons: '? Question' (highlighted in light blue) and 'Discussion'. To the right of these buttons is a text description: 'Questions raise issues that need answers. Discussions share ideas and start conversations.' Below the post type section is the 'VISIBLE TO:' section, which has a dropdown menu currently set to 'All Groups'. To the right of this dropdown is a text description: 'Instructors can set whether a post in a cohorted topic is visible to all cohorts or only to a specific cohort.' Below the visibility section is a 'Title' text input field. To the right of the title field is a text description: 'Add a clear and descriptive title to encourage participation.' Below the title field is a rich text editor toolbar with icons for bold (B), italic (I), link, unlink, quote, code, image, list, and table. Below the toolbar is a large text input field with the placeholder text 'Enter your question or comment...'.

As a discussion team member, you can choose the visibility of your posts in topics that are divided by cohort. This means that you can add a single post with information that you want everyone to see, rather than having to write a separate post for each cohort. It also means that it is possible for you to unintentionally share information with a different audience than you intended.

Note: Learners do not choose the visibility of their posts. The visibility of learner posts is determined by the configuration of the topic they post in. See *Identifying Who Can Read a Post*.

Posts that discussion team members add to unified discussion topics are always visible to all students, regardless of cohort assignment.

Considerations When Editing Posts

It may be helpful to keep these additional considerations in mind when you edit posts in a course that includes cohorts.

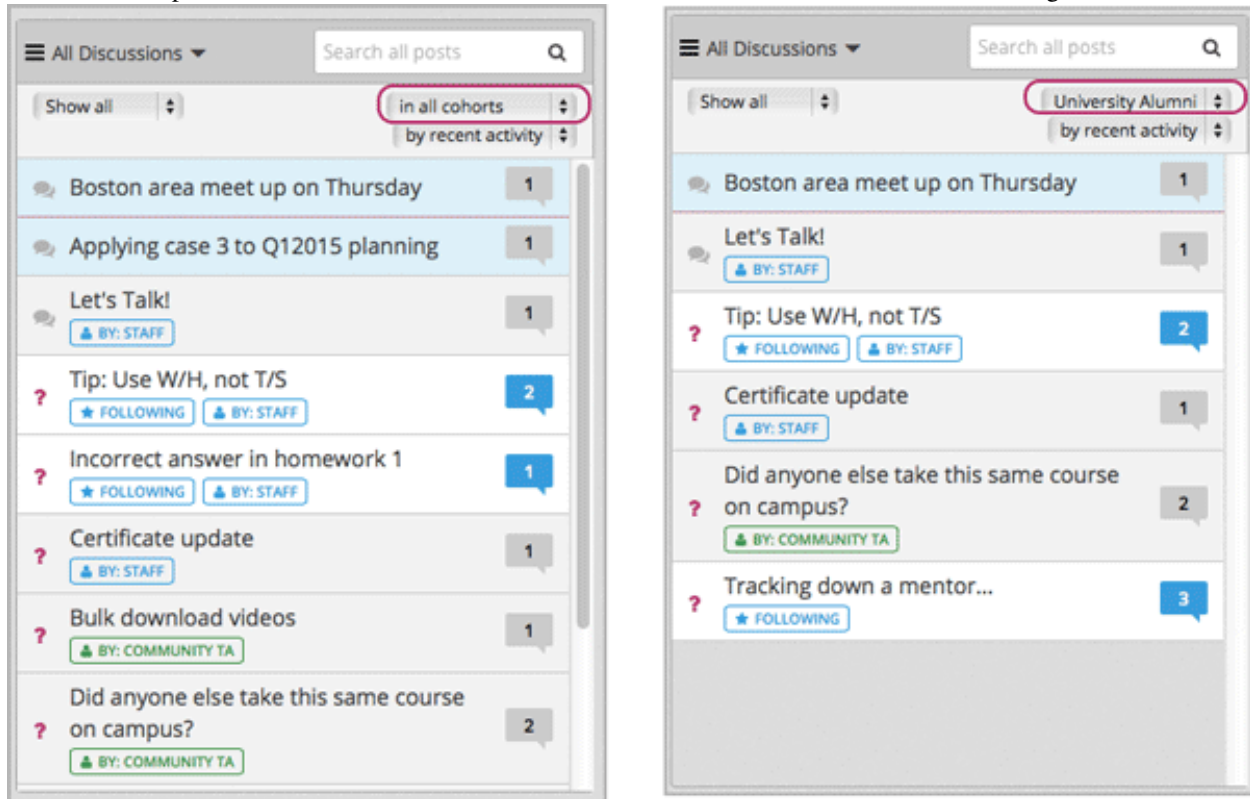
- You cannot change the visibility of a post after it has been added. If you notice that a post contains information that is not appropriate for the cohort who can read it, edit the content of the post or delete the post.
- If you change the topic that a post appears in, the visibility of the post and its responses and comments **does not change**. This ensures that learners who are following the post, or who have contributed responses or comments to it, will still be able to read it.
- All of the responses and comments that are contributed to a post will be visible to the same group of people as the post itself. You cannot change the visibility of individual responses or comments.

Viewing the Posts of a Cohort

When a course includes learner cohorts, you can view posts and monitor discussion activity for one cohort at a time. You can also view all posts.

Note: Course team members must have discussion moderator or admin privileges in addition to their course team privileges to be able to view posts that are divided by cohort.

Above the discussion navigation pane on the **Discussion** page, the **in all cohorts** filter is selected by default. You see every post when you make this selection, as shown in the illustration on the left. To limit the list so that you can view the same set of posts as the members of a cohort, select the name of that cohort as shown on the right.



Note that both of these lists include posts that are visible to everyone. When you filter the list by cohort, you see the same, complete set of posts that the members of the cohort see.

For other options that you can use to view posts, see [Find Posts](#).

10.2 Including Teams

10.2.1 Using Teams in Your Courses

This section provides conceptual and procedural information about using teams in your courses.

- [Teams Overview](#)
- [Enable and Configure Teams](#)
- [Create a Team](#)
- [Search for a Team](#)
- [Edit a Team](#)
- [Remove a Learner from a Team](#)
- [Delete a Team](#)

Teams Overview

Using teams in your course is an effective way for learners to interact and collaborate on small group projects or activities. You define topics that learners choose from; learners choose a topic they are interested in, and either join a team or create their own team within that topic. Each learner can belong to only one team.

When learners create a new team, they add names and descriptions to identify their team. They can also optionally specify a primary communication language and a primary country that members identify with. Team characteristics might serve as the basis for attracting new members, resulting in small groups of learners with similar interests and goals who will work together on projects or activities within the same topic area.

Teams are most effective when learners have a clear reason for joining a team, and a clear outcome to achieve with fellow team members. For example, you might create an assignment that consists of a group project or activity, with a choice of topics, and ask learners to join teams within the topic of their choice to complete the assignment. Team members can use discussions within the team to communicate and collaborate on the assignment.

Teams are not as effective when members have no specific team tasks or goals. EdX does not recommend using teams in your course if you want only to provide a way for learners to connect socially. You can encourage learners to connect socially by using discussions within the course. For more information about using discussions, see [Run a Discussion](#).

Enable and Configure Teams

To enable and configure teams in your course, modify the **Teams Configuration** policy key on the **Advanced Settings** page so that the key includes team topic names and the maximum team size.

Note: The **Teams** page in the LMS becomes available only after you have specified at least one team topic.

Note: EdX recommends that you do not delete topics once your course is running, and if learners might have already joined teams within topics. If you delete a topic from the **Teams Configuration** policy key, that topic is no longer visible in the LMS, and learners will not be able to leave teams associated with the deleted topic.

1. In Studio, from the **Settings** menu, select **Advanced Settings**, then locate the **Teams Configuration** policy key.

By default, you see a set of curly braces ({}). You define topics and the maximum team size inside this set of braces.

2. To specify the maximum team size for teams in your course, enter the `max_team_size` parameter in double quotation marks, followed by a colon, then a positive integer value representing the maximum number of team members allowed. For example, to set the maximum number of learners per team in your course to 5, your entry would look like this example.

```
"max_team_size": 5
```

3. To specify topics within which teams can be created, add entries under `"topics"`. For each topic, provide a description, name, and ID as shown in the example.

Make sure that you enclose all of the sets of topic values within a set of square brackets, with a comma after the closing square bracket.

Note: If you create more than one topic, make sure that you add a comma after the closing curly brace of each topic that has another topic following it. The syntax that you use must match the example syntax exactly. Missing or incorrect indentation, curly braces, brackets, or punctuation marks cause errors.

Note: For topic IDs, you can use only alphanumeric characters and the underscore, hyphen, and period characters.

```
{
  "topics": [
    {
      "name": "Sustainability in Corporations",
      "description": "Description for Sustainability in Corporations",
      "id": "Sustain_Corporations"
    },
    {
      "name": "Water Conservation Projects",
      "description": "Description for Water Conservation",
      "id": "Water_Conservation"
    },
    {
      "name": "Sustainability Standards and Reporting",
      "description": "Description for Sustainability Standards",
      "id": "Standards_Reporting"
    }
  ],
  "max_team_size": 5
}
```

The topics you have created appear on the **Teams** page in the LMS when learners browse teams by topic. The **Teams** page is not visible until you have created at least one topic.

Create a Team

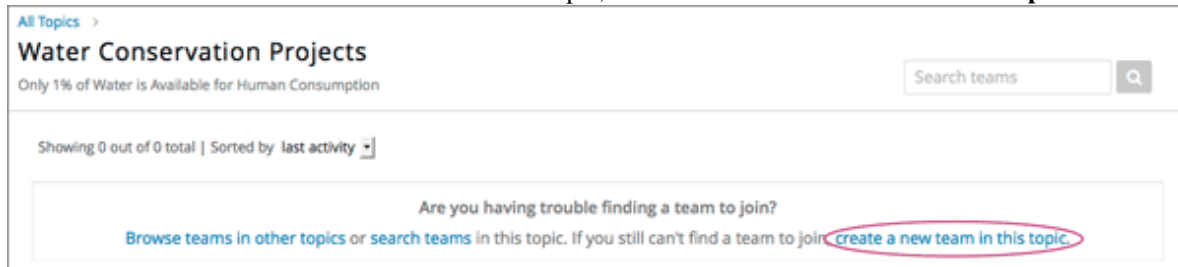
Although learners in your course can create their own teams, you can seed each topic with a few teams to give learners some ideas for their own teams.

Course team members who have the **Staff**, **Admin**, **Discussion Admin**, or **Discussion Moderator** role can create new teams within topics. **Community TAs** and learners in the course can also create teams, although learners can create a new team only if they do not already belong to one.

To create a team, follow these steps.

1. From the **Teams** page in the LMS, select **Browse**, then select the topic in which you want to create a team.

2. At the bottom of the list of teams within the topic, select the **create a new team in this topic** link.



All Topics >

Water Conservation Projects

Only 1% of Water is Available for Human Consumption

Search teams

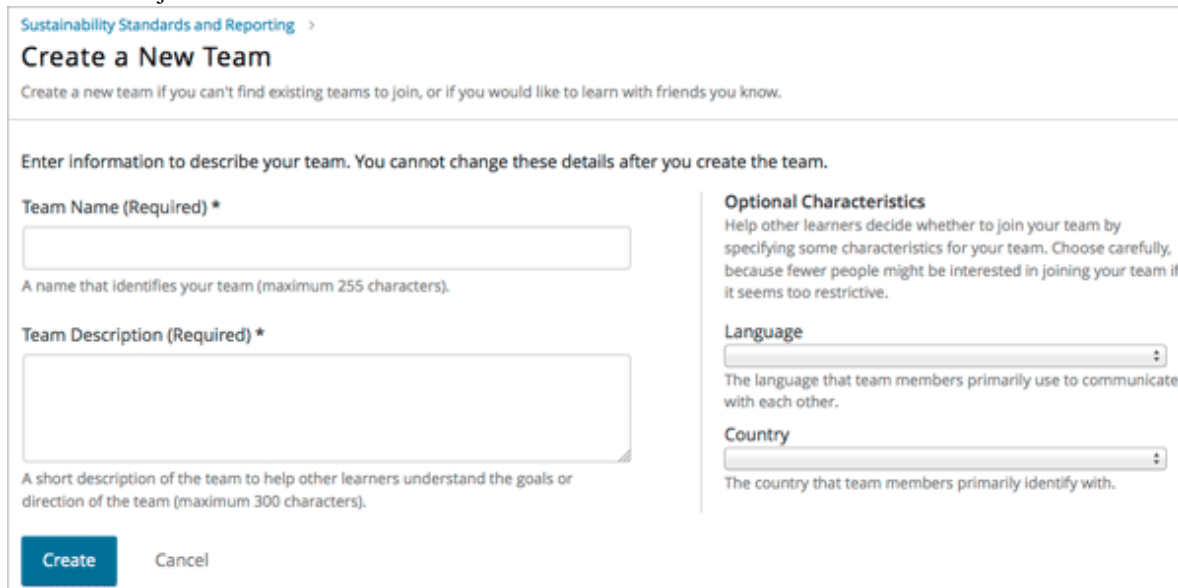
Showing 0 out of 0 total | Sorted by last activity

Are you having trouble finding a team to join?

[Browse teams in other topics](#) or [search teams](#) in this topic. If you still can't find a team to join, [create a new team in this topic](#).

3. On the **Create a New Team** page, add a name and description for the team.

In the description, include details about the proposed project or activity to help learners to decide whether they want to join this team.



Sustainability Standards and Reporting >

Create a New Team

Create a new team if you can't find existing teams to join, or if you would like to learn with friends you know.

Enter information to describe your team. You cannot change these details after you create the team.

Team Name (Required) *

A name that identifies your team (maximum 255 characters).

Team Description (Required) *

A short description of the team to help other learners understand the goals or direction of the team (maximum 300 characters).

Optional Characteristics

Help other learners decide whether to join your team by specifying some characteristics for your team. Choose carefully, because fewer people might be interested in joining your team if it seems too restrictive.

Language

The language that team members primarily use to communicate with each other.

Country

The country that team members primarily identify with.

Create Cancel

4. Optionally, add some characteristics for your team. You can specify a language that members would primarily use to communicate with each other, and a country that members would primarily identify with. Keep in mind that if your team details make the team membership seem too selective, learners might be discouraged from joining.
 5. When you have finished entering details for the team, select **Create**.
- Your new team is added to the list of teams under your selected topic.

Search for a Team

Use the search field to find a team within a topic.

Note: Partial words are not supported for searching teams.

To get a list of teams whose names, descriptions, or characteristics match your search keywords, follow these steps.

1. From the **Teams** page in the LMS, select **Browse**, then select the topic in which you want to find a team.
 2. In the search field, enter one or more keywords to search for, then press **Enter** or select the search icon.
- Teams within the topic that match your search are displayed.

To clear the existing search term, select the **X** next to the search field, or select all the text within the field and enter text to replace it.

Edit a Team

Course team members who have the **Staff**, **Admin**, **Discussion Admin**, or **Discussion Moderator** role can edit any of a team's details, including removing members from a team. **Community TAs** can also edit teams. For more details about removing team members, see [Remove a Learner from a Team](#).

To edit a team's details, follow these steps.

Note: Before making significant changes to a team, communicate with team members so that they are aware of the changes and their impacts.

1. In the LMS, select the **Teams** tab.
2. On the **Teams** page, select **Browse** to show all topics.
3. Select the arrow button for the topic to show all teams in that topic.
4. Locate the team that you want to edit. To find the team, you can search using keywords or sort teams by last activity or open slots.
5. Select **View** for the team that you want to edit.
6. Select **Edit Team**.
7. Make your changes, then select **Update**. The team's details are updated.

Remove a Learner from a Team

Course team members who have the **Staff**, **Admin**, **Discussion Admin**, or **Discussion Moderator** role can remove members from a team. **Community TAs** can also remove learners from a team. You might want to remove a learner from a team and make the spot on the team available to other learners if, for example, a learner joined a team but is not participating, or if a learner has unenrolled from the course without leaving the team.

Note: Before making significant changes to a team, communicate with team members so that they are aware of the changes you will make, and their impacts.

To remove a learner from a team, follow these steps.

1. In the LMS, select the **Teams** tab.
2. On the **Teams** page, select **Browse** to show all topics.
3. Select the arrow button for the topic to show all teams in that topic.
4. Locate the team that you want to edit. To find the team, you can search using keywords or sort teams by last activity or open slots.
5. Select **View** for the team from which you want to remove a learner.
6. Select **Edit Team**.
7. On the **Instructor Tools** bar, select **Edit Membership**.



8. On the team's **Membership** page, select **Remove** next to the name of the learner who you want to remove from the team.
9. In the confirmation message, select **Remove**.

The team member you removed no longer appears on the **Membership** page.
10. Repeat steps 8 and 9 to remove additional members.

The team members you removed no longer appear on the **Membership** page, and the count of team members is updated wherever it appears on team pages.

Delete a Team

Course team members who have the **Staff**, **Admin**, **Discussion Admin**, or **Discussion Moderator** role can delete teams. **Community TAs** can also delete teams. you might need to manage the teams in your course, including deleting teams that remain empty or where members are experiencing abusive situations.

When you delete a team, all learners are removed from the team membership. Neither learners nor course team members can access discussions from deleted teams.

Note: Deleting a team removes it permanently from the course, and cannot be undone.

To delete a team, follow these steps.

1. In the LMS, select the **Teams** tab.
2. On the **Teams** page, select **Browse** to show all topics.
3. Select the arrow button for the topic to show all teams in that topic.
4. Locate the team that you want to delete. To find the team, you can search using keywords or sort teams by last activity or open slots.
5. Select **View** for the team that you want to delete, then select **Edit Team**.
6. On the **Instructor Tools** bar, select **Delete Team**.



7. In the confirmation message, select **Delete**.

You return to the topic page, where you receive a confirmation that the team has been successfully deleted. The team no longer appears in the teams list within its topic. Learners who were previously members of this team no longer belong to a team.

10.2.2 The Learner's Experience of Teams

After you have *enabled teams* and created topics in your course, learners can begin browsing topics and joining teams. Teams are formed within topics. Each learner can belong to only one team.

- *Browsing Teams by Topic*
- *Joining, Creating, or Leaving a Team*
- *Participating in Team Discussions*

Browsing Teams by Topic

On the **Teams** page in the LMS, learners in your course can browse topics to find a subject that they are interested in collaborating on. Learners can sort topics alphabetically by name, or by the number of teams in a topic.

Teams

See all teams in your course, organized by topic. Join a team to collaborate with other learners who are interested in the same topic as you are.

My Team **Browse**

Showing 1-3 out of 3 total

Sustainability in Corporations

Why should corporations care about sustainability?

0 Teams

→

Sustainability Standards and Re...

Non-financial reporting is as important to today's global corporations a...

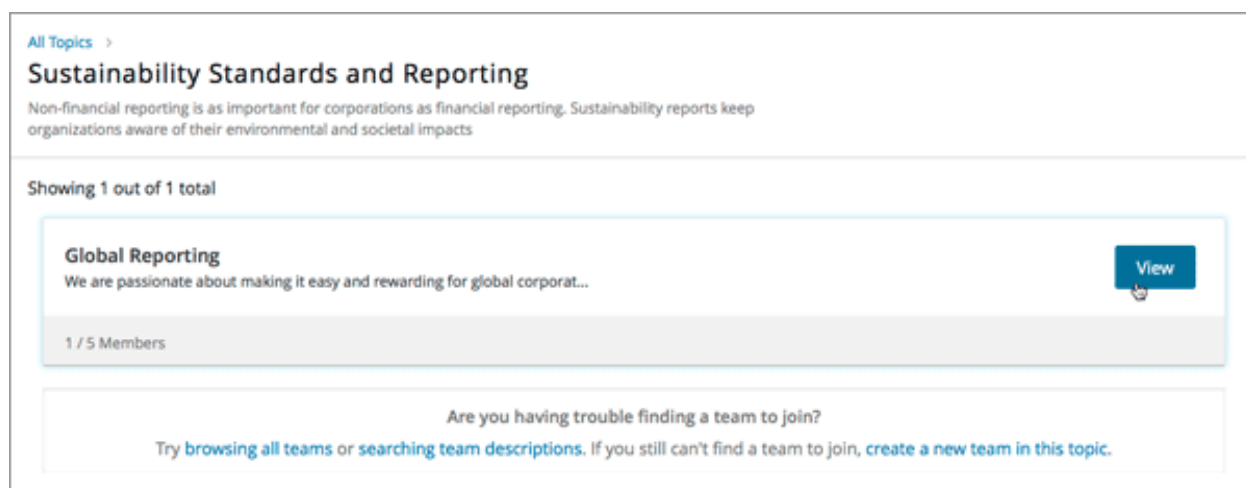
0 Teams

→

Within each topic, learners can view existing teams. The overview for each team shows the team's name and description, the number of members and available spots, and the elapsed time since the last activity in the team.

To find teams, learners can sort teams by the most recent activity or by the most open spots. They can also use keywords to search for teams that might match their interests, language, or country.

When learners locate a team that they might be interested in joining, they can select **View** on the team overview to view team details.



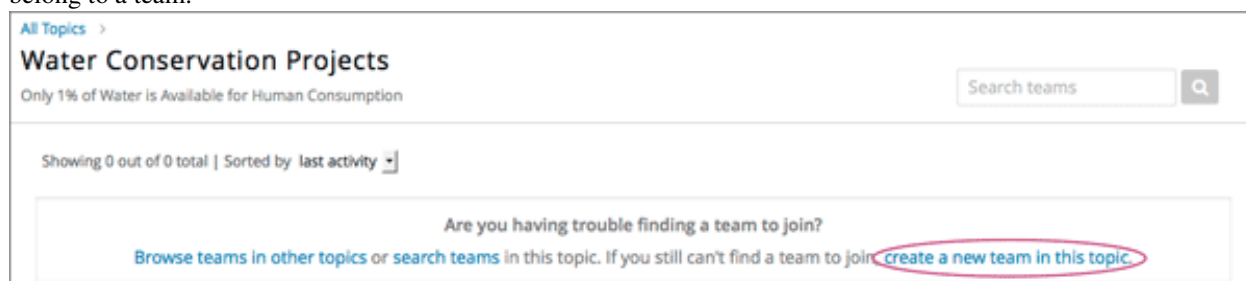
On each team's details page, learners can view the team's name and description, as well as any optional characteristics that were specified, such as a primary language of communication and a country that members primarily identify with. While they are browsing teams, learners can read any team's discussion posts, but they cannot add posts to a team's discussion forum unless they join that team.

Joining, Creating, or Leaving a Team

When learners find a team that they want to join, they select **Join Team** and are immediately added to the team membership.

Note: Learners can belong to only one team. If a learner already belongs to a team, the **Join Team** button is not available.

Learners can create their own teams if they cannot find a team they want to join. Under the list of existing teams in a topic, learners select **create a new team in this topic**. This link is available only to learners who do not already belong to a team.



Learners specify a name and description for their team, and optionally specify a country and language that team members identify with. A learner who creates a team automatically becomes a member of the new team.

Note: EdX recommends that you encourage learners to join existing teams before they create new teams.

Note: Course team members who have the role of Admin, Discussion Moderator, or Discussion Admin can create multiple teams; therefore they are not automatically added to teams that they create. This is also true for learners who have the community TA role.

At any time, learners can leave teams that they have joined, although you should emphasize to learners that they should try not to change teams after any team projects or activities have started. Learners who leave a team will also be unable to continue contributing to discussion threads in the team that they have left.

Learners can only belong to one team at a time. For learners who already belong to a team, the **Join Team** button is not available when they view other teams. To join a new team, they must first leave their existing team.

Participating in Team Discussions

Only members of a team (or anyone with a discussion administrator, discussion moderator, or community TA role) can post to a team's discussion forum. Any learner in your course can view team discussions without being a member, but they cannot add posts to a team's discussion unless they also belong to that team.

Note: Team discussions are not divided by cohort. Learners who are in the same team but who belong to different cohorts can view and participate in their team discussions without regard to the cohort they belong to.

For information about course discussions and managing discussions, see *Managing Course Discussions* and *Participating in Course Discussions*.

10.2.3 Managing Team Discussions

EdX recommends that you designate course staff and optionally student TAs to moderate team discussions. The same discussion administration roles for managing course discussions on the **Discussions** page apply to discussion administration for team discussions. Course team members and student TAs who already have discussion moderation roles for course discussions on the **Discussions** page can perform the same roles for discussions in teams.

For information about discussion administration roles, see *Assign Discussion Administration Roles*. For information about managing discussions, see *Run a Discussion*.

- *Ability to Post in Team Discussions*
- *Ability to Edit or Delete Posts*

Ability to Post in Team Discussions

Team members, discussion community TAs, and course team members with the roles of Discussion Admin or Discussion Moderator can post to the team discussion. Team members can edit their own posts, reply to posts and comments, follow and flag posts, and so on.

Posts made by discussion community TAs are marked as “By: Community TA” in the discussion navigation pane, and those made by discussion moderators or discussion admins are marked as “By: Staff”.

Ability to Edit or Delete Posts

Discussion moderators, discussion admins, and community TAs can perform the following actions in team discussions, without being a member of the team.

- Review, edit, or delete messages
- Pin, close, or reopen posts
- Endorse responses

Responses and comments made by community TAs have a colored “Community TA” identifier.

Responses and comments made by discussion moderators or discussion admin have a colored “Staff” identifier.

10.3 Creating Content Experiments

10.3.1 Overview of Content Experiments

This section provides an introduction to using content experiments.

- [Overview](#)
- [Courses with Multiple Content Experiments](#)

Overview

You use content experiments to show different course content to different groups of learners. Also known as “A/B tests” or “split tests”, content experiments enable you to research and compare the performance of learners in different groups to gain insight into the relative effectiveness of your course content.

If your course uses content experiments, the grade report that you generate from the Instructor Dashboard includes a column identifying the experiment group that each learner has been assigned to. For more information, see [Interpret the Grade Report](#).

For information about analyzing events from content experiments, see [Testing Events for Content Experiments](#) in the *EdX Research Guide*.

Courses with Multiple Content Experiments

You can run multiple content experiments in your course. You can set up each experiment to use the same groups of learners, or you can set up each experiment to be independent and use a different grouping.

Important: If your course has multiple experiments, it is critical that you decide in advance if the experiments share the same groups of learners or if each experiment has its own unique grouping. If two experiments share the same grouping, then any learner that is in Group A for the first experiment will also be in Group A for the second one. If you want the experiments to be independent, then the experiments must use different groupings so that learners are randomly assigned for each experiment.

To determine the available groupings of learners, you set up group configurations [using Studio](#) or [using XML](#).

You then select which group configuration to use when you add a content experiment [using Studio](#) or [using XML](#).

10.3.2 Configure Your Course for Content Experiments

This section provides instructions to configure your course to use content experiments.

- *Enable Content Experiments*
- *Overview of Group Configurations*
- *Set up Group Configurations in edX Studio*
- *Guidelines for Modifying Group Configurations*
- *Set Up Group Configuration for OLX Courses*

Enable Content Experiments

To enable content experiments in your course, you add `split_test` to the **Advanced Module List** in Advanced Settings.

Note: `split_test` is the internal edX Platform name for a content experiment.

1. From the **Settings** menu, select **Advanced Settings**.
2. On the **Advanced Settings** page, locate **Advanced Module List**.
3. In the **Advanced Module List** field, add `"split_test"`. Be sure that you include the double quotation marks.

If you have multiple values, ensure that they are separated by commas (,).

For example, the text in the **Advanced Module List** field may resemble the following:

```
[  
  "lti_consumer",  
  "word_cloud",  
  "split_test"  
]
```

4. Select **Save Changes**.

Overview of Group Configurations

Before you can create content experiments, you must specify at least one group configuration for your course.

A group configuration defines how many groups of learners are in an experiment. You can have any number of group configurations in your course. When you create a content experiment, you select the group configuration to use.

For example, you may want to do two different experiments at different times during your course. In one content experiment, learners either see a video or complete a reading assignment. You can then include problems so that you can see which group learned the material more completely. For this content experiment, you need a group configuration that assigns your learners to two experiment groups.

In the other content experiment, you can present the same question using four different types of problems. For this content experiment, you need a group configuration that assigns your learners to four experiment groups.

Assigning Learners to Experiment Groups

The edX Platform assigns learners to each experiment group in a group configuration.

Experiment group assignments are:

- **Dynamic**

The edX Platform assigns a learner to an experiment group the first time he or she views a content experiment that uses the group configuration.

- **Random**

You cannot control which learners are assigned to which experiment group.

- **Evenly distributed**

The edX Platform keeps track of the size of experiment groups, and assigns new learners to groups evenly. For example, if you have two experiment groups in a configuration, each group includes 50% of the learners in the course; if you have four experiment groups, each group includes 25% of the learners.

- **Permanent**

Learners remain in their assigned experiment groups regardless of how many content experiments you set up that use the same group configuration.

Set up Group Configurations in edX Studio

Note: You must *enable content experiments* before you can set up group configurations.

To set up group configurations, on the **Settings** menu, select **Group Configurations**. The **Group Configurations** page opens.

From this page you can *create*, *edit*, and *delete* group configurations. You can also *view experiments that use a group configuration*.

Create a Group Configuration

You can create a group configuration at any time.

1. On the **Group Configurations** page, under **Experiment Groups**, select **New Experiment Group**. The following page opens:

Group Configuration Name *

This is the Name of the Group Configuration

Name or short description of the configuration

Description

This is the Description of the Group Configuration

Optional long description

Groups *

Name of the groups that students will be assigned to, for example, Control, Video, Problems. You must have two or more groups.

Group A	50%	X
Group B	50%	X

+ Add another group

CREATE **CANCEL**

2. Enter a name in the **Group Configuration Name** field. Use a meaningful name, because you will select from group configuration names when you create content experiments. Learners do not see the group configuration name.
3. Optionally, enter a description for the new group configuration.
4. By default, a new configuration already contains two groups. Modify the groups or add and delete groups as needed. A group configuration must have at least one group.
 - Modify group names as needed. You see group names in the unit page in Studio, but group names are not visible to learners.
 - Select **Add another group** to include another group as part of the configuration.
 - Select the **X** to the right of an existing group to remove it from the configuration. A group configuration must have at least one group.
5. Select **Create** to save the new group configuration.

The group configuration is then listed in the page. You can see the number of groups that the configuration contains, as well as whether the configuration is in use in the course:

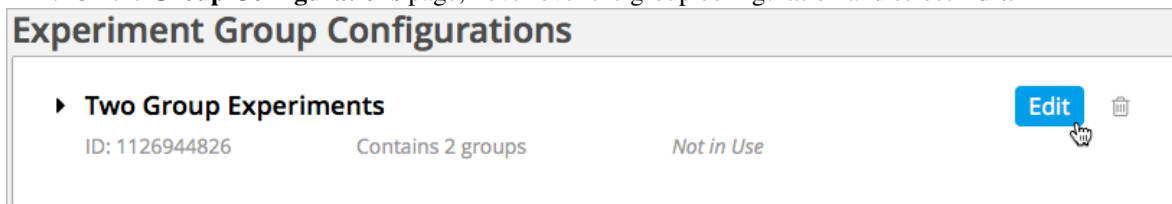
Experiment Group Configurations

<p>▶ Two Group Experiments</p> <p>ID: 1126944826</p> <p>Contains 2 groups</p> <p>Not in Use</p>
--

Edit a Group Configuration

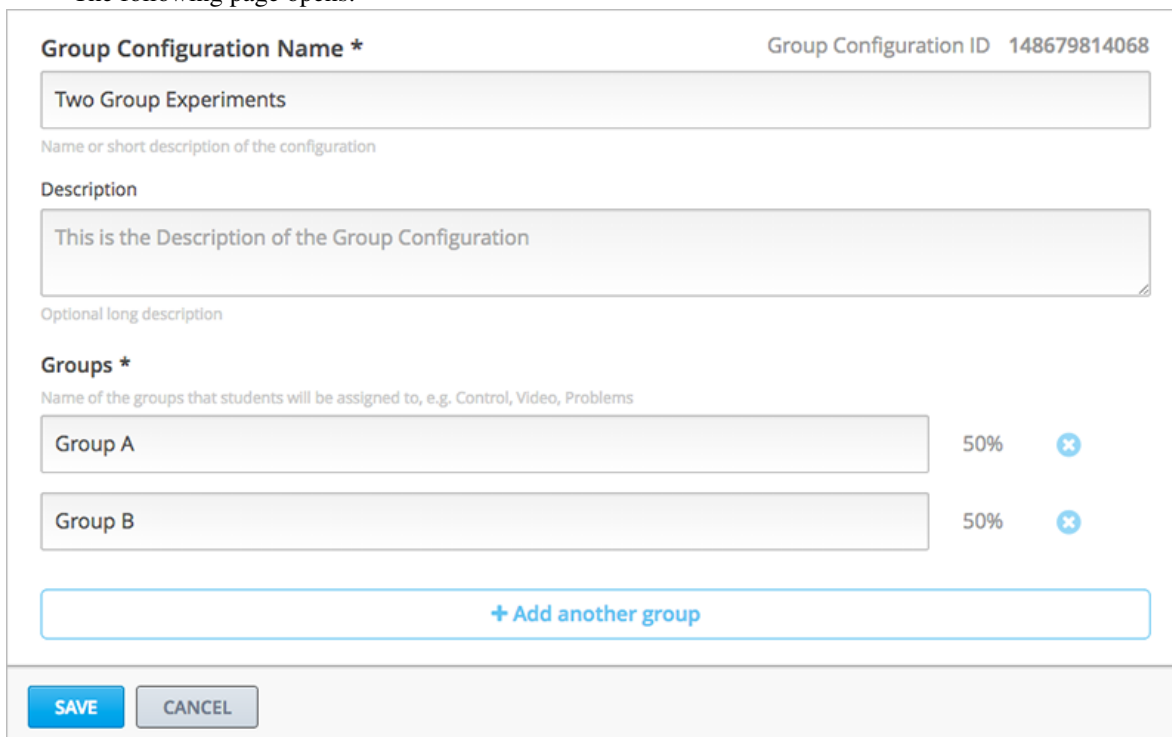
Important: You can change the name of a group configuration at any time. However, before you modify any other characteristics of a group configuration that is currently used in a running course, review [Guidelines for Modifying Group Configurations](#).

1. On the **Group Configurations** page, hover over the group configuration and select **Edit**.



The screenshot shows a table titled "Experiment Group Configurations". It contains one row for a configuration named "Two Group Experiments". The row includes the ID "1126944826", the text "Contains 2 groups", and the status "Not in Use". To the right of the row is a blue "Edit" button and a trash icon.

The following page opens:



The screenshot shows the "Group Configuration" edit form. It has a header with "Group Configuration Name *" and "Group Configuration ID 148679814068". The form includes a text input for the name (containing "Two Group Experiments"), a description input (containing "This is the Description of the Group Configuration"), and a section for "Groups *". The "Groups *" section has a label "Name of the groups that students will be assigned to, e.g. Control, Video, Problems" and a table with two rows: "Group A" and "Group B", each with a "50%" value and a delete icon. At the bottom of the groups section is a button "+ Add another group". At the bottom of the form are "SAVE" and "CANCEL" buttons.

2. Modify the name and description as needed.
3. Modify groups in the configuration as needed. See [Create a Group Configuration](#) for details.
4. Select **Save** to save your changes.


Delete a Group Configuration

Note: You can only delete a group configuration that is not currently used in a content experiment. You cannot delete a group configuration that is used in a content experiment.

1. On the **Group Configurations** page, hover over the group configuration and select the Delete icon.

► **Three Group Configuration**

ID: 524593825425 Contains 3 groups Not in Use

Edit 

- When prompted to confirm the deletion, select **Delete**.

View Experiments that Use a Group Configuration

You can view the experiments that use each of your group configurations.

On the **Group Configurations** page, select the name of a group to see its details. You see links to experiments that use the group configuration:

▼ **2 Group Configuration** Edit

ID: 951046592104

2 Group Configuration

Group A	50%
Group B	50%

This Group Configuration is used in:



Introduction: Video and Sequences / Content Experiment

Select a link to go to the unit page that contains the experiment.

View a Group Configuration from an Experiment

When working with a content experiment, you can view details about the group configuration used by that experiment in two ways:

- In a unit that contains a content experiment, in the content experiment block, select the name of the group configuration.

Content Experiment EDIT  

This block contains multiple components. VIEW →

This content experiment uses group configuration 2 Group Configuration.

- At the top of the content experiment page, select the name of the group configuration.

This content experiment uses group configuration 2 Group Configuration.

► Group A

► Group B

In both cases, the group configuration opens:

▼ 2 Group Configuration

ID: 951046592104

2 Group Configuration

Group A	50%
Group B	50%

This Group Configuration is used in:
[Introduction: Video and Sequences / Content Experiment](#)

You can use the link in the group configuration to return to the unit that contains the content experiment.

Guidelines for Modifying Group Configurations

Review these guidelines if you must modify a group configuration after a course starts. These guidelines apply for courses built in Studio or OLX.

Modifying a Group Configuration

After the course starts, **do not**:

- Delete group configurations.
- Change the `id` value of a group configuration.

Modifying Experiment Groups

After the course starts, **do not** change the `id` value of an experiment group.

You can change experiment group names at any time.

Removing Experiment Groups from Group Configurations

After a course in which you are running a content experiment has started, learners in a specific experiment group might have difficulties with the content or with the course experience. In this situation, you can remove the experiment group from the group configuration. Content that was specified for that experiment group is then no longer visible to learners.

Learners in the removed experiment group are reassigned evenly to one of the other experiment groups in the group configuration. Any problems that these learners completed in the removed experiment group content do not count toward their grades. The learners must begin the problem set again and complete all the problems in the experiment group content to which they are reassigned.

Removing an experiment group affects event data for the course. Ensure that researchers who are evaluating your course results are aware of the experiment group that you removed and the date on which you removed it.

Set Up Group Configuration for OLX Courses

You define group configurations in the `policy.json` file in the `policies` directory of an OLX course.

To specify group configurations, you modify the value for the `user_partitions` policy key.

Note: `user_partitions` is the internal edX Platform name for group configurations.

The value for `user_partitions` is a JSON collection of group configurations, each of which defines the experiment groups of learners.

Note: Use names for group configurations that are meaningful. You select from the list of group configuration names when you add a content experiment.

See the following examples for more information.

Example: One Group Configuration

The following code shows an example JSON object that defines a group configuration with two learner segments.

```
"user_partitions": [{
  "id": 0,
  "name": "Name of the group configuration",
  "description": "Description of the group configuration.",
  "version": 1,
  "groups": [{
    "id": 0,
    "name": "Group 1",
    "version": 1},
    {
    "id": 1,
    "name": "Group 2",
    "version": 1}
  ]
}]
```

In this example:

- The `"id": 0` identifies the group configuration. For XML courses, the value is referenced in the `user_partition` attribute of the `<split_test>` element in the content experiment file.
- The `groups` array identifies the experiment groups to which learners are randomly assigned. For XML courses, each group `id` value is referenced in the `group_id_to_child` attribute of the `<split_test>` element.

Example: Multiple Group Configurations

The following code shows an example JSON object that defines two group configurations. The first group configuration divides learners into two experiment groups, and the second divides learners into three experiment groups.

```
"user_partitions": [{
  "id": 0,
  "name": "Name of Group Configuration 1",
  "description": "Description of Group Configuration 1.",
  "version": 1,
  "groups": [{
    "id": 0,
    "name": "Group 1",
    "version": 1},
    {
    "id": 1,
```

```
        "name": "Group 2",
        "version": 1}}
    {"id": 1,
     "name": "Name of Group Configuration 2",
     "description": "Description of Group Configuration 2.",
     "version": 1,
     "groups": [{"id": 0,
                  "name": "Group 1",
                  "version": 1},
                {"id": 1,
                  "name": "Group 2",
                  "version": 1},
                {"id": 2,
                  "name": "Group 3",
                  "version": 1}
               ]}
  ]}
```

Note: As this example shows, each group configuration is independent. Group IDs and names must be unique within a group configuration, but not across all group configurations in your course.

10.3.3 Add Content Experiments to Your Course

This section provides instructions for adding content experiments to your course.

- *Before Adding Content Experiments*
- *Add a Content Experiment in Studio*
- *Add a Content Experiment in OLX*

Before Adding Content Experiments

Before you add content experiments to your course, ensure that you have completed the following tasks.

- *Enable Content Experiments*
- *Set up Group Configurations in edX Studio*

Add a Content Experiment in Studio

You can add a content experiment in a unit or container page. In Studio, you create and view content for all groups in the content experiment in a container page for the experiment, as shown in *Create Content for Groups in the Content Experiment*.

When a learner views the unit with the content experiment, she has no indication there is a content experiment in the unit, and the content experiment display name is not shown. She sees only the content that you configure for the group she is assigned to. To the learner, the unit with the content experiment is no different than any other unit.

To configure a content experiment in Studio, you perform the following tasks.

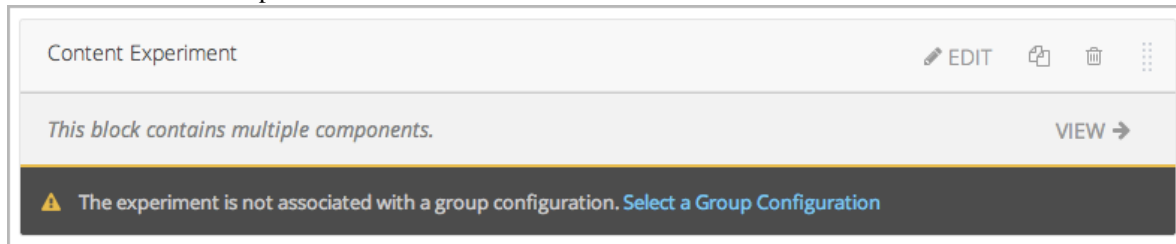
1. *Create the content experiment.*
2. *Create content for groups in the content experiment.*

After you configure a content experiment, you can change its group configuration. For more information, see [Change the Group Configuration for a Content Experiment](#).

Create the Content Experiment

1. In the unit page, under **Add New Component**, select **Advanced**.
2. Select **Content Experiment**.

A new content experiment is added to the unit.



You can work with the content experiment as you do any other component. For more information, see [Developing Course Components](#).

3. Select either **Select a Group Configuration** or **Edit** to open the content experiment component.

4. Next to **Group Configuration**, select a group configuration.
5. In the **Display Name** field, enter the name of the component. The display name is only used in Studio; learners do not see this value.
6. Select **Save**.

The content experiment is displayed as a component that contains other components. For more information, see [Components that Contain Other Components](#).

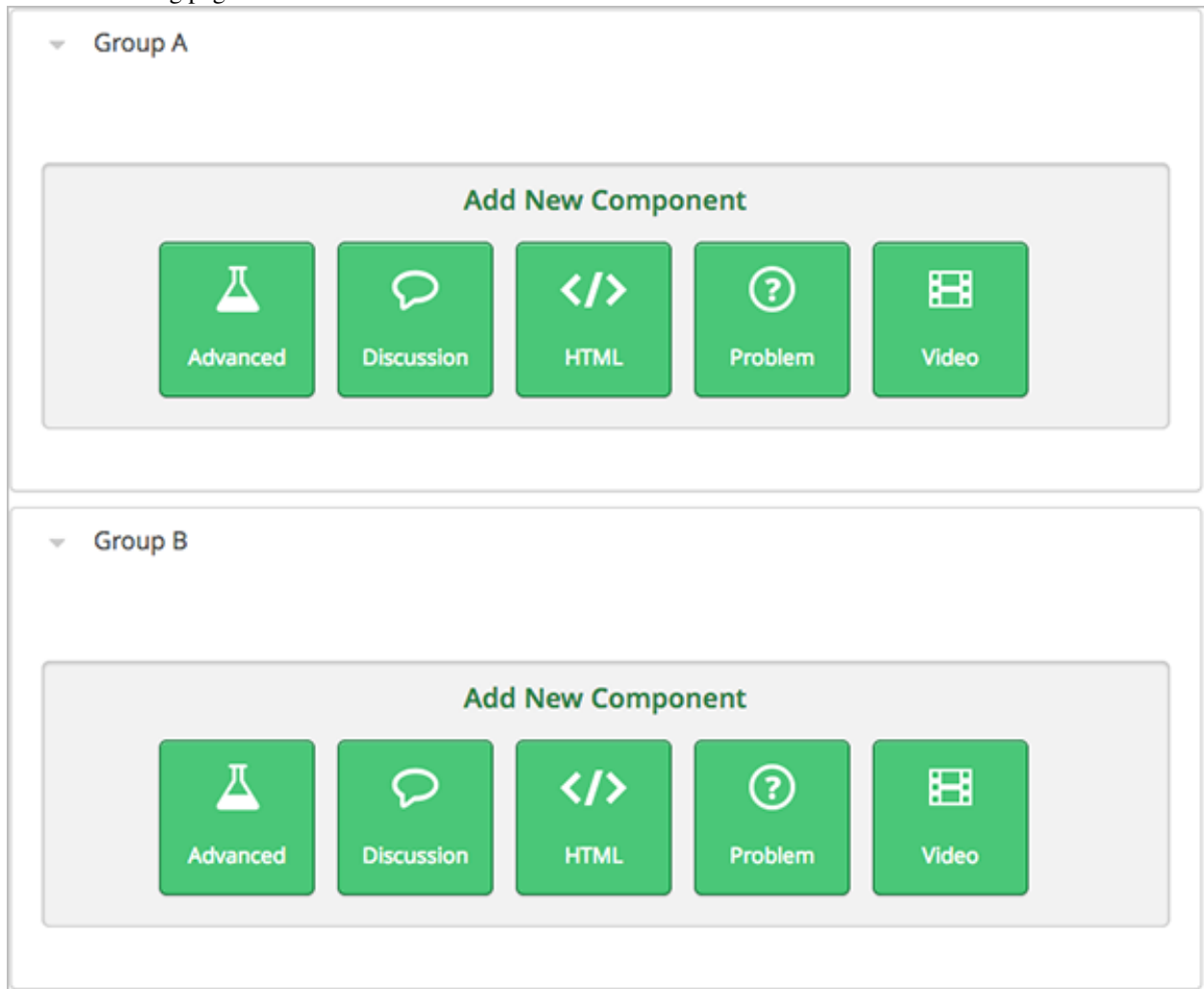
Note: You cannot duplicate a content experiment.

You can now create content for the groups in the experiment.

Create Content for Groups in the Content Experiment

After you select a group configuration, in the content experiment component, select **View**.

The content experiment page that opens automatically includes a container for each group that is defined in the group configuration you selected. For example, if you select a group configuration that defines Group A and Group B, you see the following page.



You add content for both groups as needed, just as you would add content to any container page. For more information, see [Components that Contain Other Components](#).

For example, you can add an HTML component and a video to Group A.


Group A

Text

Welcome to group A.

Video

VIDEO



LYLA FISCHER: Hi, welcome to Edx.
I'm Lyla Fischer, an Edx fellow helping to put together these courses.
As you know, our courses are entirely online.
So before we start learning about the subjects that brought you here, let's learn about the tools that you will use to navigate through the course material.
Let's start with what is on your screen right now.
You are watching a video of me talking.
You have several tools associated

Group B

Note: It is valid, and can be useful, to have no content for a group in the experiment. For example, if one group has a video and another group has no content, you can analyze the effect of the video on learner performance.

Change the Group Configuration for a Content Experiment

You can change the group configuration for a content experiment. When you change the group configuration, you must add components to any new groups that you create. You can use the components from the previous groups, as well as create new components.

Warning: Changing the group configuration of a learner-visible experiment will affect the experiment data.

1. Open the unit page of the unit that contains the content experiment.
2. In the content experiment component, select **Edit**.

Editing: Content Experiment

Display Name

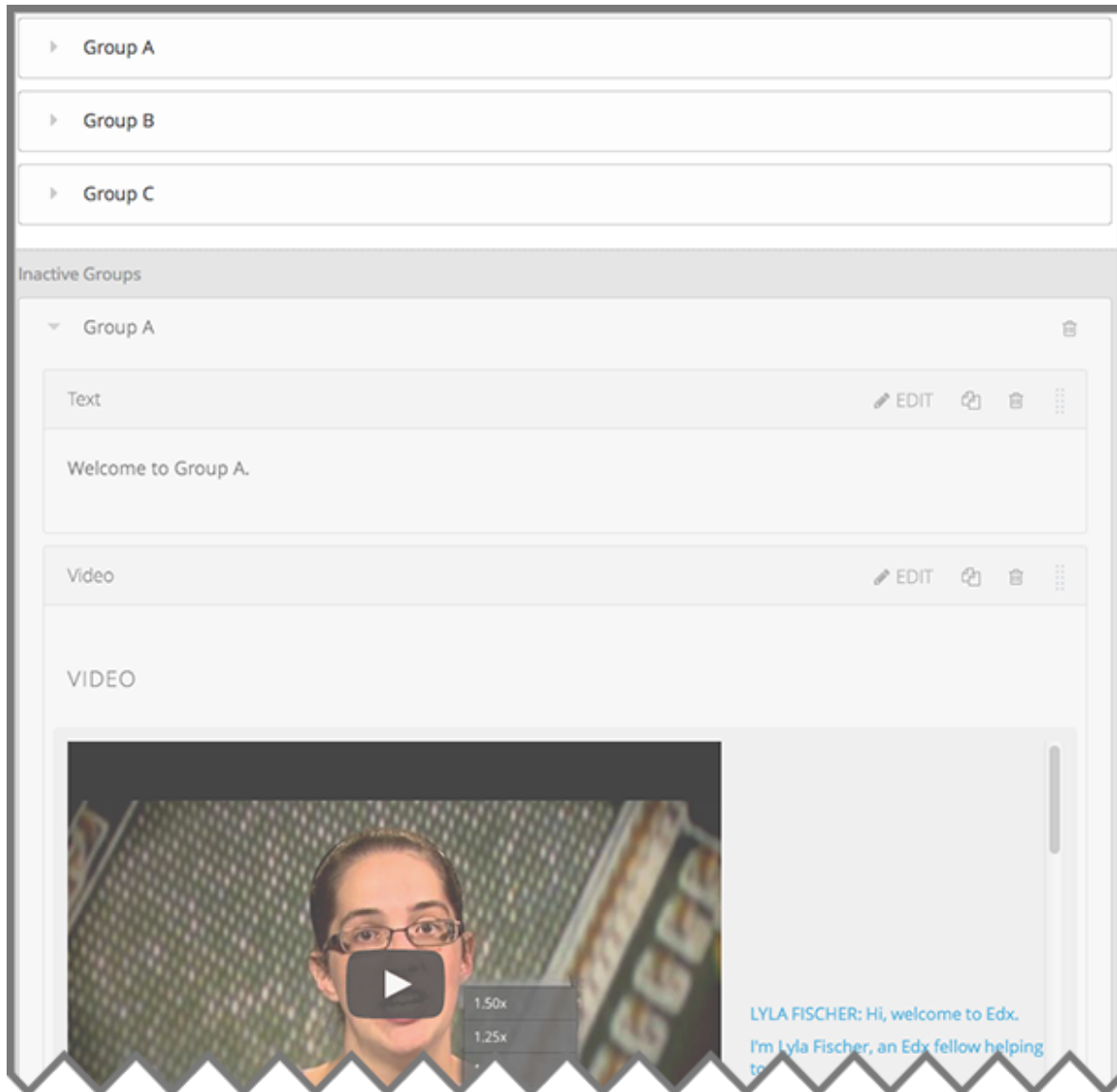
This name is used for organizing your course content, but is not shown to students.

Group Configuration

The configuration defines how users are grouped for this content experiment. Caution: Changing the group configuration of a student-visible experiment will impact the experiment data.

Save Cancel

3. Select a different group configuration.
4. Select **Save**.
5. You must now add components to the new groups in the experiment. Select **View** to open the content experiment.
You see that groups for the new configuration are empty, and any components that you had added to groups in the previous configuration are now moved to a section called **Inactive Groups**.



6. Drag and drop components from the **Inactive Groups** section into the new groups. You can also create new components in the new groups.

Add a Content Experiment in OLX

You work with multiple XML files to configure a content experiment. This section steps through the files involved in a content experiment that shows different content to two different groups of learners.

Define the Content Experiment in the Sequential File

You reference a content experiment in the file for the subsection, or sequential, in the `sequential` directory. For example:

```
...
<vertical url_name="name for the unit that contains the A/B test" display_name="A/B Test Unit">
  <split_test url_name="name of A/B test file in the split_test folder"/>
```

```
</vertical>
.....
```

The `<split_test>` element's `url_name` value references the name of the content experiment file in the `split_test` directory.

Caution: You can only define a content experiment in a unit, or vertical, in which different collections of components are associated with different experiment groups. You cannot define a content experiment at a subsection (sequential) or section (chapter) level and have different units or subsections associated with different groups.

Define the Experiment Content in the Split Test File

After you define the content experiment in the sequential file, you define the course content you want to test in the file in the `split_test` directory. This is the file referenced in the `<split_test>` element in the sequential file, as shown above.

In the content experiment file, you add elements for the experiment content. For this example, you add two `<vertical>` elements to compare the two different sets of content.

```
<split_test url_name="AB_Test.xml" display_name="A/B Test" user_partition_id="0"
  group_id_to_child='{ "0": "i4x://path-to-course/vertical/group_a",
                      "1": "i4x://path-to-course/vertical/group_b" }'>
  <vertical url_name="group_a" display_name="Group A">
    <html>Welcome to group A.</html>
    <video url_name="group_a_video"/>
  </vertical>
  <vertical url_name="group_b" display_name="Group B">
    <html>Welcome to group B.</html>
    <problem display_name="Checkboxes">
      <p>A checkboxes problem presents checkbox buttons for learner input.
        Learners can select more than one option presented.</p>
      <choiceresponse>
        <checkboxgroup label="Select the answer that matches">
          <choice correct="true">correct</choice>
          <choice correct="false">incorrect</choice>
          <choice correct="true">correct</choice>
        </checkboxgroup>
      </choiceresponse>
    </problem>
  </vertical>
</split_test>
```

In this example:

- The `user_partition_id` value references the ID of the experiment defined in the `policy.json` file.
- The `group_id_to_child` value references the IDs of the groups defined in the `policy.json` file and maps the group IDs to specific content.

For example, the value for group 0, `i4x://path-to-course/vertical/group_a`, maps to the `<vertical>` element with the `url_name` equal to `group_a`. Therefore, learners in group 0 see the content in that vertical.

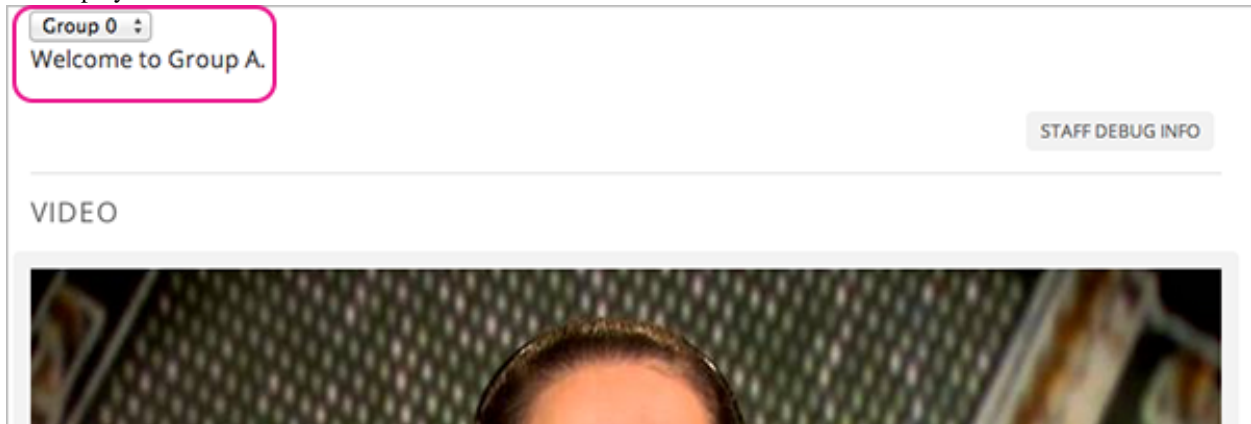
For information about the `policy.json` file, see *Set Up Group Configuration for OLX Courses*.

10.3.4 Test Content Experiments

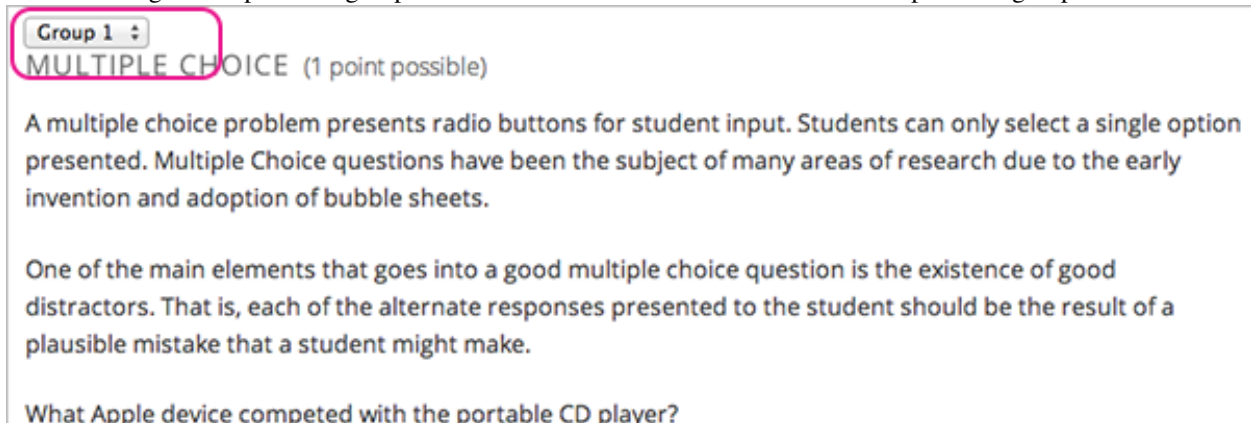
You should test content experiments in your course before the course starts, to ensure that content is delivered to experiment groups as you intended.

When you view a unit that contains a content experiment in the LMS Staff view, you can select one of the experiment groups from a drop-down list. The unit page then shows the content as the selected group of learners sees it.

For example, in the following image, Group 0 is selected, and the HTML component and video that is part of Group 0 is displayed.



You can change the experiment group selection to view the content that a different experiment group of learners sees.



Note: The example course content in this section uses content experiment terminology (“Welcome to Group A”, for example) to make the functionality clear. Typically, you would not use terminology in course content that would make learners aware of the experiment.

10.4 Timed Exams

This topic describes how to add and manage timed exams in your course.

- *Overview*
- *Enable Timed Exams*
- *Set a Subsection to be Timed*
- *Grant Learners More Time for a Timed Exam*
- *Hide a Timed Exam After Its Due Date*

10.4.1 Overview

You can configure a *subsection* in your course so that learners have a set amount of time to complete and submit all problems in that subsection.

If a learner goes over the time limit you set, she can no longer submit answers to problems in that subsection. The learner does not receive points for unsubmitted problems.

Course teams can grant individual learners more time to complete problems in the subsection.

Note: Although you can configure an ungraded subsection to be timed, typically you would set a time limit on graded subsections, such as for mid-term or final exams.

10.4.2 Enable Timed Exams

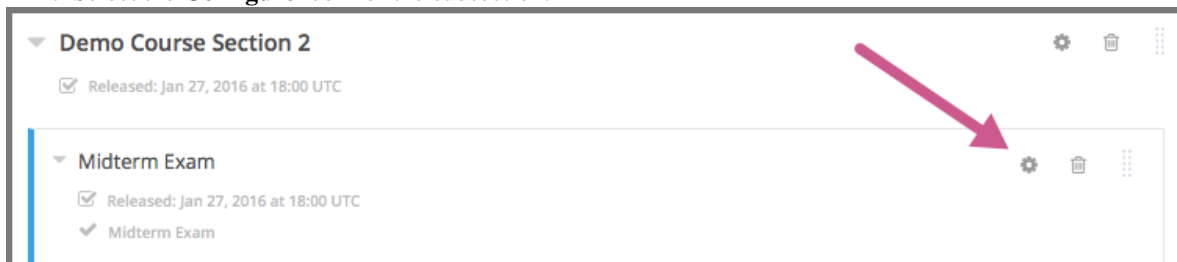
To enable timed exams in your course, follow these steps.

1. In Studio, select **Settings**, then select **Advanced Settings**.
2. Locate the **Enable Timed Exams** field. The default value is `false`.
3. Change the value of the setting to `true`.
4. Select **Save Changes**. You can now create timed exams in your course.

10.4.3 Set a Subsection to be Timed

Ensure that you have enabled timed exams in the course. Then follow these steps.

1. Add and *develop a subsection* as you would any other subsection.
2. Select the **Configure** icon for the subsection.



The **Settings** dialog box opens to the **Basic** tab.

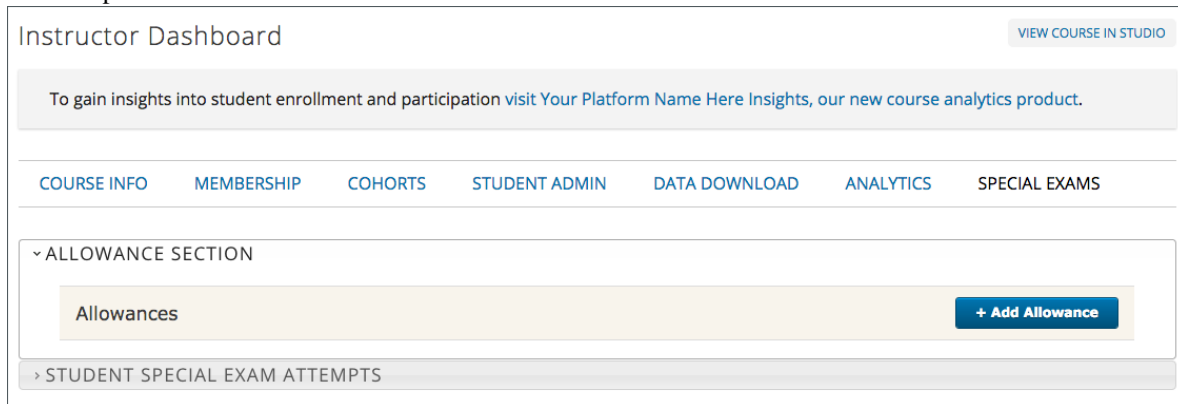
3. In the **Grading** section, set the *assignment type and due date* for the subsection.
4. Select the **Advanced** tab.
5. In the **Set as a Special Exam** section, select **Timed**.

6. In the **Time Allotted** field, enter the length of time that you want learners to have to complete the problems in the subsection. Enter the time as HH:MM, where HH is hours and MM is minutes.
7. Select **Save**.

10.4.4 Grant Learners More Time for a Timed Exam

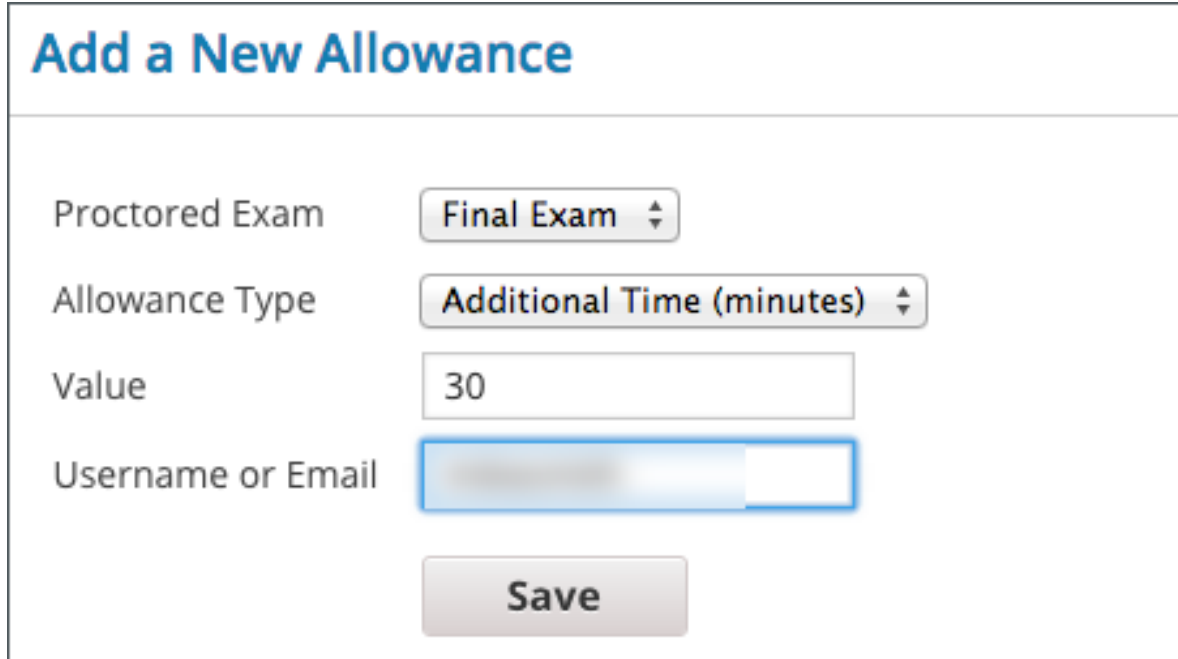
From the instructor dashboard, a course team member can grant a learner extra time to complete a timed exam.

1. View the live version of your course.
2. Select **Instructor**, and then select **Special Exams**.
3. Expand the **Allowance Section**.



The screenshot shows the Instructor Dashboard interface. At the top, there's a header with "Instructor Dashboard" and a "VIEW COURSE IN STUDIO" button. Below this is a message about analytics. A navigation bar contains links for COURSE INFO, MEMBERSHIP, COHORTS, STUDENT ADMIN, DATA DOWNLOAD, ANALYTICS, and SPECIAL EXAMS. The "ALLOWANCE SECTION" is expanded, showing a list of "Allowances" with a "+ Add Allowance" button. Below this is a link to "STUDENT SPECIAL EXAM ATTEMPTS".

4. Select **Add Allowance**.



The screenshot shows the "Add a New Allowance" form. It has four fields: "Proctored Exam" with a dropdown menu set to "Final Exam", "Allowance Type" with a dropdown menu set to "Additional Time (minutes)", "Value" with a text input field containing "30", and "Username or Email" with a text input field. A "Save" button is at the bottom.

5. Select the subsection that contains the timed exam.
6. For **Allowance Type**, select **Additional Time (minutes)**.
7. In the **Value** field, enter the number of extra minutes that you are granting the learner.

Note: Enter a whole number greater than 0.

8. Enter the learner's **Username** or **Email**.
9. Select **Save**.

10.4.5 Hide a Timed Exam After Its Due Date

Timed exams are hidden from learners after they complete and submit their exams, but are available again for viewing after the exam due date has passed. You can configure a timed exam to remain hidden even after the exam due date has passed.

When you keep a timed exam hidden after its due date, learners cannot see the content of the exam, but the grades that they received on the exam are not affected, and their scores for the exam remain visible on the **Progress** page.

Note: This setting applies only to timed exams. It has no effect on other types of special exams, including proctored or practice exams.

1. In Studio, select the **Configure** icon for the timed exam (subsection) that you want to configure.
The **Settings** dialog box opens to the **Basic** tab.
2. Select the **Advanced** tab.
3. In the **Set as a Special Exam** section, make sure **Timed** is selected.
4. Select **Hide Exam After Due Date**.

BASIC **ADVANCED**

Set as a Special Exam

☐ None

☒ **Timed**

Use a timed exam to limit the time learners can spend on problems in this subsection. Learners must submit answers before the time expires. You can allow additional time for individual learners through the Instructor Dashboard.

☐ Proctored

Proctored exams are timed and they record video of each learner taking the exam. The videos are then reviewed to ensure that learners follow all examination rules.

☐ Practice Proctored

Use a practice proctored exam to introduce learners to the proctoring tools and processes. Results of a practice exam do not affect a learner's grade.

Time Allotted (HH:MM):

00:30

Select a time allotment for the exam. If it is over 24 hours, type in the amount of time. You can grant individual learners extra time to complete the exam through the Instructor Dashboard.

☐ **Hide Exam After Due Date**

By default, submitted exams are available for review after the due date has passed. Select this option to keep exams hidden after that date.

Save Cancel

5. Select **Save**.

10.5 Using Open edX as an LTI Tool Provider

Your installation of Open edX can be configured to be a learning tool interoperability (LTI) provider to other systems and applications. If your Open edX site is configured to be an LTI provider, you can present content from an Open edX course in any application that is configured to be a consumer of that content. As a result, you can reuse Open edX course content, including advanced problem types and videos, in contexts other than the Open edX LMS. Examples include courses running on Canvas, Blackboard, and other learning management systems and applications.

For more information about the configuration process for this feature, see [Configuring an edX Instance as an LTI Tool Provider](#) in the *Installing, Configuring, and Running the Open edX Platform* guide.

You use the topics in this section to prepare your course for reuse.

10.5.1 Reusing Course Content with LTI

When you use LTI to reuse edX course content, learners who are already familiar with an external learning management system or other consumer application (external LMS) see content from edX that is seamlessly integrated into a familiar context. Only the content that you specify from edX appears in the external LMS, typically within an iframe on a page.

For example, you can set up a course on an external LMS, such as Canvas, to include a link to a problem component that is part of an edX course. The problem is included as one of the course's assignments, and appears in Canvas like other content.

The screenshot displays the Open edX user interface. At the top, a navigation bar includes links for 'Courses', 'Grades', 'Calendar', and 'Developer Dashboard'. Below this, a breadcrumb trail shows the path: 'DemoX-2 > DemoX-2 > Assignments > Molecule Editor (problem) > Molecule Editor (problem)'. On the left, a sidebar menu lists various course components: Home, Announcements, Assignments (highlighted), Discussions, Grades, People, Pages, Files, Syllabus, Outcomes, Quizzes, Modules, and Settings. The main content area is titled 'MOLECULE EDITOR (1 point possible)' and contains the following text: 'The Dopamine molecule, as shown, cannot make ionic bonds. Edit the dopamine molecule so it can make ionic bonds. When you are ready, click "Check." If you need to start over, click "Reset."' Below the text is a 'JSME Molecular Editor' interface. It features a toolbar with icons for drawing atoms, bonds, and rings, as well as a vertical element palette on the left containing C, N, O, S, F, Cl, Br, I, P, and X. The central canvas shows the chemical structure of dopamine: NCCc1ccc(O)c(O)c1. At the bottom of the editor are 'Reset' and 'CHECK' buttons. On the right side of the problem area, there are two buttons: 'Edit Assignment Settings' and 'Speed Grader'.

This section provides background information on different aspects of the experience that learners and course team members have when interacting with edX content in the context of an external LMS.

- *Course Roster Management*
- *Learner Identification and Single Sign On*
- *Learner Progress and Grades*

For information about the content that you can include in an external LMS, see [Preparing to Reuse Course Content](#).

Course Roster Management

Course teams manage the course roster entirely on the external LMS, as you would for other courses that run on that platform. Learners do not use the edX LMS to enroll, and the course team does not complete any enrollment activities in Studio or the edX LMS.

To obtain enrollment data for the course, you use the features available in the external LMS.

Learner Identification and Single Sign On

Learners do not need to navigate to a different website, or sign in to any other system (including edX), to access content that originates in an edX course. However, the first time a learner views edX course content in the external LMS, she might have to re-enter her credentials for the external LMS, even though she is already signed in to the external LMS.

Internally, the edX instance associates a unique internal identifier to each learner's credentials to allow for a streamlined, single sign in experience in the future. However, this separate edX identifier can make some edX content confusing for learners when viewed in the context of an external LMS. For example, edX course discussions can identify participants by their edX IDs instead of the usernames they would normally see in the external LMS. As a result, some edX content is not currently suitable for use in an external LMS.

For more information, see [Preparing to Reuse Course Content](#).

Learner Progress and Grades

Each learner's progress through the edX content is saved. Learners start, stop, and resume work in the external LMS in the same way that they would in the edX LMS.

Learner responses to edX problem components are graded by the edX system, and then transferred automatically to the grade book in the external LMS. For more information, see [Grading Remote Content](#).

To obtain learner engagement and performance data, you use the features available in the external LMS.

10.5.2 Preparing to Reuse Course Content

Before you begin work to reuse the content in an Open edX course, check with your development operations (DevOps) team for information about the website to use. At some sites, a completely separate Open edX instance, with a different Studio website, is set up to be the LTI tool provider.

- *Planning for Content Reuse*
- *Create the Duplicate Course*
- *Select Content in the Duplicate Course*
- *Verify Content Status*

Planning for Content Reuse

When you create links to edX course content in your external LMS, you can link to components individually, to all of the content in a unit, or to all of the content in a subsection.

As you plan which parts of the course you want to reuse, note the following considerations.

- Some edX content can be confusing to learners when it appears in the context of an external LMS. For example, in some configurations, edX course discussions identify learners by their internally assigned edX IDs instead of by their usernames. Rather than linking to a subsection or unit that contains discussion components, you could plan to either link only to specific components or remove the discussion components from the unit or subsection, and then use the features available in your external LMS to add discussion forums to the course.
- Optional edX course features that create groups of learners based on their IDs, such as content experiments and cohorts, are not designed to provide results for external use. To use features like these for your course, you should plan to set them up in the external LMS.
- To ensure that edX content remains available without interruption, edX course content appears in the external LMS regardless of the start, end, or enrollment dates that are defined for the edX course.
- To ensure that learners see only edX content that is ready for use, only course content that is published appears in an external LMS.

For more information about edX features that might not be suitable for use with LTI, see [Select Content in the Duplicate Course](#).

The topics that follow assume use of the edX Studio user interface. However, you can also complete these tasks by exporting the course and then reviewing or editing its XML before you import.

Create the Duplicate Course

Before you create a duplicate course, be sure to check with your DevOps team to determine the website that hosts your organization's courses for LTI use.

To create the duplicate course, follow these steps.

1. In Studio, export the original course. For more information, see [Export a Course](#).
2. In Studio on your organization's host site for LTI courses, create a course. This is the duplicate course.

Note: If your organization uses the same site as the host for both the original course and for LTI courses, be sure to give the duplicate course a different name or run.

3. In the duplicate course, import the tar.gz file that you exported in step 1. For more information, see [Import a Course](#).

Select Content in the Duplicate Course

To select content in your duplicate edX course for reuse in an external LMS, you use Studio to review the course outline and make note of the components, units, and subsections you want to include.

Using an organizational tool, such as a spreadsheet, can be helpful. For example, you can use a spreadsheet column to identify the type of content (for example, component, unit, subsection), and add their display names to the next column. Additional columns can contain the values that you use to construct the addresses for your LTI links. For more information about addressing content, see [Determining Content Addresses](#).

Optionally, you can streamline the contents of units and subsections by removing components, or disable course features that you do not plan to use.

EdX Content or Feature	Works Well with LTI?
Annotation Problem Components	No
Cohorts	No
Content Experiment Components	No
Course-wide Discussions	No
Discussion Components	No
HTML Components	Yes
Internal Links	No
Problem Components	Yes
Randomized Content Block Problem Components	No
Video Components	Yes

For information about removing components, see [Delete a Component](#). For information about disabling cohorts, see [Disable Cohorts in Your Course](#). To remove course-wide discussions, you select **Settings**, and then **Advanced Settings**, and then delete the contents of the **Discussion Topic Mapping** policy key. For more information, see [Create Course-Wide Discussion Topics](#).

Verify Content Status

Only edX course content that is published appears in an external LMS.

Note: The **Hide from students** setting for sections, subsections, and units does not affect the visibility of content in an external LMS. Only the publication status of a unit can prevent content from being included.

To verify that all of the content in your edX course is published, follow these steps.

1. In Studio, from the **Content** menu select **Outline**. The **Course Outline** page opens.
2. Expand each section and subsection.
3. Locate units with “Unpublished units will not be released” or “Unpublished changes to live content” below the unit name.
4. For each unpublished unit, make any changes that are necessary to prepare the content for publication. Alternatively, delete the unit.
5. Publish the unit. For more information, see [Publish a Unit](#).

10.5.3 Determining Content Addresses

To include the content of an existing course in another system, you use the edX LMS to find the location identifiers for the content you want to include. You then format the identifiers into an LTI URL.

- [Find the Course ID](#)
- [Finding the Usage ID for Course Content](#)
 - [View Staff Debug Info for the Usage ID](#)
 - [View the Page Source for the Usage ID](#)
 - [View the Course Structure API for the Usage ID](#)
- [Constructing the LTI URL](#)

You might find using a tool like a spreadsheet helpful as a way to organize the course ID and each of the usage IDs that correspond to the course content you want to include in an external LMS.

Find the Course ID

The identifier for your course can be in one of these formats.

- `{key type}:{org}+{course}+{run}`, for example, `course-v1:edX+DemoX+2014`
- `{org}/{course}/{run}`, for example, `edX/DemoX/2014`

Courses created since Fall 2014 typically have an ID that uses the first format, while older courses have IDs that use the second format.

To find the course ID for your course, follow these steps.

1. In the edX LMS, open your course.
2. In the URL shown by your browser, find the course ID.

For example, you open the “Blended Learning with edX” course to the **Home** page for the course. The URL for the **Home** page is `https://courses.edx.org/courses/course-v1:edX+BlendedX+1T2015/info`. From the URL, you determine that the course ID is `course-v1:edX+BlendedX+1T2015`.

Another example is the edX DemoX course. The URL is `https://edge.edx.org/courses/edX/DemoX/2014/info`, and its course ID is `edX/DemoX/2014`.

The same course ID applies to every item of content in the course.

Finding the Usage ID for Course Content

The identifier for a specific component, unit, or subsection in your course can be in one of these formats.

- `{key type}:{org}+{course}+{run}+type@{type}+block@{display name}`, for example, `block-v1:edX+DemoX+2014+type@sequential+block@basic_questions`
- `i4x:;_:_{org};_{course};_{type};_{display name}`, for example, `i4x:;_:_edX;_DemoX;_sequential;_basic_questions`

Courses created since Fall 2014 typically have usage IDs in the first format, while older courses have usage IDs in the second format.

The following terms are used in the usage identifiers to indicate subsections, units, and components.

EdX Studio	Page Source
subsection	sequential
unit	vertical
component	problem, html, or video

The example usage IDs shown above include the word “sequential”, so they indicate subsections in a course.

Several methods are available to help you find the usage IDs for items in your course.

To find the usage ID for a unit or a component in an edX course, you can use any of these methods.

- [View staff debug info](#) for it in the edX LMS.
- [View the page source](#).
- [View the course structure](#).

To find the usage ID for a subsection in an edX course, you can use one of these methods.

- [View the page source](#).
- [View the course structure API](#).

Note: You must have the Staff or Admin role in a course to follow any of these procedures for finding usage IDs.

View Staff Debug Info for the Usage ID

To find the usage ID for a unit or component in the LMS, follow these steps.

1. In the edX LMS, open your course.
2. Select **Course**, and then go to the page that contains the unit or component.
3. Select **Staff Debug Info**.
4. To find the usage ID for a component, find the **location**.

For example, `location = block-v1:edX+BlendedX+1T2015+type@html+block@2114b1b8fd7947d28fba5`.

5. To find the usage ID for a unit, scroll down to find the **parent**.

For example, `parent block-v1:edX+BlendedX+1T2015+type@vertical+block@ae7d9c34c2f34f7aa793e`.

The usage ID value begins with `block-v1` for newer courses or `i4x://` for older courses. If you are using a spreadsheet to organize your location identifiers, you can select the usage ID value, and then copy and paste it into the spreadsheet.

To close the Staff Debug viewer, click on the browser page outside of the viewer.

For more information, see [Staff Debug Info](#).

View the Page Source for the Usage ID

To find the usage ID for a subsection, unit, or component, you view the HTML page source for that page of the edX course.

To find the usage ID for a subsection, unit, or component, follow these steps.

1. In the edX LMS, open your course.
2. Select **Course**, and then go to the page with the content that you want to include in an external LMS.
3. Open the HTML source for the page. For example, in a Chrome browser you right click on the page, and then select **View Page Source**.
4. Use your browser's Find feature to locate the term `data-usage-id`. This attribute contains the usage ID.
5. Review the value for the usage id to determine the part of the course it identifies: the sequential (subsection), a unit (vertical) or a specific component (problem, html, or video).

Important: You might need to search beyond the first match to retrieve the usage ID for the content you want to identify. Be sure to check the `data-usage-id` for sequential, vertical, or problem, html, or video to be sure that you specify the content that you want.

For example, you want to link to a subsection in the edX Demo course. You open the course, go to the problem, and then right click to view the page source. When you search for `data-usage-id`, the first match is `block-v1:edX+DemoX+Demo_Course+type@sequential+block@basic_questions`. You verify that this usage ID value is for the subsection by checking for the presence of `sequential`.

A more complex example gets the usage ID for the Drag and Drop problem in the edX DemoX course. The Drag and Drop problem is the second problem in the first homework assignment in Week 1 of the course. After you view the

page source and search for `data-usage-id`, the first match is for the subsection (sequential). You search again, and see a usage ID that uses a slightly different format than the first usage ID, but contains the word “vertical”, so you know that it is for the unit. The third time that you search, you get the usage ID for the first of the problems (problem) in the assignment. You search again, and find the usage ID for the second problem in the assignment, `block-v1:edX+DemoX+Demo_Course+type@problem+block@d2e35c1d294b4ba0b3b1048615605d2a`.

If you are using a spreadsheet to organize your location identifiers, you can select the usage ID value within the quotation marks or `"`; ISO codes, and then copy and paste it into the spreadsheet.

View the Course Structure API for the Usage ID

The edX course structure API (application program interface) exposes information about your course, including the usage identifiers for every item it contains, in JSON format.

To view this API for your course, you browse to a URL with the following format.

```
https://{host}/api/course_structure/v0/course_structures/{course_id}
```

You must have the Staff or Admin role for a course to view its course structure API.

To find usage IDs for your course in the course structure API, follow these steps.

1. In your browser, enter the URL for the course structure API.

For example, to access the course structure API for the edX Demo course, you enter this URL.

```
https://edge.edx.org/api/course_structure/v0/course_structures/course-v1:edX+DemoX+Dem
```

2. Press Enter. The course structure API appears in the browser.
3. Scroll down to verify that an HTTP 200 OK message appears.

If you received a different HTTP response value, make sure that you have the Staff or Admin role for the course, and that you have entered the URL correctly.

The API shows the `root` usage ID for your course, followed by the set of `blocks` that the course contains. Each block provides information about one item in your course, using the sequential, vertical, and problem, html, or video identifiers. Each block includes the `display_name` that is defined for each item, which can help you locate specific subsections, units, and components.

For example, this block is for a unit (vertical) that contains a single video component (indicated by the value for `children`).

```
{
  "block-v1:edX+231_LTI+Fall_2015+type@vertical+block@7b3606b362c74222ba2d0c06e433df08": {
    "id": "block-v1:edX+231_LTI+Fall_2015+type@vertical+block@7b3606b362c74222ba2d0c06e433df08",
    "type": "vertical",
    "parent": null,
    "display_name": "1st Video",
    "graded": false,
    "format": null,
    "children": [
      "block-v1:edX+231_LTI+Fall_2015+type@video+block@fe187ddccab84398aa051f6937a213a7"
    ]
  },
}
```

The usage ID for this unit is the value for `"id"`.

```
block-v1:edX+231_LTI+Fall_2015+type@vertical+block@7b3606b362c74222ba2d0c06e433df08
```

The usage ID begins with `block-v1` for newer courses or `i4x://` for older courses.

If you are using a spreadsheet to organize your location identifiers, you can select the usage ID value within the quotation marks, and then copy and paste it into the spreadsheet.

Constructing the LTI URL

To identify the edX content that you want to include in an external LMS, you provide its URL. This URL has the following format.

```
https://{host}/lti_provider/courses/{course_id}/{usage_id}
```

To construct the LTI URL, you add your course ID and the specific content ID.

Examples of the possible formats for an LTI URL follow.

LTI URLs for a subsection include “sequential”, as follows.

```
https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+2014/block-v1:edX+DemoX+2
```

```
https://edx-lti.org/lti_provider/courses/edX/DemoX/2014/i4x:;;_edX;_DemoX;_sequential
```

LTI URLs for a unit include “vertical”, as follows.

```
https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+Demo_Course/block-v1:edX+
```

```
https://edx-lti.org/lti_provider/courses/edX/DemoX/2014/i4x:;;_edX;_DemoX;_vertical;_
```

LTI URLs for HTML components include “html+block” or “html”, as follows.

```
https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+Demo_Course/block-v1:edX+
```

```
https://edx-lti.org/lti_provider/courses/edX/DemoX/2014/i4x:;;_edX;_DemoX;_html;_2b94
```

10.5.4 Grading Remote Content

When you include the problem components in a graded edX subsection in an external LMS, the edX system grades the learner responses to those problems. The edX system then transfers the learner scores back to the external LMS. This exchange between an external LMS, the edX system, and the external LMS again is near real time. It can take a few moments to complete this exchange for a single problem component, and up to several minutes to return aggregated scores of all of the problems in a unit or subsection.

When you include edX problem components in an external LMS, note the following requirements.

- The edX problem component must be in one of the graded subsections in your course.
- Your external LMS might also require that you use a specific part of the course for graded content. For example, in Canvas, you must add the LTI URL of a problem component to the “Assignments” section of a course, or to a module item that points to an assignment. In addition, the user who launches the LTI material must be eligible to get a grade for the assignment; that is, a learner and not a TA or course designer.

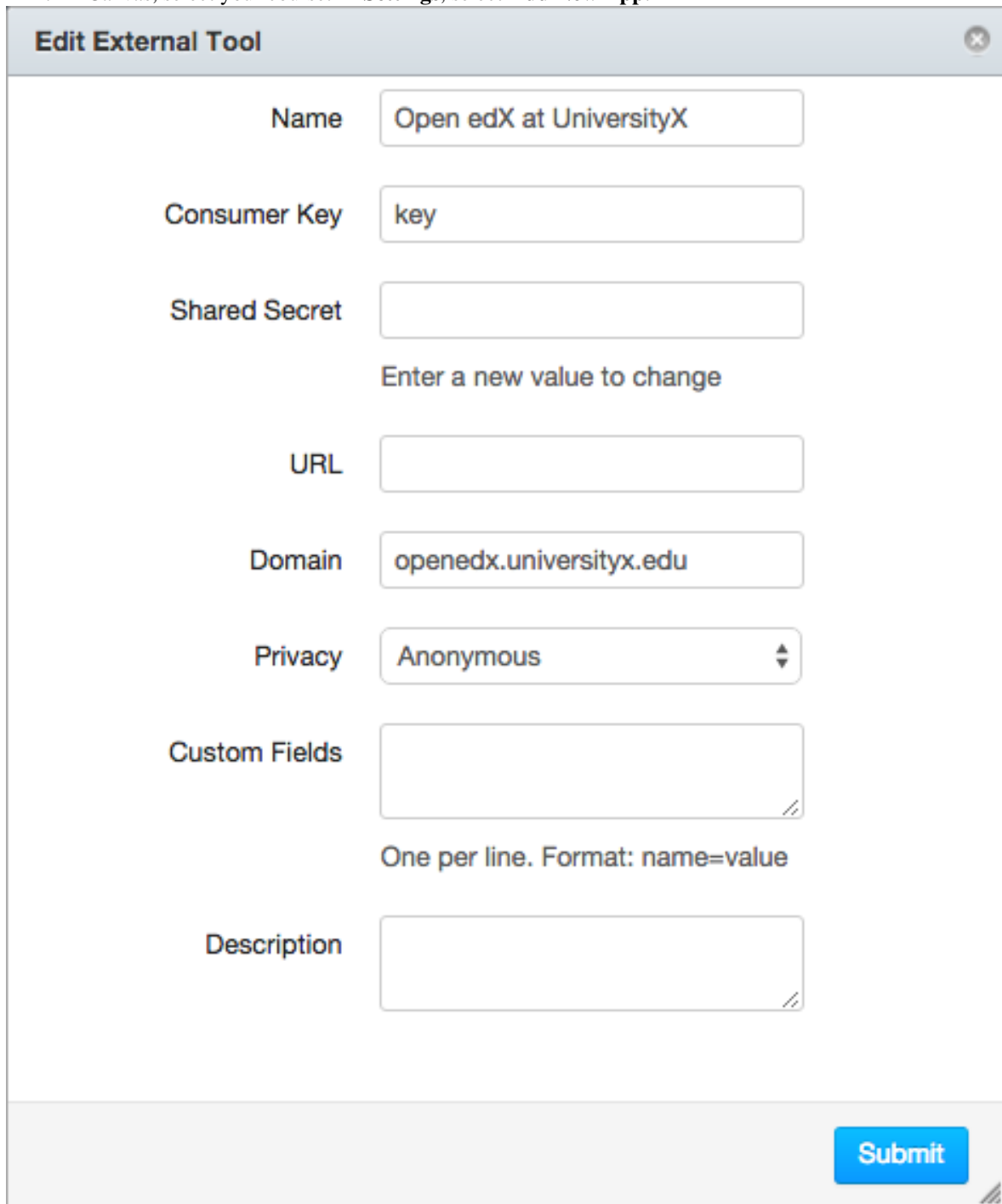
For more information about constructing an LTI URL for a course component, see [Determining Content Addresses](#).

10.5.5 Example: edX as an LTI Provider to Canvas

To use edX course content in the Canvas LMS, you add a new app to the course and then add external tool module items.

Note: This example relies on the use of a third-party tool. Because this tool is subject to change by its owner, the steps and illustrations provided here are intended as guidelines and not as exact procedures.

1. In Canvas, select your course. In **Settings**, select **Add New App**.



The screenshot shows a web form titled "Edit External Tool" with a close button in the top right corner. The form contains several input fields and a submit button. The fields are labeled as follows:

- Name:** A text input field containing "Open edX at UniversityX".
- Consumer Key:** A text input field containing "key".
- Shared Secret:** A text input field that is currently empty. Below it is a hint text: "Enter a new value to change".
- URL:** A text input field that is currently empty.
- Domain:** A text input field containing "openedx.universityx.edu".
- Privacy:** A dropdown menu with "Anonymous" selected and a double-headed arrow icon on the right.
- Custom Fields:** A text area that is currently empty. Below it is a hint text: "One per line. Format: name=value".
- Description:** A text area that is currently empty.

A blue "Submit" button is located at the bottom right of the form.

2. In **Modules**, add a new **External Tool** item. The **URL** is the LTI URL that you determined for the edX course content, such as https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+2014/block-v1:edX+DemoX+D

Add Item to Example Week 4: edX as an LTI Tool Provider

Add External Tool to Example Week 4: edX as an LTI Tool Provider

Select a tool from the list below, or enter a URL for an external tool you already know is configured with Basic LTI to add a link to it to this module.

Open edX

URL:

Page Name:

☐ Load in a new tab

Indentation: Don't Indent

Cancel Add Item

For more information, see *Determining Content Addresses*.

- Review the content to verify that it appears as you expect.

Courses
Grades
Calendar
Developer Dashboard

DemoX-2
Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Outcomes
Quizzes
Modules
Settings

DemoX-2 > DemoX-2 > Assignments > Drag and Drop (problem) > Drag and Drop (problem)

Edit Assignment Settings
Speed Grader

DRAG AND DROP (1 point possible)
Here's an example of a "Drag and Drop" question set. Click and drag EVERY word in the scrollbar below, up to the numbered bucket which matches the number of letters in the word.

a

One

Two

cat

Three

dog

Four

them

Five

there

pear

kitty

in

za

slate

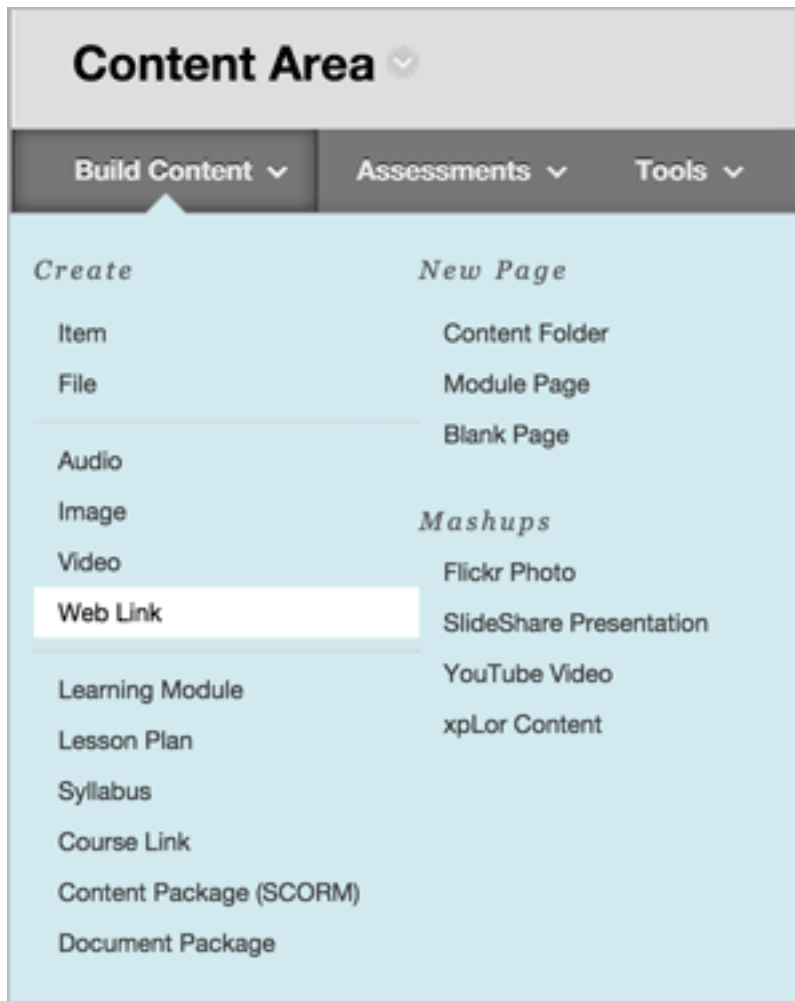
CHECK

10.5.6 Example: edX as an LTI Provider to Blackboard

To use edX course content in the Blackboard LMS, you add a new app to the course and then add external tool module items.

Note: This example relies on the use of a third-party tool. Because this tool is subject to change by its owner, the steps and illustrations provided here are intended as guidelines and not as exact procedures.

1. In Blackboard, select your course.
2. From the course control panel, select **Customizations**. In the **Tool Availability** section, verify that the LTI tool has been enabled.
3. Open a **Content Area** page, and from the **Build Content** menu select **Web Link**.



4. On the **Create Web Link** page, enter an identifying name and the URL for the edX content you want to include.

The **URL** is the LTI URL that you determined for the edX course content, such as https://edx-lti.org/lti_provider/courses/course-v1:edX+DemoX+2014/block-1:edX+DemoX+De

Create Web Link

Indicates a required field.

WEB LINK INFORMATION

Name

URL

☒ This link is to a Tool Provider. [What's a Tool Provider?](#)

Enable Evaluation ☒ Yes ☐ No

Points Possible

Visible to Students ☒ Yes ☐ No

Due Date

For more information, see [Determining Content Addresses](#).

5. Review the content to verify that it appears as you expect.

Student Preview mode is ON

Course Content > My edX content

Settings Exit Preview

Demo Course

- Welcome
- Course Content
- Assessment

DRAG AND DROP (1 point possible)

Here's an example of a "Drag and Drop" question set. Click and drag EVERY word in the scrollbar below, up to the numbered bucket which matches the number of letters in the word.

One Two Three Four Five

a cat there pear kitty in

You can also include content from an LTI provider in your Open edX courses. For more information, see [LTI Component](#).

Establishing a Grading Policy For Your Course

Use the topics in this section to learn about setting up grading for your course. Establishing a grading policy requires several steps, including deciding whether to include ungraded sections in your course.

Important: Any changes to the course grading policy, to graded subsections, or to graded components after a course begins will affect the student experience in the course and analysis of its data.

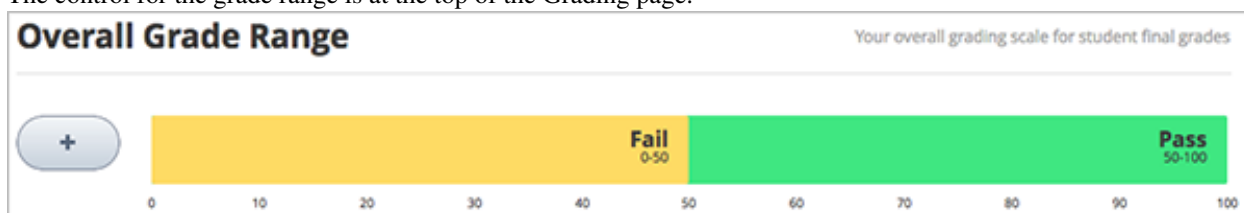
For information on how to develop your course content in the Studio Outline, see *Developing Your Course*.

11.1 Set the Grade Range

You must set the grade range for the course. For example, your course can be pass/fail, or can have letter grades A through F.

To set the grade range, from the **Settings** menu, select **Grading**.

The control for the grade range is at the top of the Grading page.

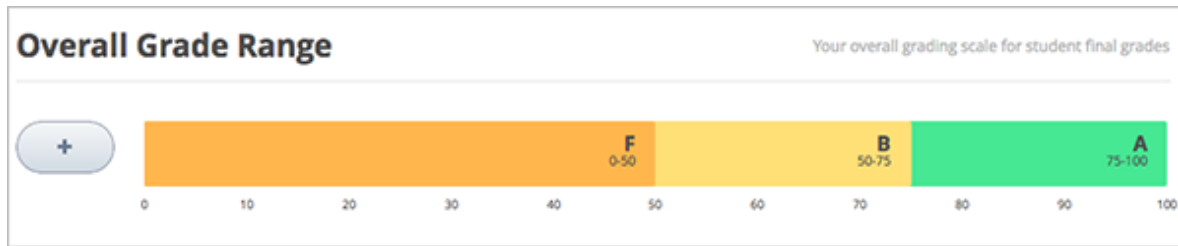


The above example shows that you have a pass/fail grade range, with a score of 50 as the cutoff. This is the default setting for a new course.

You can adjust the grade range as needed.

- To add a grade in the range, select the + icon.

A new grade is added to the range between the existing grades. For example, if you add a grade in the default setting, the grade range changes to **F** (0 to 50), **B** (50 to 75), and **A** (75 to 100):



- To change the score range, move the cursor over the line dividing two grades and then select and drag the line left or right.

You can see the range numbers of the two grades adjacent to the line change. Unselect the line when it is where you want it.

- To change the name of the grade, select the current name of the grade and start typing the name of the new grade. For example, if the original name of the grade is “Pass”, you can select “Pass” and then type “Excellent” to replace the name.

You cannot change **F** or **Fail**.

- To remove a grade, move the cursor so that it is over the grade.

A **remove** link appears above the grade. Select the link.

You cannot remove F or A.

After you make any changes to the grade range, you must select **Save Changes** at the bottom of the page.

11.1.1 Grade Ranges and Certificates

If you plan for your course to offer certificates, note that a learner will qualify for a certificate by earning any grade over the F, or Fail, threshold. This is true regardless of how many grade levels you add in the grade range.

For more information, see [Setting Up Course Certificates](#).

11.2 Set the Grace Period

You can set a grace period that extends homework due dates for your learners. The grace period applies to the whole course; you cannot set different grace periods for individual assignments.

Note: The grace period setting does not apply to open response assessments. For details about setting the response date for an ORA assignment, see [Specify Assignment Names and Dates](#).

On the Grading page, under **Grading Rules & Policies**, enter a value in the **Grace Period on Deadline** field. Enter the value in Hours:Minutes format.

11.3 Configure the Assignment Types

You must create assignment types for your course and determine the weight of the total grade for each assignment type.

For example, you might have the following assignment types.

- 10 homework assignments, worth a total of 50% of the grade;

- A midterm exam, worth a total of 20% of the grade;
- A final exam, worth 30% of the grade.

By default, a new course has the following four assignment types.

- Homework
- Lab
- Midterm Exam
- Final Exam

You can use these assignment types, modify or remove them, and create new assignment types.

To create a new assignment type, in the bottom of the Grading page, select **New Assignment Type**, then configure the fields described below.

Note: In a MOOC, some number of learners will experience personal emergencies, technical problems (such as power blackouts or loss of internet access), or other issues. You will not be able to grant individual extensions to such learners, but can provide some amount of flexibility for managing such issues by designing longer deadlines and allowing droppable assignments.

11.3.1 Assignment Type Fields

You configure the following fields for each assignment type.

- **Assignment Type Name:**

The general category of the assignment. This name will be visible to learners.

Note: All assignments of a particular type count the same toward the weight of that category. As a result, a homework assignment that contains 10 problems is worth the same percentage of a student's grade as a homework assignment that contains 20 problems.

- **Abbreviation:**

This is the short name that appears next to an assignment on a learner's **Progress** tab.

- **Weight of Total Grade:**

The assignments of this type together account for the percent value set in **Weight of Total Grade**.

The total weight of all assignment types must equal 100.

Note: Do not include the percent sign (%) in this field.

- **Total Number:**

The total number of subsections in your course that contain problems of this assignment type.

- **Number of Droppable**

The number of assignments of this type that the grader will drop. The grader will drop the lowest-scored assignments first.

11.4 Graded Subsections

After you configure assignment types, as you are organizing your course, you set the assignment type for subsections that contain problems that are to be graded.

You can only set assignment types and due dates at the subsection level. You cannot set assignment types or due dates for entire sections or for individual units within subsections. Additionally, you can designate a subsection as one, and only one, of the assignment types you configured.

Note: You can create problems in Studio without specifying an assignment type for the subsection. Scores for such problems are listed as “practice scores” on the learner’s **Progress** page and do not count toward the learner’s grade.

Hidden sections, subsections, or units that contain graded content are not included in grading and also do not count toward a learner’s grade. For more information, see [Hiding Graded Content](#).

Within a graded subsection, you create problems of the type designated for that subsection. You cannot not mix problems of different assignment types in the same subsection.

For example, if you want to create a homework assignment and a lab for a specific topic, create two subsections. Set one subsection as the Homework assignment type and the other as the Lab assignment type. Both subsections can contain other content as well as the actual homework or lab problems.

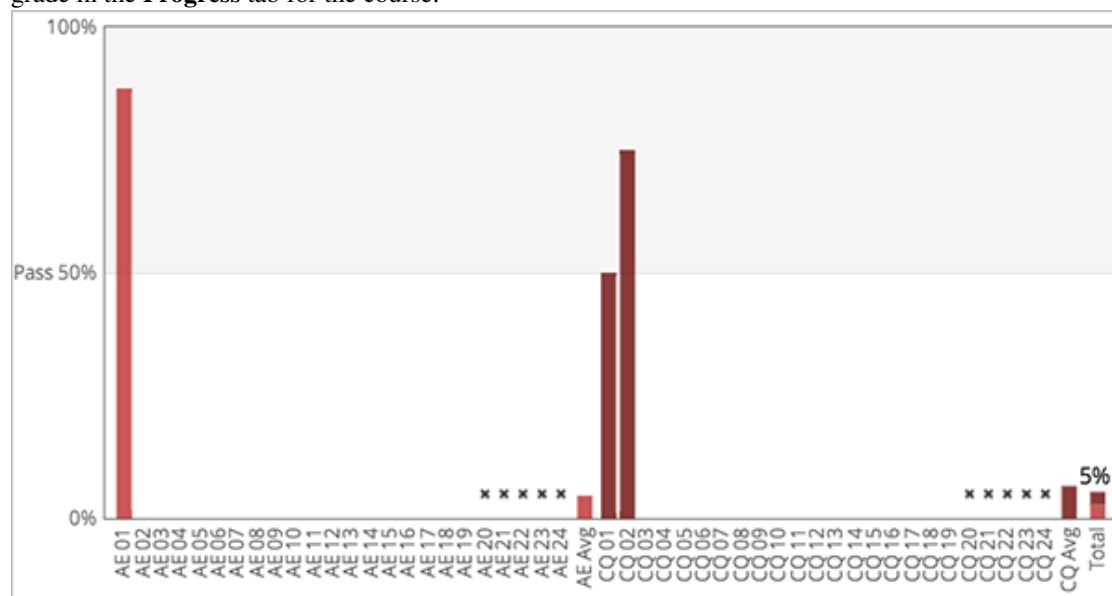
For more information about creating problems and developing subsections, see [Working with Problem Components](#) and [Developing Course Subsections](#).

For more information about designating a subsection as a graded assignment, see [Set the Assignment Type and Due Date for a Subsection](#).

For more information about how to designate a subsection as a timed exam, see [Timed Exams](#).

11.5 The Learner View of Grades

After a grading policy is in place, learners can view both their problem scores and the percent completed and current grade in the **Progress** tab for the course.



Each item in the X axis of the chart is for a graded subsection. Graded problems in units are not broken out in the chart; the score from each problem in the subsection is added to that vertical bar.

Graded subsections are grouped in the chart by assignment type rather than listed in chronological order. For example, all homework exercises are grouped together, followed by labs, then exams.

Note: The **x** for an assignment in the Progress tab indicates that the grade for that assignment is currently dropped. You configure how many assignments are dropped when you *configure assignment types*.

Releasing Your Course

12.1 Beta Testing a Course

This topic describes how to beta test your course.

- *Overview*
- *The Beta Testing Process*
- *The Beta Testing Role*
- *What to Test*
- *How Beta Testers See Course Content*
- *Adding Beta Testers*
- *Reporting Issues During a Course*

12.1.1 Overview

When you are designing a course in Studio, you can select **View Live** to test your work, find gaps and errors, and mimic the learner experience. To gather information about the overall experience of taking a course, you can also conduct a beta test of the course.

12.1.2 The Beta Testing Process

During a beta test, you gather information about the experience of taking your course in an effort to improve its quality. The phases of the beta testing process, and some questions that you may find useful to consider as you prepare for each phase, follow.

1. **Planning:** What are your objectives for the test? What is the schedule for testing?
2. **Recruitment:** How many testers do you need? How much time do you expect testers to spend? When do you need them to complete their feedback?
3. **Provide access to your course:** Can testers access your entire course immediately, or are its sections and subsections available at different times? How will that affect the schedule?
4. **Collect feedback:** How do you want testers to provide feedback? Who checks for feedback, and how often?
5. **Evaluate feedback:** How is feedback evaluated? Who decides what changes to make as a result, and on what schedule?

6. **Conclusion:** How do you acknowledge the efforts of your testers? What do you share with them about the results of their efforts?

There is no one answer to any of these questions. They are included here as background on the role that beta testing can play in the preparation of your course.

12.1.3 The Beta Testing Role

Beta testers have early access to the course. Beta testers are not members of the course team: they do not have information about “how it is supposed to work”. They use their own computers and Internet connections to view videos, follow links, and complete problems. They interact with the course as learners will to find, and make, mistakes.

However, beta testers are not the same as other learners in the course, either. They have privileged access to the course and have more time to review and complete the course materials than the enrolled learners do. Course discussions are not open before the course start date, so beta testers cannot participate in community conversations. As a result of these differences, beta testers do not receive certificates when they complete a course.

Note: If one of your beta testers wishes to earn a certificate for the course, she must create a separate user account with a different username and email address. She can then use that separate, non-privileged user account to enroll in the course and repeat the work, completing assignments and exams when they are available to all learners.

Qualities of Good Beta Testers

A beta test is valuable in part because it is unscripted. Your beta testers are not following a predetermined series of steps, or using a particular computer environment, when they access your course. When you recruit beta testers, however, you may find these skills and characteristics to be helpful.

- Curiosity.
- Attention to detail for identifying problems and inconsistencies.
- Solid communication skills for reporting problems to the course team.

Your beta testers should also have varying levels of knowledge about the course content:

- To recognize when material is wrong or missing, at least one tester should know the content well.
- To identify material that is unclear, at least one tester should be less familiar with the content.

Depending on the objectives you set for your beta test, you might want to consider recruiting testers who use assistive technologies, who have different native languages, or who have varying levels of familiarity with computer software.

Using Course Team Members as Beta Testers

The course team can provide valuable feedback about your course. However, they are typically stakeholders in the success of your course and have a significant amount of knowledge about it. As a result, they can be too close to the course to interact with it in the same way as learners will. They can also be either reluctant to provide feedback, or overly zealous.

If you do want a team member to be a beta tester, note that the privileges of the Staff or Admin role override those of a beta tester. The team member must use a different, second email address to create an additional edX account and enroll in the course, and the course team must assign only the beta tester role to that edX account. The course team member experiences the course as a learner only when she signs in to edX using the beta tester account.

12.1.4 What to Test

Beta testers should interact with everything in the course.

- Select all links.
- Watch all videos.
- Download video transcripts and other files.
- Complete all problems.

Beta testers can use a desktop computer to access an edX website, the edX mobile app on a smartphone, or both to complete their tests. As they work, beta testers log issues and questions for the course team.

12.1.5 How Beta Testers See Course Content

To beta test a course, you:

- Define a number of days before content releases for testing to begin.
 - For instructor-paced courses, this number applies to the release date for each section and subsection. Beta testers can only access course content the number of days you specify before each section or subsection is released.
 - For self-paced courses, this number applies to the course start date. Because sections and subsections for self-paced courses do not have individual release dates, beta testers can access all course content when the beta test begins.
- Identify beta testers.

Designated beta testers see course content before learners can. The matrix that follows shows the course content that beta testers can access earlier than other learners in an example instructor-paced course.

	Yes	No
Before the course enrollment date	X	
Before the course start date	X	
Before the section release day	X	
Before the subsection release day	X	
Before the unit is published		X
Before a draft replaces a live unit		X

The course team can continue to add content in Studio after the beta test begins. When new content is ready for testing, be sure to *publish the unit*.

Important: When you set up the beta test and define when it starts, verify that the first section, subsection, and unit in your course are available to be tested. If that first unit is not available, an error occurs when testers attempt to access any other content in the course.

Define When the Beta Test Starts

To define the start of the beta test, you use Studio to specify a number of days before the course start date for self-paced courses or before the section and subsection release dates for instructor-paced courses. For more information, see *How Beta Testers See Course Content*.

1. In Studio, from the **Settings** menu, select **Advanced Settings**.

2. In the field for the **Days Early for Beta Users** policy key, enter the number of days before content releases for beta testers to have access.
3. Select **Save Changes**.

Example

Beta tester access to course content for an instructor-paced course with **Days Early for Beta Users** = 20 and 2 sections:

Course enrollment date = 31 August	31 August; earlier if enrolled by course team
Course start date = 15 September	26 August
Section 1 release day = 15 September	26 August
section 2 release day = 22 September	2 September
Subsection 1 release day = 22 September	2 September
Subsection 2 release day = 24 September	4 September
Subsection 2, unit 1 visibility = public	4 September
Subsection 2, unit 2 visibility = public; draft in progress	4 September for public version; no access to draft
Subsection 2, unit 3 visibility = private	No access

In this example, the beta testers cannot access all of the content on the **Course** page when the beta test starts on 26 August: they can access section 1 but not section 2. You may want to provide a schedule of section availability to your testers so that they can plan their time appropriately. Future release dates do not display to the beta testers in the course.

12.1.6 Adding Beta Testers

Before you can add beta testers:

- You need the email address or username of each beta tester.
- Each beta tester must register and activate a user account for that email address/username.

When you add beta testers, note the following.

- If the beta test starts before the course **Enrollment Start Date**, testers cannot enroll themselves in your course. However, you can enroll the beta testers prior to the **Enrollment Start Date**.
- If you add the beta testers after the defined start of the beta test, and they are enrolled in the course, they see your course on their **Current Courses** dashboards when they log in.
- If you add beta testers before the test starts, or if they are not enrolled, they do not see your course on their dashboards. You can enroll the beta testers in the course yourself, and you may want to send an email message to remind them when the test begins.

Add Multiple Beta Testers

If you have a number of beta testers that you want to add, you can use the “batch add” option to add them all at once, rather than individually. With this feature, you have options to enroll the beta testers in the course (before or after the **Enrollment Start Date**) and send an email message to notify the beta testers that they have been added.

To add multiple beta testers:

1. View the live version of your course.
2. Select **Instructor**, and then select **Membership**.

3. In the **Batch Beta Tester Addition** section of the page, enter one or more addresses or usernames separated by commas or line feeds (the Enter key). You can also copy data from a CSV file of email addresses and paste it here.
4. To enroll the beta testers in your course, leave **Auto Enroll** selected. If the beta test starts before the course **Enrollment Start Date**, testers cannot enroll themselves in your course.
5. To send an email message to the beta testers, leave **Notify users by email** selected. An example of the message that is sent to a beta tester who is not enrolled in the course follows.

:: Dear betatester,

You have been invited to be a beta tester for *course* at edge.edx.org by a member of the course team.

Visit <https://edge.edx.org/courses/course-name/about> to join the course and begin the beta test.

6. Select **Add beta testers**.

To remove the Beta Tester role from one or more users, enter their email addresses in the **Batch Add Beta Testers** field and then select **Remove beta testers**.

Note: The **Auto Enroll** option has no effect when you select **Remove beta testers**. The user's role as a beta tester is removed; course enrollment is not affected.

Add Beta Testers Individually

1. View the live version of your course.
2. Select **Instructor** then **Membership**.
3. In the **Administration List Management** section, use the drop-down list to select **Beta Testers**.
4. Under the list of users who currently have that role, enter an email address or username and click **Add Beta Tester**.

If the beta test starts before the **Enrollment Start Date** of your course, you can also enroll the beta tester. See [Enrollment](#).

To remove the Beta Tester role from users individually, find the user in the list of beta testers, and then select **Revoke access** to the right of that user's email address.

12.1.7 Reporting Issues During a Course

Despite the efforts of the course team and the beta testers, additional problems, questions, and issues can occur while a course is running.

- Often, learners report issues by asking questions in a discussion. Your discussion moderation team can watch for posts that indicate problems.
- To let learners know the best way to report problems, you can post information on the **Home** page or post it in a discussion.

12.2 Course Launching Activities

This topic describes steps to launch your course.

- [Overview](#)
- [Course Launch Checklist](#)

12.2.1 Overview

To launch a course, you prepare the course itself, the course team, and the learners. This topic includes a [course launch checklist](#) to use as a model for your schedule of activities.

To help you communicate to the course team or to all course participants before the course launches and while it is running, you can send email messages from the Instructor Dashboard. See [Bulk Email](#). The topic on bulk email also includes a set of [example messages to learners](#) that you can use as guidelines when you write your own email messages.

12.2.2 Course Launch Checklist

As the start date for your course approaches, a checklist or time line of activities can help you make sure that your course, and your learners, are ready to begin. Suggestions for activities to complete before your course starts follow.

Verify Course Settings

- Check the course start date and time in Studio. See [Setting Start and End Dates](#).
- Review the grading policy, and set a grace period for homework assignment due dates. See [Establishing a Grading Policy For Your Course](#).
- Confirm that any optional features that you want your course to include, such as learner cohorts, are enabled and configured. See [Using Cohorts in Your Courses](#).

Verify Certificates

- Make sure that certificates are correctly configured and ready to be issued. See [Setting Up Course Certificates](#).

Review First Week Content

- Verify that all units are present and published. See [Developing Course Units](#).
- Verify that videos, transcripts, and download links are in place and working. See [Working with Video Components](#).
- Check all assignments for completeness and verify their due dates. See [Working with Problem Components](#).
- Use edX Insights to review the answers that beta testers submitted for problems, and to proofread your display names, accessible labels, and answer text.
- Review feedback from the course team and beta testers to be sure that the content has been thoroughly reviewed and tested.

Welcome Learners

- Two months before the course start date, prepare and send a welcome email message to currently enrolled learners. See [Pre-launch Reminder](#) and [Send an Email Message to Course Participants](#).
- Compose a welcome message and add it to the **Home** page. See [Add a Course Update](#).
- Verify that a syllabus and other references are available on the **Course Handouts** page. See [Identify a Course Handout](#).
- One month before the course start date, prepare and send a welcome email message to currently enrolled learners.

- One week before the course start date, prepare and send a welcome email message to currently enrolled learners.
- Add an “Introduce Yourself” post to a discussion topic. For a MOOC, you may want to manage the size of the thread by distributing learner responses across multiple threads. For example, you can start different threads for introductions based on geographical location, such as “Introduce Yourself: Europe”, “Introduce Yourself: North America”, etc. See [Run a Discussion](#).
- On the course start date, prepare and send a launch email message to currently enrolled learners. See [Launch Day Welcome](#).

Prepare the Course Team

- Define communication methods for all course contributors, including team members with the Staff, Admin, and discussion moderation team roles. For example, set up a course-specific email address.
- Verify that all course contributors know how to record their work, report issues, and collaborate on tasks.
- Verify that the people who will be Admins or Staff for your course have the correct role assignments in the LMS. See [Staffing](#).
- Verify that the people you have given the Discussion Admin, Discussion Moderator, and Discussion Community TA roles have registered and activated their user accounts and enrolled in the course. See [Assign Discussion Administration Roles](#). Note that team members with the Admin and Staff roles must also be given one of these roles to have discussion moderation privileges.
- Define methods for managing discussions and guidance for discussion moderators, and distribute to the discussion team. See [Moderate Discussions](#) and [Guidance for Discussion Moderators](#).

Managing a Running Course

Use the topics in this section to learn about managing a course that is currently running, including enrolling or unenrolling learners, and managing course discussions.

13.1 Course Data

After you create a course in Studio, you can access information about it from the Instructor Dashboard.

- *Review Course Data*
- *Sources in Studio of the Basic Course Information*

Additional data about the course and its learners is available from other pages in the Instructor Dashboard, and from edX Insights.

To access the data visualizations, metrics, and reports of Insights from the Instructor Dashboard, select the link in the banner at the top of each page. For more information, see [Using edX Insights](#).

13.1.1 Review Course Data

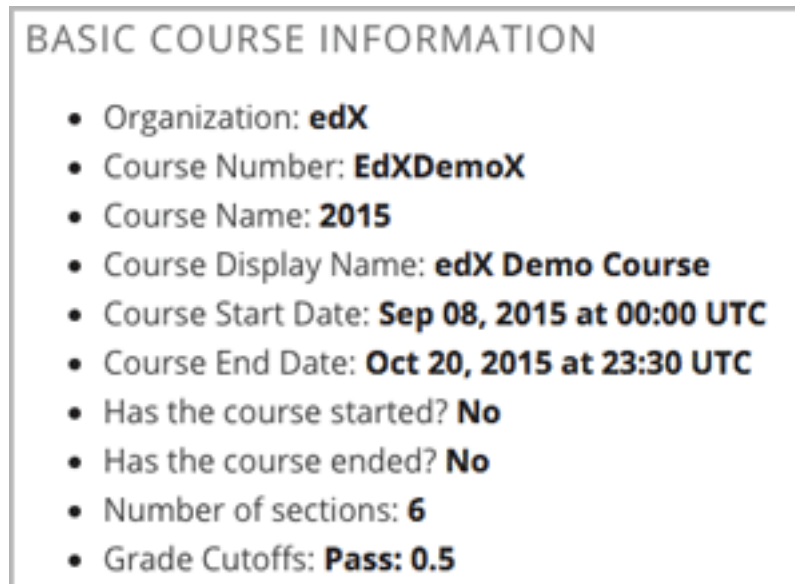
On the Course Info page, you can find the following information.

- Identifying information about the course.
- Whether the course has started or ended.
- The number of sections in the course.
- The defined grade cutoff for passing or failing.

To view this course data, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Course Info** if necessary.

The **Basic Course Information** section of the page that opens lists information about the course.



13.1.2 Sources in Studio of the Basic Course Information

The course data that displays on the Instructor Dashboard is defined in Studio, or derived from data that you define in Studio.

- **Organization:** Specified in Studio when you create the course. Becomes part of the course URL, and cannot be changed.
- **Course Number:** Specified in Studio when you create the course. Becomes part of the course URL, and cannot be changed.
- **Course Name:** Specified in Studio when you create the course. Becomes part of the course URL, and cannot be changed. In Studio, this field is labeled **Course Run**.
- **Course Display Name:** Specified in Studio when you create the course. In Studio, this field is labeled **Course Name**.

This name can be changed in Studio (not recommended if your course is live): From the **Settings** menu select **Advanced Settings**. The value for the **Course Display Name** policy key defines the course name that appears in the LMS only.

The illustration that follows shows the information that you enter in Studio for a new course, side-by-side with the same information as it appears on the **Course Info** page of the Instructor Dashboard.

Create a New Course (Studio)

Course Name *
 edX Demo Course
The public display name for your course. This cannot be changed, but you can set a different display name in Advanced Settings.

Organization *
 edX
The name of the organization sponsoring the course. Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.

Course Number *
 EdXDemoX
The unique number that identifies your course within your organization. Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.

Course Run *
 2015
The term in which your course will run. Note: This is part of your course URL, so no spaces or special characters are allowed and it cannot be changed.

BASIC COURSE INFORMATION (LMS)

- Organization: **edX**
- Course Number: **EdXDemoX**
- Course Name: **2015**
- Course Display Name: **edX Demo Course**
- Course Start Date: **Sep 08, 2015 at 00:00 UTC**
- Course End Date: **Oct 20, 2015 at 23:30 UTC**
- Has the course started? **No**
- Has the course ended? **No**
- Number of sections: **6**
- Grade Cutoffs: **Pass: 0.5**

CREATE **CANCEL**

- **Course Start Date:** The date and time that the course is scheduled to start. This date can be changed in Studio (not recommended if your course is live). For more information, see [Determining Start and End Dates](#).
- **Course End Date:** The date and time that the course is scheduled to end. This date can be changed in Studio (not recommended if your course is live). For more information, see [Determining Start and End Dates](#).
- **Has the course started:** Derived from the **Course Start Date** value and the current date.
- **Has the course ended:** Derived from the **Course End Date** value and the current date.
- **Number of sections:** The total number of sections created for the course. Includes all course sections, regardless of publication status, release date, or other settings that affect whether learners have access to the sections.
- **Grade Cutoffs:** Specified in Studio when you define the cutoff for a failing grade. Learners who earn exactly the cutoff value pass the course. Grading can be changed in Studio (not recommended if your course is live). For more information, see [Set the Grade Range](#).

13.2 Bulk Email

For courses on edx.org, you can send bulk email messages to course participants directly from the instructor dashboard. Messages can use HTML styling, and can include links to videos, social media pages for the course, and other material. All course team members who have the Staff or Admin role can use bulk email messages to communicate with course participants before, during, and after the course run.

Learners are less likely to read and respond to email messages from courses when they receive too many of them. As a best practice, do not send more than one email message per week to course participants, unless there is good reason to do so.

Note: Some courses use third party services such as MailChimp to send bulk email. Do not use both a third party service and the edX bulk email service. If you use more than one service to send email message, your messages are more likely to be marked as spam, and learners might not read them.

This section contains the following topics.

- *Message Addressing*
- *Composing Email Messages*
- *Send an Email Message to Course Participants*
- *Use Keywords in Messages*
- *Message Workflow States*
- *Review Sent Messages*
- *Email Task History Report*
- *Example Messages to Learners*

13.2.1 Message Addressing

When you send a bulk email message from the instructor dashboard, you choose its recipients by selecting a **Send to** option. You can select one or more recipient groups for each message. For details about who is included in each of the preset recipient groups, see *Who Is Included in Each Recipient Group?*.

When you send a message to more than one recipient group, duplicate recipients are filtered out, so that someone who belongs to more than one of the recipient groups (for example, a course team member who is also enrolled in the course) only receives one copy of the message.

The following preset recipient groups are available.

- **Myself.** Send an email message only to yourself, to test and review the message before sending it to a larger group.
- **Staff and Administrators.** Send an email message to members of the course team who have Staff or Admin privileges. For information about course team member privileges, see *Staffing*.
- **All Learners.** Send an email message to all currently enrolled learners, including course team members who are enrolled in the course. This group does not include learners who have not activated their accounts, or who have opted out of receiving email communications.

In addition, if you have cohorts enabled in your course, each cohort is available as a separate recipient group. For more information, see *Sending Email Messages to Learners in Cohorts*.

Who Is Included in Each Recipient Group?

When you send a bulk email message to one of the preset recipient groups, you should be aware of who is included in each group.

Recipient Group	Includes	Does Not Include
Staff and Administrators	<ul style="list-style-type: none"> Any course team member who has the Staff role. Any course team member who has the Admin role. 	<ul style="list-style-type: none"> Beta testers who do not also have the Staff or Admin role. Discussion moderators who do not also have the Staff or Admin role. Discussion administrators who do not also have the Staff or Admin role. Discussion community TAs.
All Learners	<ul style="list-style-type: none"> All currently enrolled learners in your course, including those who have enrolled but have not yet accessed the course. Course team members who are enrolled in your course. 	<ul style="list-style-type: none"> Learners who have not replied to the account activation email message that they received when they registered on edx.org. Learners who have opted out of receiving email messages through the Email Settings link for the course on the learner's dashboard.

Note: To send an email message to all course team members as well as all learners, select both **Staff and Administrators** and **All Learners**. Recipients who are in both groups will receive only one copy of the email message.

Sending Email Messages to Learners in Cohorts

If you enable cohorts in your course, each cohort is available as a separate recipient group. The recipient groups for individual cohorts only include enrolled learners who have been assigned to a cohort, whether they were automatically assigned when they accessed the course or manually assigned to a cohort by a member of the course team.

The recipient groups for cohorts do not include enrolled learners who have not been added to a cohort. This might be the case if they have not accessed the course or have not been manually added to a cohort by a member of the course team. To make sure such learners are included in email messages that are intended for all enrolled learners, select the **All Learners** recipient group instead of selecting all of the cohort recipient groups.

If a default cohort exists in your course, a recipient group named **Cohort: Default Group** is also available.

Note: The default cohort is created only if you have not created at least one automated assignment cohort in your course by the time the first learner accesses course content. If learners access the course before you have created any automated cohorts, they are automatically placed in the default cohort, to ensure that all learners in the course belong to a cohort. You can manually reassign learners from the default cohort to another cohort. For more information, see [Ensuring That All Learners Are Assigned: The Default Cohort](#).

13.2.2 Composing Email Messages

When you compose an email message, you can use the following options.

- *Styling*
- *Images*
- *Keywords*

Styling

Messages can include HTML styling, including text formatting and links. The email message editor offers the same formatting options as the HTML component editor in Studio.

For more information, see *Working with HTML Components*.

Images

Messages can include images. To include an image, you must first add the file to your course on the **Files & Uploads** page. For an email message, you copy the **Web URL** that the system assigns to the image. Then, in the email message editor, you select the **Insert/edit image** icon to add the web URL.

To ensure that your course assets are transmitted securely, add the `https://` preface to the web URL. An example follows.

```
https://courses.edx.org/asset-v1:{course}.x+{run}+type@asset+block@{image}.jpg
```

For more information, see *Adding Files to a Course*.

Keywords

Messages can include variables that represent values that are specific to each message recipient, such as learner name or user ID. The LMS substitutes these variables, called keywords, with actual values when it sends a message.

For more information, see *Use Keywords in Messages*.

13.2.3 Send an Email Message to Course Participants

Important: You cannot cancel bulk email messages after you send them.

Before you send a message to a wide audience, send the message only to yourself to test and review it. Make sure it displays as you intend it to, and that any links or media function correctly.

To send an email message to course participants, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Email**.
3. From the **Send to** option, select one or more groups of email recipients.

Note: Make sure you understand who is included or excluded when you send a message to one, or a combination, of the recipient groups. For details, see *Who Is Included in Each Recipient Group?*

4. In the **Subject** field, enter a subject for the message.

5. In the **Message** box, enter the text for the message.

For details about options for composing your message, see *Composing Email Messages*.

6. Select **Send Email**. A bulk email task is queued for processing.

Multiple courses use the same queue to complete these tasks, so it can take some time for your message to be sent to all of its recipients. You can perform other tasks on the instructor dashboard or navigate to other pages while you wait for your message to be sent.

13.2.4 Use Keywords in Messages

You can include keywords in your messages. A keyword is a variable: when you send the message, a value that is specific to the each recipient is substituted for the keyword. For example, when you use the `%%USER_FULLNAME%%` keyword, each message contains the name of the recipient.

Note: Do not use keywords in the Subject line of a message. The keyword in the subject will not be assigned a value, and the recipient will see the keyword text.

Supported Keywords

You can use the following keywords in your messages.

- `%%USER_ID%%` - the anonymous user ID of the message recipient
- `%%USER_FULLNAME%%` - the full name of the message recipient
- `%%COURSE_DISPLAY_NAME%%` - the display name of the course
- `%%COURSE_END_DATE%%` - the end date of the course

Keyword Formatting

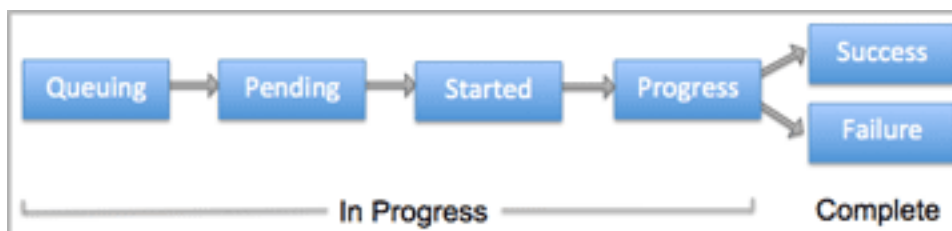
You format keywords as: `%%Keyword%%`. You can include keywords in any HTML tags in an email message. An example follows.

```
<h2>%%COURSE_DISPLAY_NAME%% Updates</h2>

<p>Dear %%USER_FULLNAME%%, this is a reminder that the last day of the course
  is <b>%%COURSE_END_DATE%%</b></p>
. . .
```

13.2.5 Message Workflow States

When you select **Send Email** for a message, the server begins to process a bulk email task. The server assigns a series of different workflow states to the task.



Bulk email tasks can have the following workflow states.

- **Queuing:** The bulk email task is created and being queued for background processing.
- **Pending:** The task is queued and is waiting to run.
- **Started:** Background processing is in progress to create emailing subtasks.
- **Progress:** The emailing subtasks are in progress.
- **Success:** All emailing subtasks are complete. Note that the bulk email task can be in this state even if some or all of its emailing subtasks failed.
- **Failure:** An error occurred and task processing did not complete successfully.

While the bulk email task is in progress, you can find out how far it has gotten in the workflow by checking the **Pending Tasks** section on the **Email** page.

PENDING INSTRUCTOR TASKS								
Email actions run in the background. The status for any active tasks - including email tasks - appears in a table below.								
Task Type	Task Inputs	Task ID	Requester	Submitted	Duration (sec)	State	Task Status	Task Progress
bulk_course_email	{"email_id": 2, "to_option": "myself"}	e7321ef6-8be6-4f29-94a3-a5b5e7eb5f4c		2014-03-17T14:55:37+00:00	0	PROGRESS	Incomplete	Progress: emailed 0 of 0 so far (out of 1)

When the bulk email task is complete, you can find its final state by checking the Email Task History report. For more information, see *Email Task History Report*.

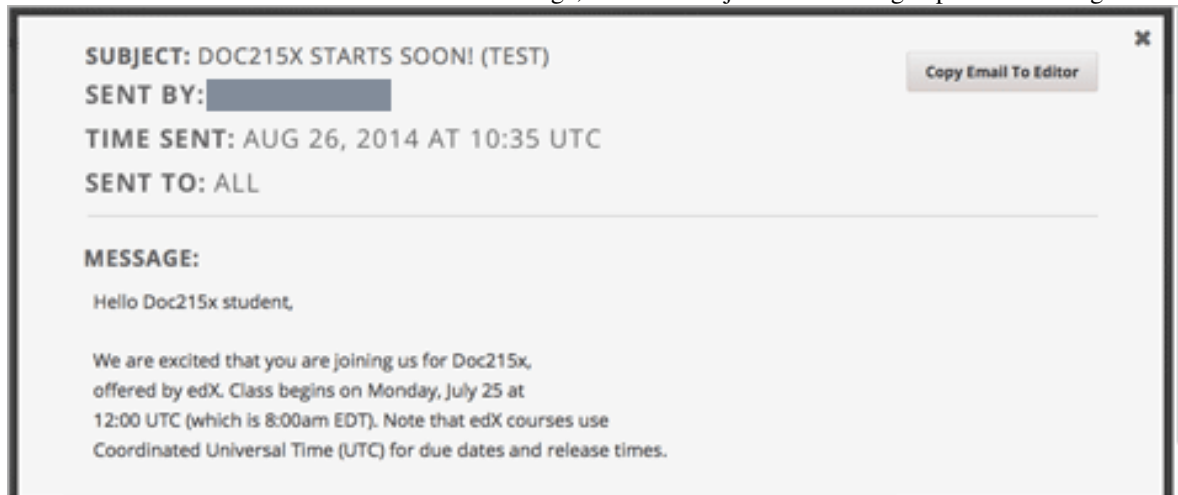
13.2.6 Review Sent Messages

You can review a list of all of the messages that have been sent for the course. For any listed message, you can review the subject, the username of the person who sent it, the date and time sent, its selected recipients, and the message text.

1. View the live version of your course.
2. Select **Instructor**, and then select **Email**.
3. In the **Email Task History** section of the page, select **Sent Email History**. The list of sent messages displays.

EMAIL TASK HISTORY			
To see the content of all previously sent emails, click this button:			
Sent Email History			
To read an email, click its subject.			
Subject	Sent By	Time Sent	Number Sent
Doc215x Exam Info		Aug 06, 2014 at 17:53 UTC	4
Doc215x Announcements		Jun 17, 2014 at 14:46 UTC	Unknown
Doc215x Starts Soon!		May 14, 2014 at 15:00 UTC	1
Doc215x Starts Soon! (test)		Apr 29, 2014 at 15:04 UTC	1

4. To review additional information for a message, select its subject. The message opens in a dialog box.



5. Optionally, use the message as the basis for a new message: select **Copy Email to Editor**. The dialog box closes and you can edit the text, links, and formatting that were duplicated into the **Subject** and **Message** fields.

When you create a message by copying a previously-sent message, be sure to review and test it thoroughly before you send it to all course participants.

13.2.7 Email Task History Report

The Email Task History report can help you keep track of who sent messages, when, and to how many people. For each message sent, the report includes the username of the requester, the date and time it was submitted, the duration and state of the entire task, the task status, and the task progress.

You can use this history to investigate questions relating to bulk email messages that have been sent, such as these examples.

- How frequently learners are sent course-related email messages.
- Whether a message was sent successfully.
- The change in the number of people who were sent course-related messages over time.

To produce the Email Task History report, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Email**.
3. In the **Email Task History** section of the page, select **Show Email Task History**. A report like the following example displays on the instructor dashboard.

EMAIL TASK HISTORY								
To see the status for all bulk email tasks ever submitted for this course, click on this button:								
Show Email Task History								
Task Type	Task inputs	Task ID	Requester	Submitted	Duration (sec)	State	Task Status	Task Progress
bulk_course_email	{"email_id": 2, "to_option": "myself"}	e7321ef6-8be6-4f29-94a3-a5b5e7eb5f4c		2014-03-17T14:55:37+00:00	6	SUCCESS	Complete	Message successfully emailed for 1 recipients

Review Email Task History

For tasks with a **State** of Success, the **Task Progress** column shows an informational message. These messages can have a format such as “Message successfully emailed for 13457 recipients (skipping 29) (out of 13486)”. To interpret this message, note that:

- The first number (“recipients”) indicates the number of messages sent to the selected recipients.
- The second number (“skipping”) indicates the number of enrolled and activated users who were not sent the message. This count is of learners who have opted not to receive course email messages.
- The final number (“out of”) indicates the number of users in the set of recipients you selected who were enrolled in the course (and had activated their user accounts) when you sent the email message.

Note that the **Total number of enrollees** shown on the **Home** page includes all currently enrolled learners, regardless of account activation status, and as a result can be different than this number.

If the “recipients” and “out of” numbers are the same, the message reads “Message successfully emailed for 13457 recipients” instead.

Other **Task Progress** messages for tasks with a **State** of Success indicate that some or all of the emailing subtasks did not successfully send email:

- “Message emailed for {number succeeded} of {number attempted} recipients”
- “Message failed to be emailed for any of {number attempted} recipients”
- “Unable to find any recipients to be emailed”

No **Task Progress** messages display for tasks that have a **State** of Failure.

13.2.8 Example Messages to Learners

You can use these example messages, prepared for delivery before typical course milestones, as models for your own course communications.

- *Pre-launch Reminder*
- *Launch Day Welcome*
- *Reminder to Register for Verified Certificate*
- *Weekly Highlights*
- *Mid-Course Encouragement*
- *Mid-Course Event*
- *Technical Issue*
- *Course Farewell and Certificates*
- *New Course Run Announcement*

These messages are styled as email messages, but you could also post this information in a course discussion topic or on the **Home** page. To use *keywords*, you must send email messages; keywords are not supported in discussion topics or the **Home** page.

Important: Revise these message templates carefully to include facts for your own course, meet the needs of your learners, and reflect your own objectives and personality. Search for the “{” and “}” characters to locate prompts and replace them with course-specific values.

Some of these messages also contain *keywords*. Values specific to your course and the recipients will be substituted for the keywords when you send the messages. Ensure you are using keywords appropriately for your course and

objectives.

Pre-launch Reminder

Pre-launch reminders raise awareness of the course start date, publicize the course, and generate excitement. In addition to the course start date and time, the example that follows also lets learners know that:

- UTC is used in edX courses. Alternatively, you could include information about your course or the edX platform that will contribute to your learners' success.
- The course has a companion social media site. Alternatively, you might include information about planned meetups or other community-building opportunities.

You may want to send out more than one message before the course launches: use this template as a starting point for crafting the different messages you want to deliver. Replace values enclosed by {braces} with information that applies to your course. In addition, check that you are using *keywords* appropriately.

```
Subject: {course number} Starts Soon!

Hello %%USER_FULLNAME%%,

We are excited that you are joining us for {course number}
%%COURSE_DISPLAY_NAME%%, offered by {organization name} through edX. Class
begins on {day}, {date} at {time} UTC (which is {time} {local time zone}).
Note that edX courses use Coordinated Universal Time (UTC) for due dates and
release times. You might want to verify the times in the course by using a
time zone converter such as {link}.

In case you haven't already found it, {course number} has its own official
Facebook page {add link}. You can find videos and photos posted there before
the course even begins.

If this is your first edX course, consider enrolling in the edX Demo course
{add link}. This course gives you an opportunity to explore the edX platform
and learn how to answer problems and track your progress, before {course
number} begins.

Your {course number} course staff
```

Launch Day Welcome

On your course start date, you can send an email message that both welcomes learners and gives them specific actions to accomplish. This example directs learners to two of the course pages to encourage exploration and discovery, and personally introduces the course team leader. Search for the values enclosed by {braces} in this template and replace them with information for your course.

```
Subject: {course number} Starts Today!

Hello everyone!

At this time, edX course {course number} is available from your Dashboard
{add link}, and the staff would like to officially welcome you to the course!
You'll find materials for the first week on the Course page,
including both video lectures and problem sets.

Please take some time to go to the Home page to read the handouts
```

and get familiar with course policies and philosophy.

I will be your course lead and I hope you will all have a great time learning {subject}! It may be challenging, it may be frustrating, but it will be rewarding and you will learn a ton.

On behalf of the staff, welcome, good luck, and have fun!

{name} and the {course number} staff

Reminder to Register for Verified Certificate

After your course has launched, you can send an email to remind learners that the last day to register for a verified certificate is approaching. You can use this template as a starting point for your own message; search for the values enclosed by {braces} and replace them with information for your course. In addition, check that you are using *keywords* appropriately.

Subject: Earn an edX verified certificate for {course name}!

Dear %%USER_FULLNAME%%,

Interested in using an edX certificate to bolster a college application or to advance your career? With an edX verified certificate, you can demonstrate to colleges, employers, and colleagues that you successfully completed a challenging edX course, while helping to support the edX mission.

We would like to remind you that {date} is the last day to register for a verified certificate in %%COURSE_DISPLAY_NAME%%. Registering for a certificate is easy! Just go to this course on your edX dashboard and click "Challenge Yourself".

Good luck!

{name} and the {course number} staff

Weekly Highlights

Sending a weekly email to learners can be a great way to keep them engaged and provide encouragement. At the end of each week you might send learners an email that summarizes the content covered, and reminds learners about upcoming assessments or milestones in the course. Optionally, to encourage participation in the discussion forums, you might also highlight particularly interesting or important discussions, and provide links to the discussion topics.

You can use this template as a starting point for designing your own message, omitting the discussion highlights if they are not appropriate for your course (the example discussion highlights are from a course about urban solutions to the global water crisis). Search for the values enclosed by {braces} and replace them with information for your course. In addition, check that you are using *keywords* appropriately.

Subject: {Course Name} Week 1 Highlights

We hope you all had a great week! Below, we have provided links to some exciting discussions that have been going on, and a Q&A video with {Professor} that recaps some of the questions that have come up this week.

We'd also like to remind you to take this week's quiz by {date} at {time} UTC. The next module will be available on {Time and Date}.

{Link to Video}

Here are a few highlights from the discussion forum this week. Please join us online and keep the conversation going!

- * There has been quite a debate over whether urban stream restoration is possible and what types of restoration are desirable. How can we improve restoration practice and its outcomes? {Link to the Discussion}
- * Please continue to share your stories of urban stream restoration - there are many great examples here of what is possible! {Link to the Discussion}

See you next week,
{name} and the {course number} staff

Mid-Course Encouragement

While your course is running, you can send messages to promote community, remind learners of upcoming due dates, and address any recurring issues.

This example gives learners guidance on how to keep up with the course schedule and encourages contributions to the discussions. You may want to send out more than one message while the course is running. You can use this template as a starting point for your own messages; search for the values enclosed by {braces} and replace them with information for your course. In addition, check that you are using *keywords* appropriately.

Subject: {course name} Announcements

Dear students,

We hope that you are learning a lot in {course number}! Remember that problem set {number} is due on {date} at {time} UTC. You can always check the schedule {add link} on the Home page to plan ahead.

The contributions to the course discussions have been amazing. You'll also see on the Home page that we have made several of you community TAs to thank you for your thoughtful contributions. Keep those conversations going!

We have a few additional announcements.

- * Week {number} on {subject} is now available on the Course page.
- * Problem set {number} is also available. It is due on {date} at {time} UTC.
- * Remember that the due dates for problem sets and exams are in UTC (the GMT time zone). See the current UTC time here {add link}. Please convert the times given to your own time zone!

Wishing you continued success in the course,

{name} and the {course number} staff

Mid-Course Event

Before an exam or other significant course event, messages can provide practical information about the exam, communicate expectations regarding conduct, and also encourage learners to continue working toward course completion. This example lets learners know:

- How long they have to complete the exam, and when they can see answers to questions.
- How to communicate any errors or other issues found during the exam to the course staff.
- Whether the course discussions will be open or closed during the exam. (In the example that follows, the discussions will remain **open**.)
- What constitutes an honor code violation.
- What technical limitations, if any, are imposed by external tools such as graders.

Be sure to search for the values enclosed by {braces} and replace them with information for your course. In addition, check that you are using *keywords* appropriately.

```
Subject: {course number} Exam Info

Hello %%USER_FULLNAME%%,

Great job working through week {number}! As you know, the {course number}
exam is next week. If you missed a problem set, you can still earn a
certificate. Each problem set is worth only {number}% of the overall grade,
but this exam is worth {number}%.

Please read this important information about the exam before you begin taking
it.

* The exam starts on {date} at {time} UTC and must be finished by {date} at
{time} UTC. Plan your schedule accordingly.

* Be sure that you know what time the UTC deadline is in your time zone. See
the current UTC time {add link}. No extensions will be given.

* The exam is not timed. You can start, stop, and come back to it until the
deadline.

* Each exam question allows only one answer submission. If you accidentally
click "Check", that problem cannot be reset for you.

* The exam covers everything (video lectures, reading, and problem sets) from
weeks {number}-{number}. If you missed any of these materials, you will
want to review them before you take the exam.

* You can use the textbook and the Internet to clarify your knowledge of exam
topics, as long as you are not deliberately looking up answers to exam
questions.

* Course discussions will remain open during the exam, but anyone who posts
an answer to an exam question will be violating the honor code and risk
being removed from the class, forfeiting the certificate.

* If you need to alert the staff to an issue with the exam while the exam is
open, add a post to the General discussion topic and include [EXAM] in
the subject line.
```



```
* Check the Home page periodically. It is the fastest way the
  staff has to communicate any delays, corrections, or changes.
```

Good luck!

{name} and the {course number} staff

Technical Issue

In the event of an unanticipated system failure, a message can both alert learners to the problem and reassure them that the issue is either resolved or being addressed. The message can also provide information about any changes made to the course as a result.

Technical issues can arise during a course for many different reasons, so this example is likely to need revision to apply to an issue that you encounter. Keep in mind that to reassure the learners who are affected by the problem, the message should have a positive tone, and calmly and briefly identify the problem, the status of its solution, and any after effects.

```
Dear students,
```

```
We've encountered a technical problem with {video, assignment, etc. name}.
{We are working to resolve it now. / This issue has been fixed.}
```

```
As a result of this issue, we have {extended the deadline for / rescored}
this assignment so that it will not affect your grade.
```

```
Thanks for your patience, and we look forward to continuing the course with
you.
```

{name} and the {course number} staff

Course Farewell and Certificates

In the last few days before your course ends, a message can direct learners to a course survey, answer questions about certificates, and provide information about future access to course materials. Be sure to replace values enclosed by {braces} with information for your course.

```
Subject: {course number} Final Remarks
```

```
Dear %%USER_FULLNAME%%,
```

```
Thank you for making %%COURSE_DISPLAY_NAME%% so much fun these last few
months! We had a great time getting to know you through the course
discussions. We appreciate the effort that you put into this course, and we
hope that you enjoyed learning {subject} through edX. With or without a
certificate, you should be proud of your accomplishments.
```

```
* Please take a few minutes to answer the exit survey, now available on the
  Course page. We will use your responses to improve the course in the
  future.
```

```
* If you qualify for a certificate (overall score {number}% or higher), the
  edX dashboard will include a link to your certificate in the near future.
  While you may see the link in a few days, it can take up to two weeks edX
  to generate all of the course certificates.
```

- * As an enrolled student, you will have access to the lecture videos even after the course ends. Assessments will remain, but you will no longer be able to submit answers to any problem sets or exams with due dates.
- * The {course number} discussions close on {date} at {time} UTC. You will not be able to add to the discussions after that time, but you will be able to continue viewing all of the conversations that took place during the course.

We hope that you share what you learned in {course number} with your colleagues, friends, and family.

Good luck on the final exam and beyond!

{name} and the {course number} staff

New Course Run Announcement

When you prepare a course for a new run, you can use the bulk email feature in its previous run (or runs) to inform an engaged and knowledgeable audience: your former learners. Announcing a new run to learners of an earlier run gives you the opportunity to highlight key aspects of the course, such as the quality and variety of its discussions, or the global interest and relevance of the subject, as demonstrated by past enrollment. You can also reveal new features or content that have been added to the new course run. By emphasizing the value of the course, you get people thinking and talking about their experiences, build excitement, and encourage re-enrollment.

This message template offers learners who did not complete the course, or who did not previously choose the verified certificate track, the opportunity to do so. It also invites learners to share the course with colleagues and friends.

When preparing a message from this template, search for values enclosed by {braces} and replace them with information that applies to your course.

Subject: Announcing a new run of {course name}

Hello {course number} learners,

The next run of {course number} {course name} begins on {date}! We are glad to share this news with you, the students who made the earlier run{s} of {course number} so successful.

{Success story from the previous run.}

{New content or features for the upcoming run.}

Perhaps you want to share the {course name} experience with a friend or colleague, earn an ID-verified certificate of achievement, or work through course content that you weren't able to complete before. When {course number} is offered in {time frame}, we welcome you to join the community of learners again.

To learn more and to enroll, visit the {course name} page {add link}.

We hope to see you in the course,

The {course number} Staff

13.3 Enrollment

Learners can enroll themselves in a course during its defined enrollment period. For a course running on [edx.org](#), enrollment is publicly available to anyone who registers an edX account. For other courses, such as those on [edx Edge](#), enrollment is limited to learners who know the course URL and learners you explicitly enroll.

The course creator and course team members with the Staff and Admin roles can enroll learners in a course. These course team members can also unenroll learners.

- *Registration and Enrollment*
- *Options for Enrolling Learners in a Course*
- *Enroll Learners in a Course*
- *Report Learners Not Yet Enrolled*
- *Unenroll Learners from a Course*

Data about course enrollment is available from the Instructor Dashboard and from Insights. For more information, see [Report Learners Not Yet Enrolled](#).

13.3.1 Registration and Enrollment

Before a learner can enroll in a course, he or she must complete these steps.

1. Register a user account, which includes supplying a valid email address, on [www.edx.org](#), [edge.edx.org](#), or your implementation of the edX platform. Each platform requires a separate user account.
2. Activate the registered account by following the emailed instructions.

As long as the course **Enrollment End Date** has not passed, learners who have registered and activated user accounts can enroll themselves in [www.edx.org](#) courses, or can enroll in other courses if they know the URL.

Course creators, Admins, and Staff, however, can enroll learners in a course either before or after the learners register their user accounts.

Important: Course team members are not automatically enrolled in courses, although they can access content in Studio, the LMS, and Insights. To work on a course, every course team member must register, activate a user account, and enroll in the course.

13.3.2 Options for Enrolling Learners in a Course

You enroll learners, and other course team members, in your course by supplying their email addresses. After the **Enrollment End Date** for a course learners can no longer enroll themselves; however, you can still explicitly enroll learners.

When you enroll people in a course, you have the following options.



- **Auto Enroll.** When you choose this option, the people who you enroll do not need to complete an explicit course enrollment step. Of the list of email addresses that you supply, those that correspond to a registered user account are immediately enrolled in the course, and your course displays on the **Current Courses** dashboard for those users on log in. Email addresses on the list that do not match a registered user account are enrolled as soon as that account is registered and activated.

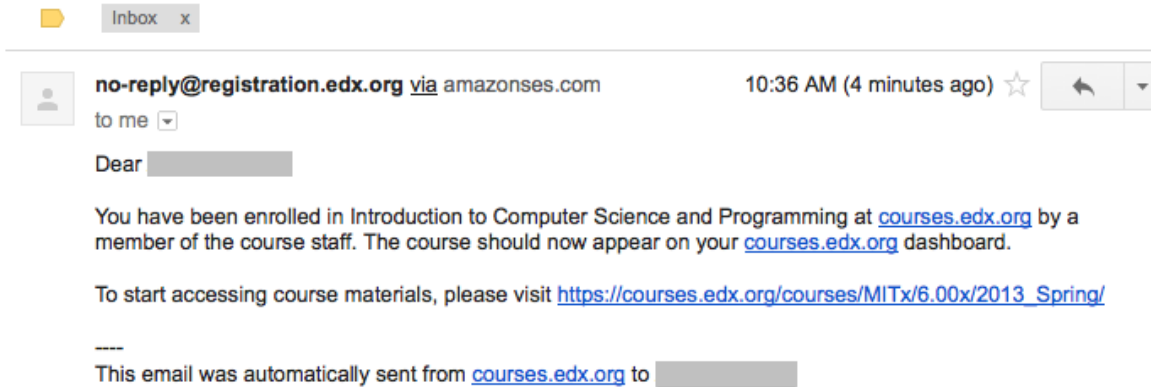
You can track the enrollment status of the learners who you auto enroll. For more information, see [Report Learners Not Yet Enrolled](#).

If you do not select **Auto Enroll**, the people who you enroll must also actively locate your course and enroll themselves in it. These learners see the course on their dashboards after they have done so.

- **Notify learners by email.** When you choose this option, an email message is automatically sent to each of the email addresses that you supply. The message includes the name of the course and, for learners who are not already enrolled, a reminder to use that same email address to enroll.

An example of the email message that a learner received when this option was selected during enrollment follows. In this example, the learner already had a registered and activated edx.org account, and both **Auto Enroll** and **Notify students by email** were selected.

You have been enrolled in Introduction to Computer Science and Programming  



13.3.3 Enroll Learners in a Course

To enroll learners or course team members, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Membership**.
3. In the **Batch Enrollment** section of the page, enter the username or email address of the learner, or enter multiple names or addresses separated by commas or new lines.

You can copy and paste data from a CSV file of email addresses. However, note that this feature is better suited to courses with smaller enrollments, rather than courses with massive enrollments.
4. To streamline the course enrollment process, leave **Auto Enroll** selected.
5. To send learners an email message, leave **Notify students by email** selected.
6. Select **Enroll**.

You can view or download a list of the people who are enrolled in the course. See *Learner Data*.

Note: If your course has a fee, and an organization wants to purchase enrollment for multiple seats in your course at one time, you can create enrollment codes for the organization. The organization then distributes these enrollment codes to its learners to simplify the enrollment process. You can also create coupon codes to give learners a discount when they enroll in your course. For more information, see *Manage Course Fees*.

View an Enrollment Count

After you create a course, you can access the total number of people who are enrolled in it. Note the following information about how this count is computed.

- In addition to learners, the enrollment count includes all course team members, including Admins and Staff. (To work with a course in Studio, the LMS, or Insights, you must be enrolled in that course.)
- The enrollment count displays the number of currently enrolled learners and course team members. It is not a historical count of everyone who has ever enrolled in the course.

Note: Learners can unenroll from courses, and course Admins and Staff can unenroll learners when necessary.

The total number of current enrollees is shown as the sum of the number of people who selected each of the certification tracks (verified, professional, or honor) that is available for your course.

To view the enrollment count for a course, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Course Info** if necessary.

The **Enrollment Information** section of the page that opens shows the number of people who are currently enrolled in your course and in each of the certification tracks.

13.3.4 Report Learners Not Yet Enrolled

After you enroll learners in a course using the **Auto Enroll** option, any learner who does not yet have a user account must register and activate an account to complete the enrollment process. In addition, the learner must register the account using the same email address that was used for auto enrollment. You can download a report of auto enrolled email addresses that do not yet correspond to an enrolled learner.

To download this report, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. In the **Reports** section of the page, select **Download a CSV of learners who can enroll**.

A status message indicates that report generation is in progress. This process can take some time to complete, but you can navigate away from this page and do other work while it runs.

To track the progress of the report process, reload the page in your browser and scroll down to the **Pending Tasks** section.

4. To open or save the report, select the `{org}_{course_id}_may_enroll_info_{date}.csv` file name at the bottom of the page.

13.3.5 Unenroll Learners from a Course

You can remove learners from a course by unenrolling them. To prevent learners from re-enrolling, course enrollment must also be closed. You use Studio to set the **Enrollment End Date** for the course to a date in the past. For more information, see *Setting Start and End Dates*.

Note: Unenrollment does not delete data for a learner. An unenrolled learner's state remains in the database and is reinstated if the learner does re-enroll.

To unenroll learners, you supply the email addresses of enrolled learners.

1. View the live version of your course.
2. Select **Membership**.
3. In the **Batch Enrollment** section of the page, enter a username or an email address, or multiple names or addresses separated by commas or new lines.
4. To send learners an email message, leave **Notify students by email** selected.

Note: The **Auto Enroll** option has no effect when you select **Unenroll**.

5. Select **Unenroll**. The course is no longer listed on the learners' **Current Courses** dashboards, and the learners can no longer access the course content or contribute to discussions or the wiki.

13.4 Manage Course Fees

If your course has a fee, you can manage the fees for your course in the **E-Commerce** section of the Instructor Dashboard. You can set the price for each seat in the course, create and manage coupon codes and enrollment codes, and download reports about financial transactions.

Before you can manage your course fees, you must configure your Open edX environment to support paid courses.

For more information, see the following sections.

- *Configure the Course*
- *Set the Price of the Course*
- *Create and Manage Coupon Codes*
- *Create and Manage Enrollment Codes*
- *View Enrollment Code and Credit Card Sales Information*

13.4.1 Configure the Course

Configuring your Open edX environment to support paid courses has several steps.

- *Obtain a Merchant Account with CyberSource*
- *Add Configuration Code*
- *Add a Course Mode in Django*
- *Assign Admin Roles*

Obtain a Merchant Account with CyberSource

Currently, Open edX only supports payment through CyberSource. To allow users to submit payment for your course, you must obtain a merchant account with CyberSource. For more information, see [the CyberSource website](#).

When you obtain a merchant account with CyberSource, CyberSource provides you with the following information. You will add this information to one of the .json files in your Open edX environment.

- An access key.
- A profile ID.
- A purchase endpoint URL.
- A secret key.

Add Configuration Code

To enable users to pay for your course, you must add the following configuration code in your Open edX environment.

- Add the following code to the lms.env.json file.

```
...
"FEATURES": {
...
"ENABLE_SHOPPING_CART": true,
"ENABLE_PAID_COURSE_REGISTRATION": true,
...
}
....
```

- Add the following code to the lms.auth.json file.

```
...
    "CC_PROCESSOR": {
        "CyberSource2": {
            "ACCESS_KEY": "{access key provided by CyberSource}",
            "PROFILE_ID": "{profile ID provided by CyberSource}",
            "PURCHASE_ENDPOINT": "{purchase endpoint URL provided by CyberSource}",
            "SECRET_KEY": "{secret key provided by CyberSource}"
        }
    },
    "CC_PROCESSOR_NAME": "CyberSource2",
...

```

Add a Course Mode in Django

To manage course fees, you must add a mode for the course in the Django administration website for your Open edX instance.

1. Make sure that you have “superuser” rights on your Open edX production stack. For more information, see [Managing the Full Stack](#).
2. Access the Django administration website for your instance of Open edX. To do this, go to `https://<host name of your Open edX instance>/admin` and sign in. For example, this might be `https://edge.edx.org/admin`.
3. On the **Django Administration** page, select **Course Modes** in the **Site Administration** list.
4. In the upper right corner of the page, select **Add course mode**.
5. On the **Add course mode** page, complete the form.
 - **Course id:** Enter the course ID for this course in the `{org}/{course}/{run}` format. This ID must exactly match the course ID that you set in Studio. For example, the course ID may be `edX/DemoX/2015_T2`.
 - **Mode slug:** Set this to `honor`.

- **Mode display name:** Enter the mode name that you want learners to see. For example, you could enter “Honor Code”.
 - **Min price:** Enter the price of a single seat in the course.
 - **Currency:** Leave the default value (usd) or enter the ISO code for another currency, such as sar for Saudi Riyal.
 - **Expiration Date and Time:** (optional) The expiration date for the course. EdX recommends that you leave these fields blank.
 - **Description:** (optional) A description of the course.
 - **SKU:** (optional) A SKU number for the course.
6. At the bottom of the page, select **Save**.

Assign Admin Roles

Two new roles are required for courses that charge fees and that create and manage coupon codes and enrollment codes.

- The *Finance Admin* role creates and manages discounts and enrollment codes. This role also cancels and resubmits invoices.
- The *Sales Admin* role creates and manages coupon codes and enrollment codes, but cannot cancel or resubmit invoices.

To add the Finance Admin or Sales Admin role to a user, follow these steps.

Note: A user can have both the Finance Admin and Sales Admin roles.

1. Access the Django administration website for your instance of Open edX. To do this, go to `https://<host name of your Open edX instance>/admin` and sign in. For example, this might be `https://edge.edx.org/admin`.

If you have problems signing in this way, you can also sign in to your edX instance from `https://<host name of your Open edX instance>/`. After you sign in to edX, add `admin` after your Open edX instance host name in your browser’s address bar. Make sure to include a slash (/) between the host name and the word “admin”.

2. On the **Django Administration** page, locate **Student** in the **Site Administration** list, and then select **Course access roles**.
3. In the upper right corner of the page, select **Add course access role**.
4. On the **Add course access role** page, complete the form.
 - **User:** The username of the user who needs the Sales Admin or Finance Admin role.
 - **Course id:** Enter the course ID for this course in the `{org}/{course}/{run}` format. This ID must exactly match the course ID that you set in Studio. For example, the course ID may be `edX/DemoX/2015_T2`.
 - **Role:** Select `finance_admin` or `sales_admin`.

To add another role for the user, repeat steps 3-4.

When a user has the Sales Admin or Finance Admin role, that user can see an **E-Commerce** page on the Instructor Dashboard. The **E-Commerce** page includes the following sections. The Finance Admin role can see all sections. The Sales Admin role can see all sections except the **Course Seat Purchases** section.

The screenshot shows the Instructor Dashboard interface. At the top, there's a header with 'Instructor Dashboard' and a 'VIEW COURSE IN STUDIO' button. Below the header is a banner with a message about course analytics. A navigation bar contains several tabs: COURSE INFO, MEMBERSHIP, COHORTS, STUDENT ADMIN, DATA DOWNLOAD, ANALYTICS, and E-COMMERCE. The E-COMMERCE tab is circled in red. Under the E-COMMERCE tab, there are several expandable sections: > ENROLLMENT CODES, > COURSE PRICE (which is expanded to show 'Course price per seat: \$100' and an '+ Edit Price' button), > COURSE SEAT PURCHASES, > REPORTS, and > COUPON CODE LIST.

13.4.2 Set the Price of the Course

You set the price of an individual seat in the course on the **E-Commerce** page on the Instructor Dashboard. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

To set the price for each course seat, follow these steps.

1. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Course Price** section.
2. On the right side of the page, select **Edit Price**.
3. In the **Set Course Price** dialog box, enter the price of each seat in the course. Do not enter a currency symbol.
4. In the **Currency** list, select the currency that you want.
5. Select **Set Price**.

13.4.3 Create and Manage Coupon Codes

You can create coupon codes to give learners a discount on the price of the course. To create and manage coupon codes, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

Learners enter the coupon code when they enroll in and pay for the course. Unlimited learners can use the same coupon code. Optionally, you can set an expiration date for coupon codes.

You can see all the coupon codes for your course in the **Coupon Code List** section of the **E-Commerce** page on the Instructor Dashboard. You can also see information such as the discount amount and the number that have been used.

Coupon Codes					+ Add Coupon Code	
Coupon Code	Description	Expiration Date	Coupon (%)	Number Redeemed	Actions	
EarlyEnroll	10% discount for learners who enroll before July 1	July 01, 2015	10	81	[x]	Edit
COMPANY_ABC	30% discount for employees of Company None ABC		30	33	[x]	Edit
SALE_WEEK	15% discount for learners who enroll between June 8 and 15	June 15, 2015	15	58	[x]	Edit
24Hours	20% discount for learners who enroll on June 7	June 08, 2015	20	47	[x]	Edit
SRP225		June 30, 2015	25	0	[x]	Edit
HOLIDAY_15		June 12, 2015	15	0	[x]	Edit

Active coupon codes appear in the order in which they were created. Deleted and expired coupon codes appear at the end of the list.

Create Coupon Codes

You create coupon codes from the **E-Commerce** page on the Instructor Dashboard. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

Your coupon code can be any combination of uppercase and lowercase letters numbers, and special characters. For example, your coupon code could be Holiday_10, MYDISCOUNT, or ZYX321.

Note: The coupon code must have 16 or fewer characters.

To create coupon codes, follow these steps.

1. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Coupon Code List** section.
2. On the right side of the page, select **Add Coupon Code**.
3. In the **Add Coupon Code** dialog box, enter your information in the **Code** and **Discount Percentage** fields.
4. (optional) In the **Description** field, enter a description for your coupon code.
5. (optional) Select **Expiration Date**, and then select a date from the calendar that opens.
6. Select **Add Coupon Code**.

View Coupon Code Information

To see information about a particular coupon code, follow these steps.

1. On the Instructor Dashboard, select the **E-Commerce** page.
2. Select the **Coupon Code List** section.
3. In the **Coupon Codes** list, locate the coupon code that you want to see.

The **Coupon Codes** list has the following information.

- **Code:** The name of the code.
- **Description:** A brief description of the code, if the creator entered one.
- **Expiration Date:** The date the coupon code expires.
- **Number Redeemed:** The number of times the coupon code has been used.
- **Actions:** Actions you can take. You can select [x] to delete the coupon code, or select **Edit** to edit the coupon code.

Edit or Delete Coupon Codes

You edit or delete coupon codes on the **E-Commerce** page on the Instructor Dashboard. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

Note: You can only edit the description of a coupon code. You cannot edit the code, discount percentage, course ID, or expiration date.

1. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Coupon Code List** section.
2. In the **Coupon Codes** list, locate the coupon code that you want to edit or delete.
3. To edit the coupon code, select **Edit** in the **Actions** column, edit the description of the coupon code in the **Edit Coupon Code** dialog box, and then select **Update Coupon Code**.

To delete the coupon code, select the [x] in the **Actions** column. The coupon code moves to the end of the list and appears crossed out with a light red background.

13.4.4 Create and Manage Enrollment Codes

If an organization wants to purchase enrollment for multiple seats in your course at one time, you can create enrollment codes for the organization. The purchasing organization then distributes these codes to its learners. Each enrollment code has an associated URL that learners use to enroll in the course directly. Learners do not have to pay any additional fees.

Unlike coupon codes, which are valid for multiple learners, each enrollment code is valid for only one learner.

Create Enrollment Codes

You create enrollment codes on the **E-Commerce** page on the Instructor Dashboard. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

1. On the Instructor Dashboard, select the **E-Commerce** page.
2. In the **Enrollment Codes** section, select **Create Enrollment Codes**.
3. When the **Create Enrollment Codes** form opens, complete the form. The following fields are required.
 - Organization name
 - Organization contact
 - Organization contact email
 - Organization billing address
 - Invoice recipient

- Number of seats
- Price per seat

4. At the bottom of the form, select **Create Enrollment Codes**.

When you select **Create Enrollment Codes**, the system automatically creates a comma-separated values (.csv) file and downloads the .csv file to your computer. In addition to information about your course and the transaction, such as the invoice number, the .csv file contains course enrollment codes and URLs. Each enrollment code has a separate URL, and only one learner can use each enrollment code.

The system also sends a confirmation email to the purchasing organization. The email instructs the purchasing organization to distribute enrollment codes to learners and includes a template that the organization can use. The email has two attachments: an invoice and a .csv file. The .csv file contains only the enrollment codes and their associated URLs. It does not contain additional information about your course or the transaction.

Change the Default Email

When you create enrollment codes, the system automatically sends a confirmation email message to the purchasing organization. You can change the default confirmation message according to your organization.

To change the default email, follow these steps.

1. In your Open edX repository, go to the **edx- platform/lms/templates/emails** folder.
2. In a text editor, open the following three files.
 - **registration_codes_sale_email.txt**: The confirmation email to send to the purchasing organization. This email can include a sample message that the purchasing organization can use to distribute enrollment codes to individual learners.
 - **registration_codes_sale_invoice_attachment.txt**: The invoice for the purchasing organization. The invoice can include payment instructions.
 - **order_confirmation_email.txt**: The confirmation email to send to the purchasing organization.
3. Make any changes that you want to make, and then save your changes.

Manage Enrollment Codes and Invoices

Both sales admins and finance admins can cancel an enrollment code, restore an enrollment code, or mark an enrollment code as unused. In addition, finance admins can cancel and resubmit the invoices that accompany enrollment codes.

Manage Enrollment Codes

You manage individual enrollment codes in the **Enrollment Codes** section of the **E-Commerce** page. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

In the **Enrollment Codes** section, you can perform the following transactions.

- Cancel enrollment codes.
- Restore enrollment codes.
- Mark enrollment codes as unused.

To cancel, restore, or mark an enrollment code as unused, follow these steps.

1. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Enrollment Codes** section.
2. Under **Cancel, restore, or mark an enrollment code as unused**, select **Change Enrollment Code Status**.
3. In the **Enrollment Code Status** dialog box, enter an enrollment code in the **Enrollment Code** field, and then select **Find Enrollment Code**.
4. When the status for the enrollment code appears **Find Enrollment Code**, you can see the possible actions for that enrollment code under **Actions**. Select the action that you want to take.

Code	Used	Valid	Actions
123456789	Yes	Yes	Cancel enrollment code Mark enrollment code as unused

Note: After you cancel an enrollment code, the learner who used that enrollment code is no longer enrolled in the course and cannot see any course content.

Manage Invoices

You cancel and resubmit invoices for enrollment codes or course seat purchases in the **Course Seat Purchases** section of the **E-Commerce** page. To see the **Course Seat Purchases** section of the **E-Commerce** page, you must have the Finance Admin role. For information, see [Assign Admin Roles](#).

To cancel or resubmit an invoice, follow these steps.

1. Locate the number of the invoice that you want to cancel or resubmit. You can download a list of all the invoices for the course by selecting **Download All Invoices**.
2. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Course Seat Purchases** section.
3. Select the action that you want to complete.
 - To cancel an invoice, enter the invoice number in the **Invoice Number** field, and then select **Cancel Invoice**.
 - To resubmit an invoice, enter the invoice number in the **Invoice Number** field, and then select **Resubmit Invoice**. You can find the invoice number in the .csv file that the system creates and downloads to your computer when you create enrollment codes.

Note: After you cancel an invoice, learners who have used any of the enrollment codes on the invoice are no longer

enrolled in the course and cannot see any course content.

13.4.5 View Enrollment Code and Credit Card Sales Information

Both sales admins and finance admins can download reports about enrollment codes. In addition, finance admins can see and download information about invoices and credit card sales.

Download Enrollment Code Reports

You download enrollment code reports in the **Enrollment Codes** section of the **E-Commerce** page. To see the **E-Commerce** page, you must have either the Sales Admin or Finance Admin role. For information, see [Assign Admin Roles](#).

To help you keep track of the enrollment codes that have been issued for your course, you can download .csv files that contain enrollment code reports. The reports contain data such as the following information.

- A list of the enrollment codes.
- The organization that purchased the enrollment codes.
- The name and e-mail address of the person who purchased the codes.
- The date a specific enrollment code was used.
- The user ID of the learner who used a specific code.

You can download the following reports.

- All enrollment codes that have been purchased for the course.
- The enrollment codes for the course that remain unused.
- The enrollment codes for the course that have been used.

To download an enrollment code report, select the **E-Commerce** page on the Instructor Dashboard, and then select the report that you want in the **Enrollment Codes** section. If you enter an organization name in the **Company Name** field, the report contains the enrollment codes for only that organization.

Download Invoice and Credit Card Sales Information

To see information about financial transactions, including a list of enrollment code invoices and detailed credit card purchase information, you can download .csv files in the **Course Seat Purchases** section of the **E-Commerce** page. To see the **Course Seat Purchases** section of the **E-Commerce** page, you must have the Finance Admin role. For information, see [Assign Admin Roles](#).

To see financial transaction information, follow these steps.

1. On the Instructor Dashboard, select the **E-Commerce** page, and then select the **Course Seat Purchases** section.
2. Select the action that you want to complete.
 - View the total dollar amount that the course has received for all credit card transactions.
 - To download a .csv file of all the invoices for enrollment codes, select **Download All Invoices**. This .csv file contains information such as the invoice number, the company that purchased the enrollment codes, the number of enrollment codes purchased, and the number of enrollment codes that have been used.

- To download a .csv file of all credit card purchases, select **Download Credit Card Purchases**. This .csv file contains information such as the order ID number, the username of the purchaser, the company that the purchaser is affiliated with (if any), and the date and time of the purchase.

13.5 Managing Course Discussions

Discussions, or discussion forums, foster interaction among learners and between learners and the course team. You can set up different topics to guide these interactions when you create your course, and then run and moderate discussions throughout the course to encourage participation and develop course community. Discussions are also excellent sources of feedback and ideas for the future.

For information about running and moderating discussions, see the following sections.

- *Overview*
- *Creating Discussion Topics for Your Course*
- *Assign Discussion Administration Roles*
- *Visibility of Discussion Topics*
- *Run a Discussion*
- *Moderate Discussions*
- *Close Discussions*
- *Discussions in the edX Mobile Apps*

Note: Some features of discussions are available when discussions are accessed in a web browser, but not when accessed in the edX mobile apps. For information about the differences between discussions on the edx.org site and in the mobile apps, see *Discussions in the edX Mobile Apps*.

For information about how using cohorts in your course affects how your course team might moderate course discussions, see *Managing Discussions in Courses with Learner Cohorts*.

Note: The *Participating in Course Discussions* section describes features that are available to all discussion participants, and might be useful to learners who are new to online discussion forums. You can share the section with your learners by, for example, adding a “Never Used a Discussion Forum Before?” post that includes the information you think will be most useful to them.

13.5.1 Overview

Learners and the course team use course discussions to share ideas, exchange views, consider different viewpoints, and ask questions. In a discussion, there are three hierarchical levels of interaction.

- A post is the first level of interaction. A post opens a new subject. Posts can be made as questions, to solicit a concrete answer, or as discussions, to start a conversation. When you add a post, you decide whether to add it as a **Question** or as a **Discussion**.
- A response is the second level of interaction. A response is a reply made directly to a post to provide a solution or continue the conversation.
- A comment is the third level of interaction. A comment is often a clarification or side note made to a specific response, rather than to the post as a whole.

The dialog created by a post, its responses, and the comments on those responses is sometimes called a thread. Discussion threads are saved as part of the course history.

All course team members and enrolled learners can add posts, responses, and comments, and view all of the posts, responses, and comments made by other course participants.

Members of the course community, learners as well as the course team, can be given permission to moderate or administer course discussions through a set of discussion administration roles.

Note: The course team members that you set up in Studio or on the Instructor Dashboard in the LMS are not granted discussion administration roles automatically. Only people who have a discussion administration role can view all of the discussion contributions, for example in courses using cohorts.

Discussion administration roles must be explicitly granted to members of the course team for them to moderate or administer course discussions. The course author, and any team members with the Admin role, can grant discussion administration roles. For information about assigning discussion privileges, see [Assign Discussion Administration Roles](#).

Note: Not all options for moderating discussions are available when discussions are accessed using the edX mobile apps. For information about the differences between discussions on the edx.org site and in the mobile apps, see [Discussions in the edX Mobile Apps](#).

13.5.2 Creating Discussion Topics for Your Course

Discussions in an edX course include both broad topics on course-wide areas of interest such as “Feedback”, “Troubleshooting”, or “Technical Help”, and the content-specific topics that you add to course units as discussion components. You create both types of discussion topics in Studio.

For more information about creating discussion topics, see [Create Course-Wide Discussion Topics](#) and [Create Content-Specific Discussion Topics](#). For information about configuring discussion topics in courses that use cohorts, see [Setting up Discussions in Courses with Cohorts](#).

Create Course-Wide Discussion Topics

All courses include a page named **Discussion**. When you create a course, a course-wide discussion topic named “General” is already included by default.

You can add additional course-wide discussion topics to guide how learners share and find information during your course. Such course-wide topics might include Introduction and Announcements, Feedback, or Troubleshooting. Discussions in these topics can begin as soon as your course is available.

Note: Make sure each discussion topic in your course has a unique name, whether it is a course-wide topic or a content-specific discussion topic that you add as a discussion component. If different discussion topics share the same name, learners might be confused as to which discussion topic they are participating in. For example, do not add a content-specific discussion topic named “General”, because a course-wide discussion topic named “General” already exists in every course.

To create a course-wide discussion topic, follow these steps.

1. Open your course in Studio.
2. Select **Settings**, then **Advanced Settings**.

3. Scroll down to the **Discussion Topic Mapping** policy key. By default, its value looks like this.

```
{
  "General": {
    "id": "course"
  }
}
```

4. Copy the three lines provided for the General topic and paste them above the closing brace character (}).

```
{
  "General": {
    "id": "course"
  }
  "General": {
    "id": "course"
  }
}
```

5. Replace the second “General” with the quoted name of your new topic. For example, name the new topic “Questions about the Course”.

```
{
  "General": {
    "id": "course"
  }
  "Questions about the Course": {
    "id": "course"
  }
}
```

6. Change the value for the second “id” to a unique identifier. For example, append a reference to the name of the topic.

```
{
  "General": {
    "id": "course"
  }
  "Questions about the Course": {
    "id": "course_q"
  }
}
```

Note: In discussion topic IDs, you can use only alphanumeric characters and these special characters: underscore, hyphen, and period.

7. Add a comma after the first closing brace (},).

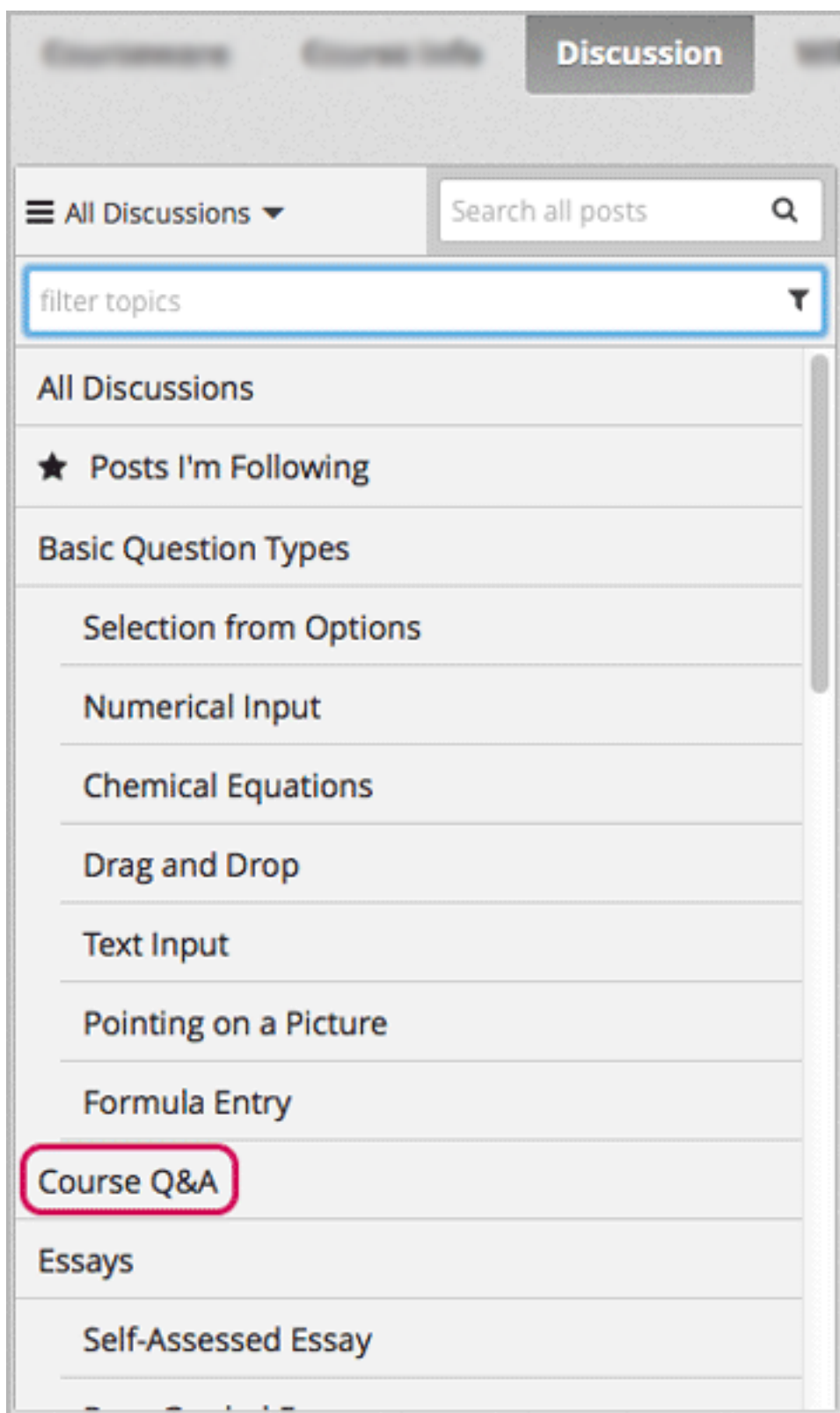
```
{
  "General": {
    "id": "course"
  },
  "Questions about the Course": {
    "id": "course_q"
  }
}
```

8. Select **Save Changes**.

Studio checks the syntax of your entry and reformats your entry to add line feeds and indentation.

9. Scroll back to the **Discussion Topic Mapping** field to verify that your entry was saved as you expect. Entries that do not contain all of the required punctuation characters revert to the previous value when you save, and no warning is presented.

When learners select the **Discussion** page for your course, the drop-down Discussion list now includes the topic you added.



Note: In courses that use cohorts, the course-wide discussion topics that you add are unified. All posts can be read and responded to by every learner, regardless of the cohort that they belong to. You can optionally configure these

topics to be divided by cohort. For more information, see [Course-Wide Discussion Topics and Cohorts](#).

Create Content-Specific Discussion Topics

To create a content-specific discussion topic, you add a discussion component to a unit. Typically, you do this while you are designing and creating your course in Studio. Follow the instructions in [Working with Discussion Components](#). The result is a discussion topic associated with a unit and its content.

Note: When learners access courses using the edX mobile apps, content-specific discussion topics cannot currently be viewed “inline” as part of the course content, although they can be viewed along with course-wide discussions on the **Discussion** page.

Warning: Follow the recommended steps to add discussion components. Do not create discussion topics by using the **Duplicate** button in Studio, and do not reference the same discussion ID in more than one place in your course. Duplicated discussion components result in discussion topics that contain the same conversations, even if learners post in different discussion topics.

For information about the visibility of content-specific discussion topics, see [Visibility of Discussion Topics](#).

Note: In courses with cohorts enabled, all content-specific discussion topics are divided by cohort when you first add them. Posts by learners to divided discussion topics can only be read and responded to by members of the same cohort and course team members who have a discussion administration role. You can change the configuration of content-specific discussion topics to make them unified and available to all learners in the course. For more information, see [Content-Specific Discussion Topics and Cohorts](#).

13.5.3 Assign Discussion Administration Roles

You can designate a team of people to help you run course discussions. Team members who have a discussion administration role have additional options for working with posts, responses, and comments.

Important: The course team members that you set up in Studio or on the Instructor Dashboard are not automatically granted discussion administration roles.

Discussion administration roles must be explicitly granted to members of the course team for them to be able to moderate or administer course discussions. The course author and any team members who have the Admin role can grant discussion administration roles.

Different options for working with discussions are available through the following roles.

Note:

The options for moderating discussions described below are only available when members of the discussion administration team work in a web browser. The edX mobile apps do not currently offer moderation options.

For more information about differences between discussions on the edX.org site and on the mobile apps, see [Discussions in the edX Mobile Apps](#).

- Discussion moderators can edit and delete messages at any level, review messages flagged for misuse, close and reopen posts, pin posts, and endorse responses.

Posts made by moderators are marked as “By: Staff” in the list of posts. Responses and comments made by moderators have a colored “Staff” identifier. This role is often given to course team members who already have the Staff role.

- Discussion community TAs have the same options for working with discussions as moderators.

Posts made by community TAs are marked as “By: Community TA” on the **Discussion** page in the discussion navigation pane. Responses and comments made by community TAs have a colored “Community TA” identifier. This role is often given to learners.

- Discussion admins have the same options for working with discussions as moderators, and their posts, responses, and comments have the same “Staff” identifiers.

This role can be reserved for assignment to course team members who have the Admin role only: the discussion admins can then both moderate discussions and give other users discussion management roles whenever necessary.

Before you can assign roles to your discussion team, you need their email addresses or usernames.

- To get this information for a course team member, on the Instructor Dashboard select **Membership**, and then select either **Staff** or **Admin**.
- To get this information for an enrolled learner, on the Instructor Dashboard select **Data Download**, and then **Download profile information as a CSV**.

Assign Roles

You can assign a course team role to any user who is already enrolled in your course. To assign a discussion administration role, you must be the course author or an Admin.

1. View the live version of the course.
2. Select **Instructor**, and then select **Membership**.
3. In the **Course Team Management** section, select **Discussion Admins**, **Discussion Moderators**, or **Discussion Community TAs**.
4. Under the list of users who currently have that role, enter an email address or username, and then select **Add** for the role type.

Remove Roles

To remove a role from a user, you must be the course author or an Admin.

1. View the live version of the course.
2. Select **Instructor**, and then select **Membership**.
3. In the **Course Team Management** section, select **Discussion Admins**, **Discussion Moderators**, or **Discussion Community TAs**.
4. From the list of users who currently have that role, select the user you want to remove, and then select **Revoke access**.

13.5.4 Visibility of Discussion Topics

The names that you specify as the category and subcategory names for discussion components are not visible on the **Discussion** page in the LMS until after the course has started and the unit is released.

However, “seed” posts that you create in content-specific discussion topics before a course starts, or before the unit is released, are immediately visible on the **Discussion** page, even though the containing category or subcategory names are not visible. EdX recommends that you do not create posts in content-specific discussion topics before a unit is released. For more information about release dates and the visibility of components, see [Controlling Content Visibility](#).

In contrast, *course-wide discussion topics* that you create on the **Advanced Settings** page in Studio, including the default “General” discussion topic, are immediately visible, regardless of whether the course has started. They are not associated with any particular section or subsection of the course, and are not subject to release dates.

13.5.5 Run a Discussion

On an ongoing basis, the members of your discussion team run the course discussion by making contributions, endorsing responses, marking answers as correct, and guiding learner messages into pertinent threads. Techniques that you can use throughout your course to make discussions successful follow.

Use Conventions in Discussion Subjects

To identify certain types of messages and make them easier to find, you can define a set of standard tags to include in the subject of a post or in the body of a response or comment. Examples follow.

- Use “[OFFICIAL]” at the start of announcements about changes to the course.
- Provide information about corrected errors with a subject that begins “[CORRECTIONS]” or “[ERRORS]”.
- Ask learners to use “[STAFF]” in the subject of each post that needs the attention of a course team member.

Both the discussion team and your learners can use tags like these to search the discussions more effectively.

When a post is created its type must be selected: either “question” or “discussion”. Members of the discussion team should be thoughtful when selecting the type for their posts, and encourage learners to do the same. For more information, see [Find Questions and Discussions](#).

Seed Discussion Topics

To help learners learn how to get the most out of course discussions, and find the best discussion topic to use for their questions and conversations, you can seed discussion topics in course-wide discussion topics before the course starts. Some examples follow.

- In the General topic (which is included in every course by default), add an [INTRO] post to initiate a thread for learner and course team introductions.
- For each course-wide discussion topic that you create, add an initial post to describe the way you intend that discussion to be used. In addition to providing guidance, these initial messages can act as models for learners to follow when they create their own posts.

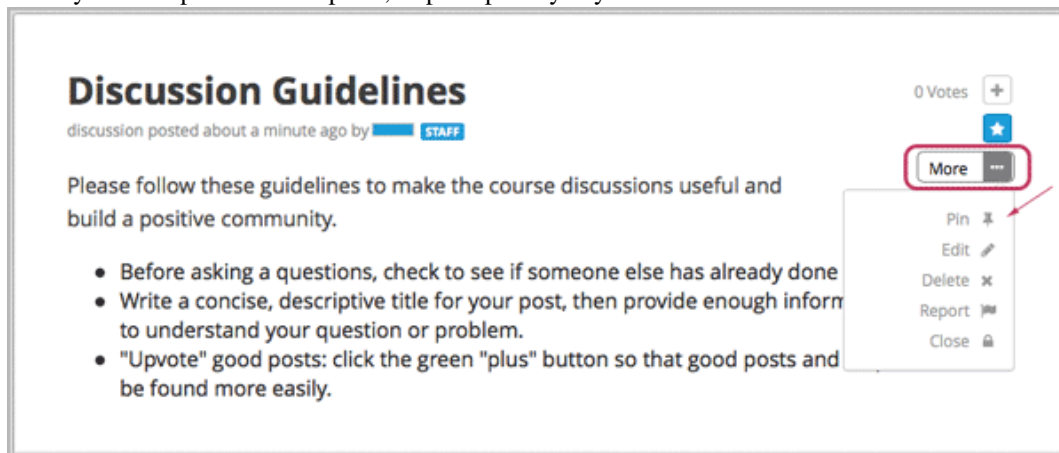
EdX strongly recommends that you do not create seed posts in content-specific discussion topics before the course starts or before the containing unit is released. The category and subcategory names for content-specific discussion topics are subject to the release visibility of their containing unit, and are not visible until the unit is released. For more details, see [Visibility of Discussion Topics](#).

Minimize Thread Proliferation

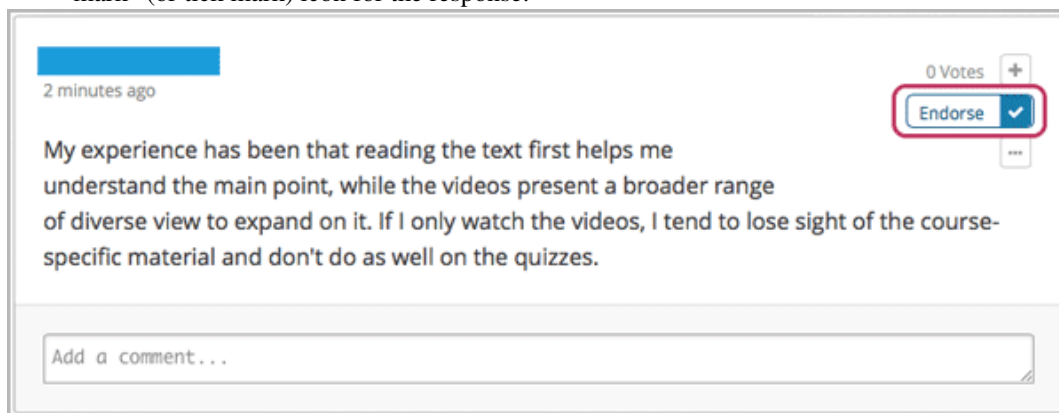
To encourage longer, threaded discussions rather than many similar, separate posts, the discussion team can use these techniques. However, be aware that long threads (with more than 200 responses and comments) can be difficult to read, and can therefore result in an unsatisfactory experience in the discussion.

Note: You can only pin or close posts and mark questions as answered when you work in a web browser. You cannot complete these activities when you work in an edX mobile app.

- Pin a post. Pinning a post makes it appear at the top of the list of posts in the discussion navigation pane on the **Discussion** page. As a result, it is more likely that learners will see and respond to pinned posts. You can write your own post and then pin it, or pin a post by any author. Select the “More” icon and then **Pin**.



- Endorse a response. Endorsing a response indicates that it provides value to the discussion. Select the “check mark” (or tick mark) icon for the response.



- Mark a question as answered. You use the same procedure to mark a response as the correct answer to a question as you do to endorse contributions to a discussion: select the “check mark” (or tick mark) icon for correct answers.
- Close a post. You can respond to a redundant post by (optionally) pasting in a link to the post that you prefer learners to contribute to, and prevent further interaction by closing the post. Select the “More” icon and then **Close** to close it.

- Provide post/response/comment guidelines. You can post information from the [overview](#) in this section, or the [anatomy of edX discussions](#) in the next section, in a course-wide discussion topic (such as General) to provide guidance about when to start a new thread by adding a post, responding to an existing post, or commenting on a response.

13.5.6 Moderate Discussions

The members of a course discussion team monitor discussions and keep them productive. They can also collect information, such as areas of particular confusion or interest, and relay it to the course team.

Developing and sustaining a positive discussion culture requires that sufficient moderator time is dedicated to reviewing and responding to discussions. Keeping up-to-date with a large MOOC forum requires a commitment of 5 or more hours per week, and involves reading threads, replying to and editing posts, and communicating with the rest of the discussion administration team and other members of the course team.

For information on setting up moderators for your course, see [Assign Discussion Administration Roles](#).

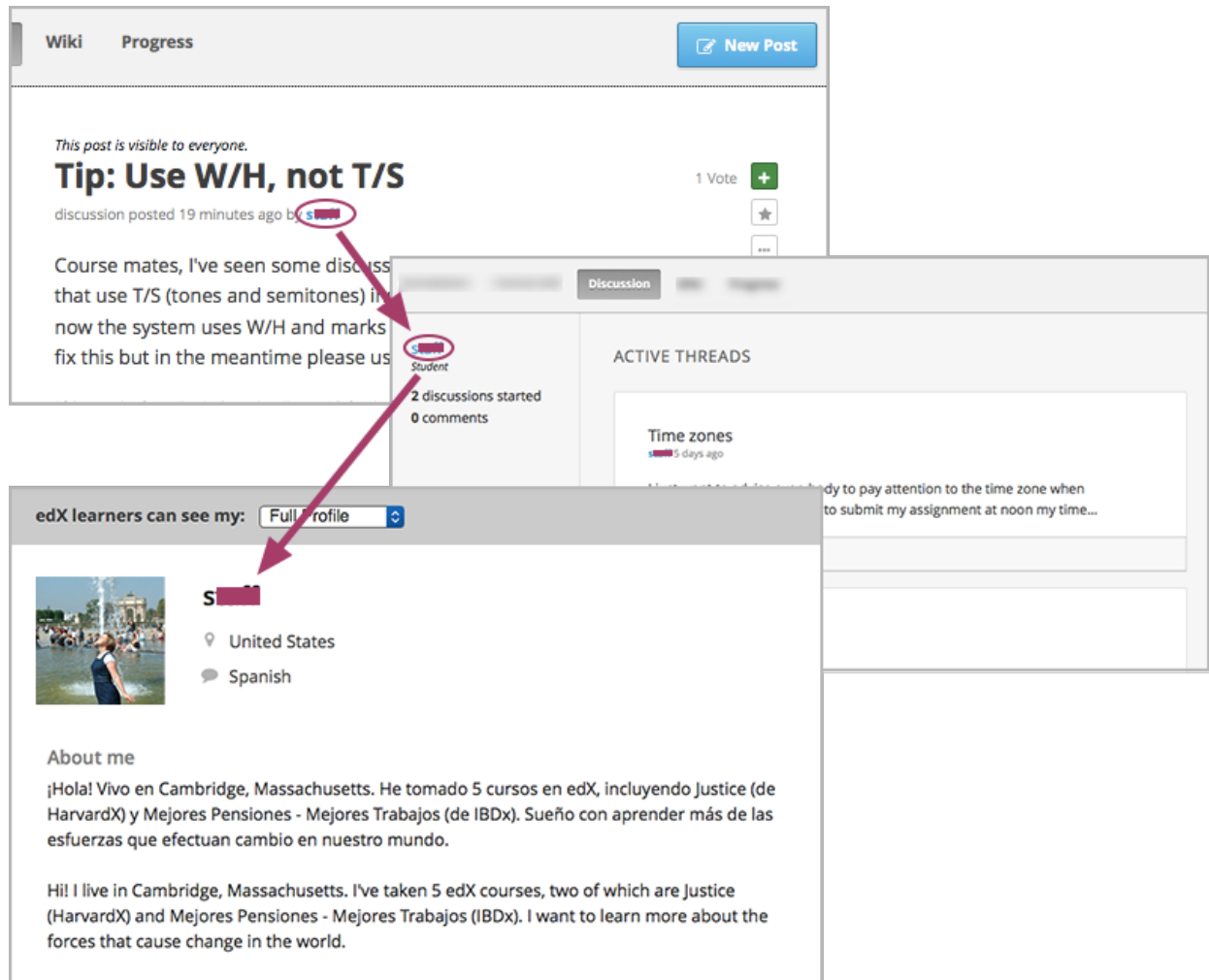
View Profile Information for Discussion Participants

If you want to find out more about a specific discussion participant, you can view that learner's edX profile. Learners can have either a limited profile or a full profile.

To view a learner's profile, follow these steps.

1. On the **Discussion** page, select a username in a post, response, or comment.
2. On the **Active Threads** page for that learner, select the learner's username.

The following image shows a learner's username in a post, the learner's username on the **Active Threads** page, and the learner's profile page.



For more information, or to create your own profile, see [Exploring Your Dashboard, Settings, and Profile](#).

Provide Guidelines for Learners

You can develop a set of best practices for discussion participation and make them available to learners as a course handout file or on a defined page in your course. These guidelines can define your expectations and optionally introduce features of edX discussions.

You can also share the [Participating in Course Discussions](#) section with your learners. It describes features that are available to all discussion participants, and may be useful to learners who are new to online discussion forums.

Develop a Positive Discussion Culture

Discussion monitors can cultivate qualities in their own discussion interactions to make their influence positive and their time productive.

- Encourage quality contributions: thank learners whose posts have a positive impact and who answer questions.
- Check links, images, and videos in addition to the text of each message. Edit offensive or inappropriate posts quickly, and explain why.
- Review posts with a large number of votes and recognize “star posters” publicly and regularly.

- Stay on topic yourself: before responding to a post, be sure to read it completely.
- Maintain a positive attitude. Acknowledge problems and errors without assigning blame.
- Provide timely responses. More time needs to be scheduled for answering discussion questions when deadlines for homework, quizzes, and other milestones approach.
- Discourage redundancy: before responding to a post, search for similar posts. Make your response to the most pertinent or active post and then copy its URL and use it to respond to the redundant threads.
- Publicize issues raised in the discussions: add questions and their answers to an FAQ topic, or announce them on the **Home** page.

For a template that you can use to develop guidelines for your course moderators, see [Guidance for Discussion Moderators](#).

Find Questions and Discussions

When learners create posts, they specify the type of post to indicate whether they are asking for concrete information (a question) or starting an open-ended conversation (a discussion).

On the **Discussion** page, a question mark image identifies posts that ask questions, and a conversation bubble image identifies posts that start discussions. When an answer is provided and marked as correct for a question, a check or tick mark image replaces the question mark image. For more information, see [Answer Questions and Mark Questions as Answered](#).

In addition to these visual cues, filters can help you find questions and discussions that need review. In the discussion navigation pane on the **Discussion** page, the **Show all** filter is selected by default. You can also select:

- **Unread**, to list only the discussions and questions that you have not yet viewed.
- **Unanswered**, to list only questions that do not yet have any responses marked as answers.

Edit Messages

Discussion moderators, community TAs, and discussion admins can edit the content of posts, responses, and comments. Messages that include spoilers or solutions, or that contain inappropriate or off-topic material, should be edited quickly to remove text, images, or links.

1. Log in to the site and then select the course on your **Current Courses** dashboard.
2. Open the **Discussion** page and then open the post with the content that requires editing. You can select a single topic from the drop-down list of discussion topics, apply a filter, or search to locate the post.
3. For the post or for the response or comment that you want to edit, select the “More” icon and then **Edit**.
4. Remove the problematic portion of the message, or replace it with standard text such as “[REMOVED BY MODERATOR]”.
5. Communicate the reason for your change. For example, “Posting a solution violates the honor code.”

Delete Messages

Discussion moderators, community TAs, and discussion admins can delete the content of posts, responses, and comments. Posts that include spam or abusive language may need to be deleted, rather than edited.

1. Log in to the site and then select the course on your **Current Courses** dashboard.
2. Open the **Discussion** page and then open the post with the content that requires deletion. You can select a single topic from the drop-down list of discussion topics, apply a filter, or search to locate the post.

3. For the post or for the response or comment that you want to delete, select the “More” icon and then **Delete**.
4. Select **OK** to confirm the deletion.

Important: If a message is threatening or indicates serious harmful intent, contact campus security at your institution. Report the incident before taking any other action.

Respond to Reports of Misuse

Learners have the option to report contributions that they find inappropriate. Moderators, community TAs, and admins can check for messages that have been flagged in this way and edit or delete them as needed.

1. View the live version of your course and select **Discussion** at the top of the page.
2. In the discussion navigation pane at the side of the page, use the filter drop-down list (set to **Show all** by default) to select **Flagged**.
3. Review listed posts. A post is listed if it or any of its responses or comments has been reported. The reported contribution includes a **Reported** identifier.
4. Edit or delete the post, response, or comment. Alternatively, remove the flag: select the “More” icon and then **Unreport**.

Block Users

For a learner who continues to misuse the course discussions, you can unenroll the learner from the course. For more information, see *Unenroll Learners from a Course*. If the enrollment period for the course is over, the learner cannot re-enroll.

13.5.7 Close Discussions

You can close the discussions for your course so that learners cannot add messages. Course discussions can be closed temporarily, such as during an exam period, or permanently, such as when a course ends.

Note: You can only close discussions when you work in a web browser. You cannot close discussions when you work in an edX mobile app.

When you close the discussions for a course, all of the discussion topics in course units and all of the course-wide topics are affected.

- Existing discussion contributions remain available for review.
- Learners cannot add posts, respond to posts, or comment on responses. However, learners can continue to vote on existing threads, follow threads, or report messages for misuse.
- Course team members with the Staff, Admin, Discussion Admins, Discussion Moderators, and Discussion Community TAs roles are not affected when you close the discussions for a course. Users with these roles can continue to add to discussions.

Note: To make sure your learners understand why they cannot add to discussions, you can add the dates that discussions are closed to the **Home** page and post them to a General discussion.

Start-End Date Format Specification

To close course discussions, you supply a start date and time and an end date and time in Studio. You enter the values in the following format.

```
[ "YYYY-MM-DDTHH:MM", "YYYY-MM-DDTHH:MM" ]
```

where:

- The dates and times that you enter are in Coordinated Universal Time (UTC), not in your local time zone. You might want to verify that you have specified the times that you intend by using a time zone converter such as [Time and Date Time Zone Converter](#).
- You enter an actual letter **T** between the numeric date and time values.
- The first date and time indicate when you want course discussions to close.
- The second date and time indicate when you want course discussions to reopen.
- If you do not want the discussions to reopen, enter a date that is far in the future.
- Quotation marks enclose each date-time value.
- A comma and a space separate the start date-time from the end date-time.
- Square brackets enclose the start-end value pair.
- You can supply more than one complete start and end value pair. A comma and a space separate each pair.

For example, to close course discussions temporarily for a final exam period in July, you enter these start and end dates.

```
[ "2016-07-22T08:00", "2016-07-25T18:00" ]
```

To add a blackout date that closes course discussions permanently on 9 August 2016, you add these start and end dates.

```
[ "2016-07-22T08:00", "2016-07-25T18:00" ], [ "2016-08-09T00:00",  
"2099-08-09T00:00" ]
```

You enter these values between an additional pair of square brackets which are supplied for you in Studio.

Define When Discussions Are Closed

To define when discussions are closed to new contributions and when they reopen, follow these steps.

1. Open your course in Studio.
 2. Select **Settings**, and then select **Advanced Settings**.
 3. Locate the **Discussion Blackout Dates** field.
 4. If the **Discussion Blackout Dates** field is empty, place your cursor between the brackets ([]).
If the field already contains one or more blackout dates, place your cursor before the final bracket (]).
 5. Enter the start and end date for the time period during which you want discussions to be closed. Be sure to use the required *date format specification*.
- To define the temporary blackout period in the example above, the field contains start and end dates in the following format.

```
[ [ "2016-07-22T08:00", "2016-07-25T18:00" ] ]
```

- To add the dates that close the discussions permanently, the field contains a second pair of start and end dates in the following format.

```
[["2016-07-22T08:00", "2016-07-25T18:00"], ["2016-08-09T00:00", "2099-08-09T00:00"]]
```

1. Select **Save Changes**.

Studio checks the syntax of your entry and reformats your entry to add line feeds and indentation. A message lets you know whether your changes were saved successfully.

For examples of email messages that you can send to let learners know when the course discussions are closed (or open), see [Example Messages to Learners](#).

13.5.8 Discussions in the edX Mobile Apps

Learners can participate in course discussions using the edX mobile apps as they do on the edX site, but there are some differences in the actions that moderators can take in discussions using the mobile apps. To perform moderation or administrative tasks for your course discussions, you need to work in a web browser.

- When learners access courses using the edX mobile apps, content-specific discussion topics cannot currently be viewed “inline” as part of the course content, although they can be viewed along with course-wide discussions on the **Discussion** page.
- The following actions are not supported on the edX mobile apps. * Pinning posts * Marking questions as answered * Endorsing discussions * Closing discussions or posts

13.6 Participating in Course Discussions

Course discussions give you the opportunity to start conversations with other learners, ask questions of the course team, and participate in the course community. If you have not previously participated in an online discussion forum, see the introductory “*anatomy*” section.

This section also describes features of edX discussions that can make your participation more effective.

- *Anatomy of edX Course Discussions*
- *Find Posts*
- *Add a Post, Response, or Comment*
- *Keep Up with New Activity*
- *Provide Feedback on Contributions*

13.6.1 Anatomy of edX Course Discussions

Posts, Responses, and Comments

Post: "Please introduce yourself."

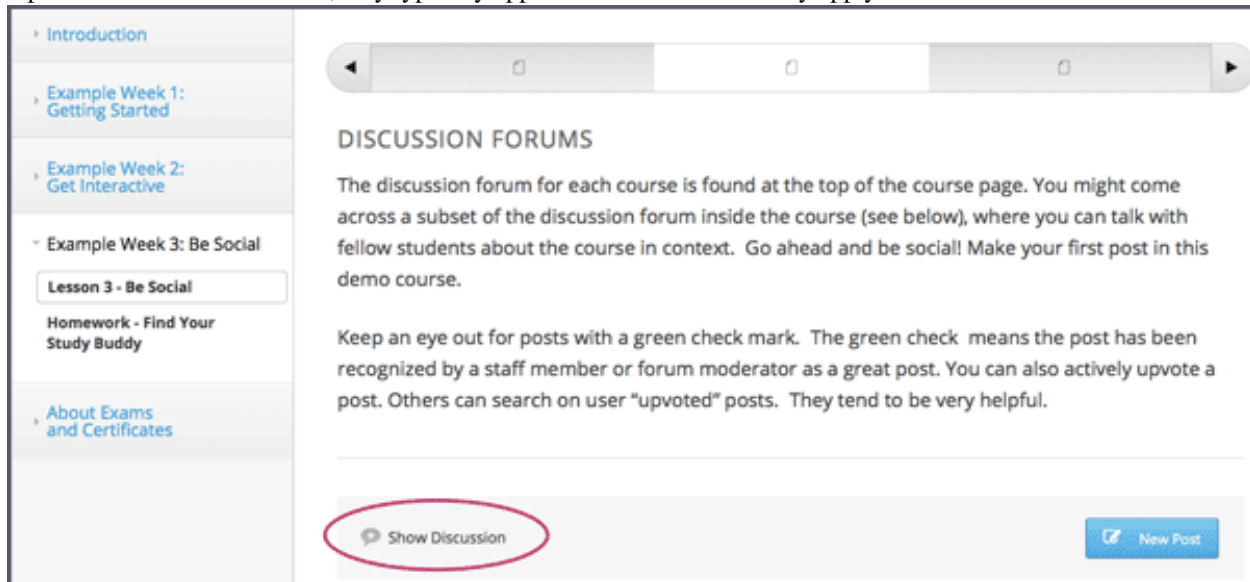
- Response: "My name is Lee and I teach secondary school maths in Canberra, Australia."
- Response: "Hello everyone, I am Sumei from Hong Kong, China."
 - Comment: "Hi Sumei, I am taking this course in Hong Kong too. Maybe we should make a study group!"
 - Comment: "I'd like to join the Hong Kong study group too, I think it will help me keep up with the homework."

- Response: "Hi from Johannesburg! I am taking the course to prepare for my matric exams."

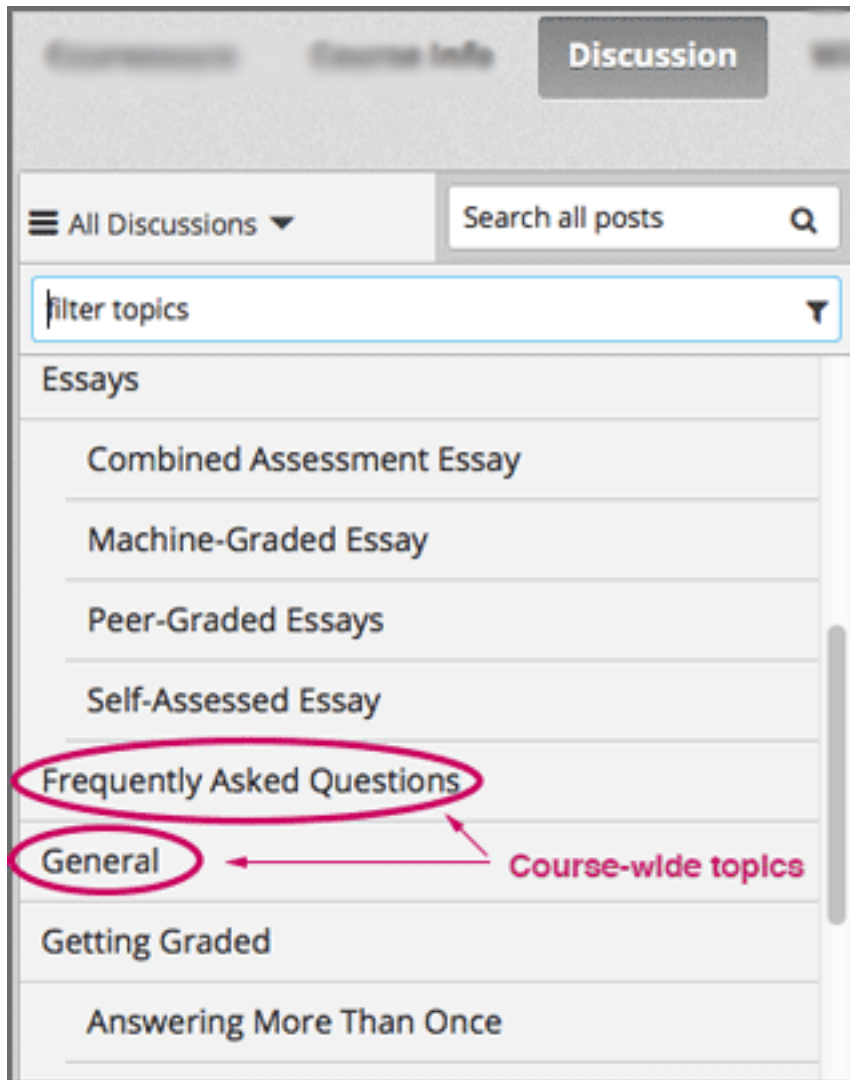
This example shows the different ways that you can contribute to a discussion. The post initiates the conversation, the responses are replies to the post, and the comments expand on specific responses. Before you add a post, response, or comment, take a moment to consider which of these options best suits the contribution that you want to make. This helps keep course discussions organized and easy to follow.

Discussion Topics

Most edX courses include opportunities to discuss specific video lectures, reading assignments, homework problems, or other course content. Each of these content-specific discussion opportunities is called a *topic*. When these discussion topics are included in a course, they typically appear below the content they apply to.



Most courses also include one or more topics for course-wide discussions, such as “Frequently Asked Questions” and “Troubleshooting”. You access these topics on the **Discussion** page of the course: select the **All Discussions** drop-down.



When you visit the **Discussion** page, you can read and add to any of the discussion topics.

- Course-wide topics do not have other topics indented below them.
- Content-specific topics are indented under an identifying category name.

Notice that you can access content-specific topics both on the **Discussion** page and also while you are navigating through course content on the **Course** page. However, you can only access the course-wide topics on the **Discussion** page.

Before you add a post, look through the topics. When you add your post to the most appropriate topic, others with the same interest can find, read, and respond to it more easily.

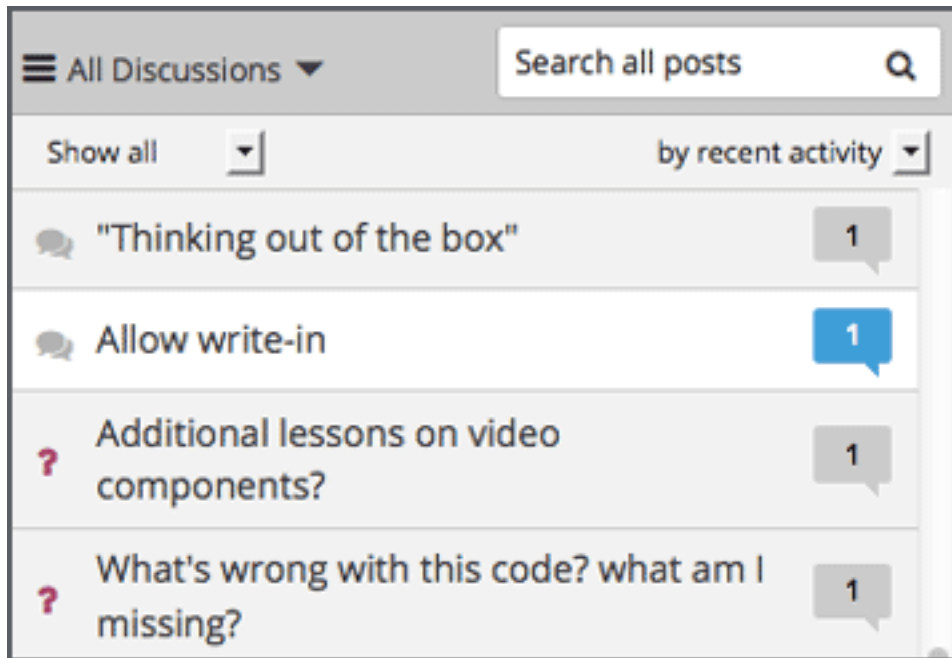
Types of Discussion Posts

When you make a contribution in a course discussion topic, you add your post as either a question or a discussion.

- A question post raises an issue so that members of the discussion administration team and the course community can provide answers.
- A discussion post starts a conversation by sharing thoughts and reflections, and inviting community participation.

When you add a post to a discussion topic, you must specify whether it is a question or a discussion.

After you make your post, on the **Discussion** page for your course, a question mark image identifies posts that ask questions and a conversation bubble image identifies posts that start discussions.



If you have any difficulty deciding which type of post you want to add, think about whether you want to get concrete information (a question) or start an open-ended conversation (a discussion). If you require an answer from the course team, be sure to create your post as a question, so that the course team sees that a response is required and responds appropriately.

13.6.2 Find Posts

Finding out whether someone else has already asked the same question or initiated a conversation about the same subject that interests you, and then reading and contributing to that exchange instead of starting a new one, helps make the time that everyone spends with the course discussion more productive. You can search for something specific, or you can browse through the posts in a single discussion topic.

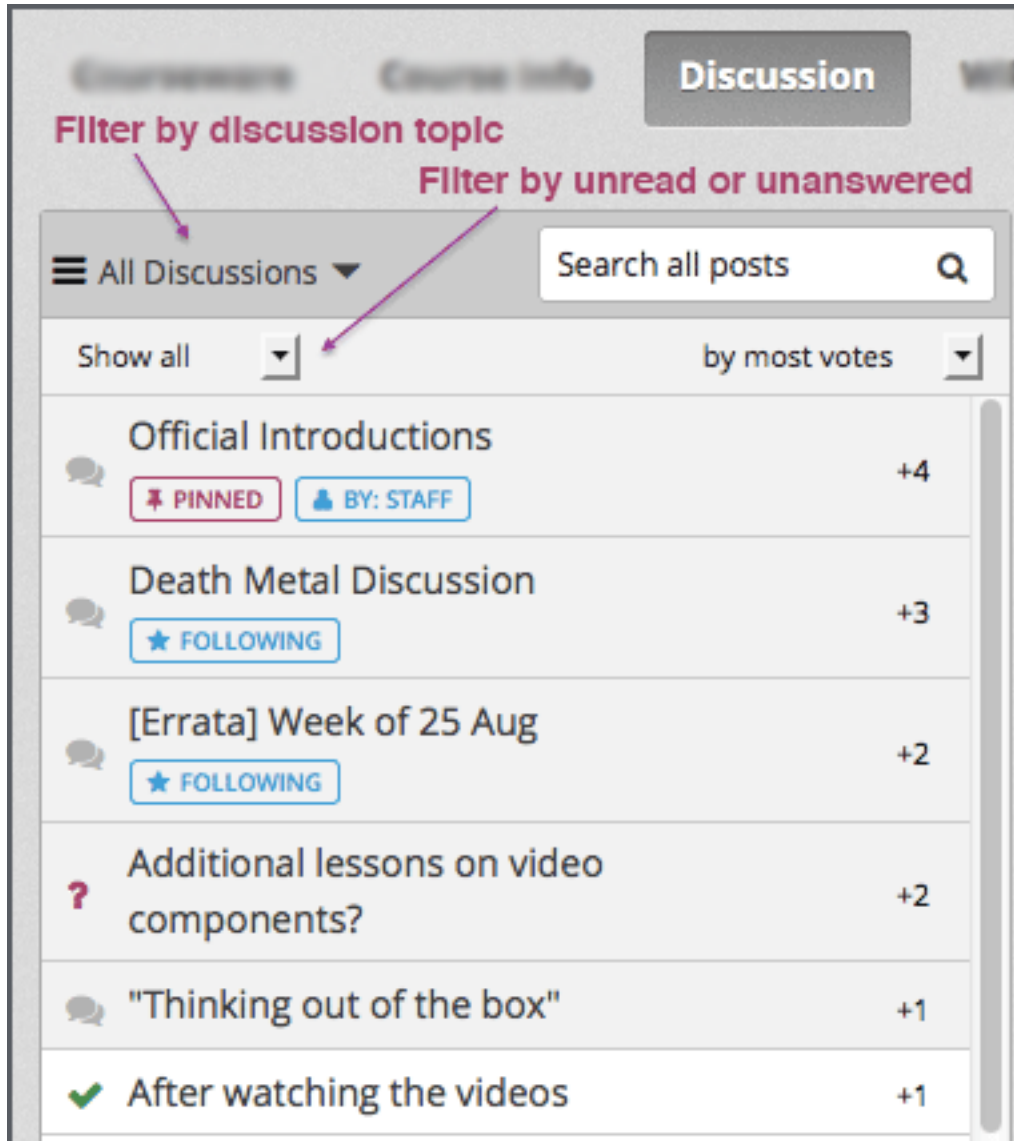
Search the Discussions

To search for text, select **Discussion**, and then enter a phrase, a word, or part of a word in the **Search all posts** field in the discussion navigation pane. When you press Enter, the search tries to find:

- A match or close match to your text in any post, response, or comment. The display updates to show a list of the posts that have a match at any level of interaction.
- A similar value in any post, response, or comment (if no exact matches are found). A “No results found for {text}. Showing results for {similar}” message displays above the posts that have similar text at any interaction level.
- Any usernames that are an exact match to your text. A “Show posts by {username}” option displays above any posts that have an exact text match at any interaction level. Select the username in the message to read that user’s posts, responses, and comments.

Review Posts About a Single Topic

To review posts about a particular part of the course or type of issue, select **Discussion** at the top of the page and then select a topic from the drop-down list. (**All Discussions** is selected by default.) Only posts about the topic you select appear in the discussion navigation pane.



Review Only Unread or Unanswered Posts

To limit the posts shown on the **Discussion** page, you can select one of the filter options. The **Show all** filter in the discussion navigation pane is selected by default.

- To list only the discussions and questions that you have not yet viewed, select **Unread**.
- To list only question posts that do not yet have any responses marked as answers, select **Unanswered**.

13.6.3 Add a Post, Response, or Comment

Add a Post

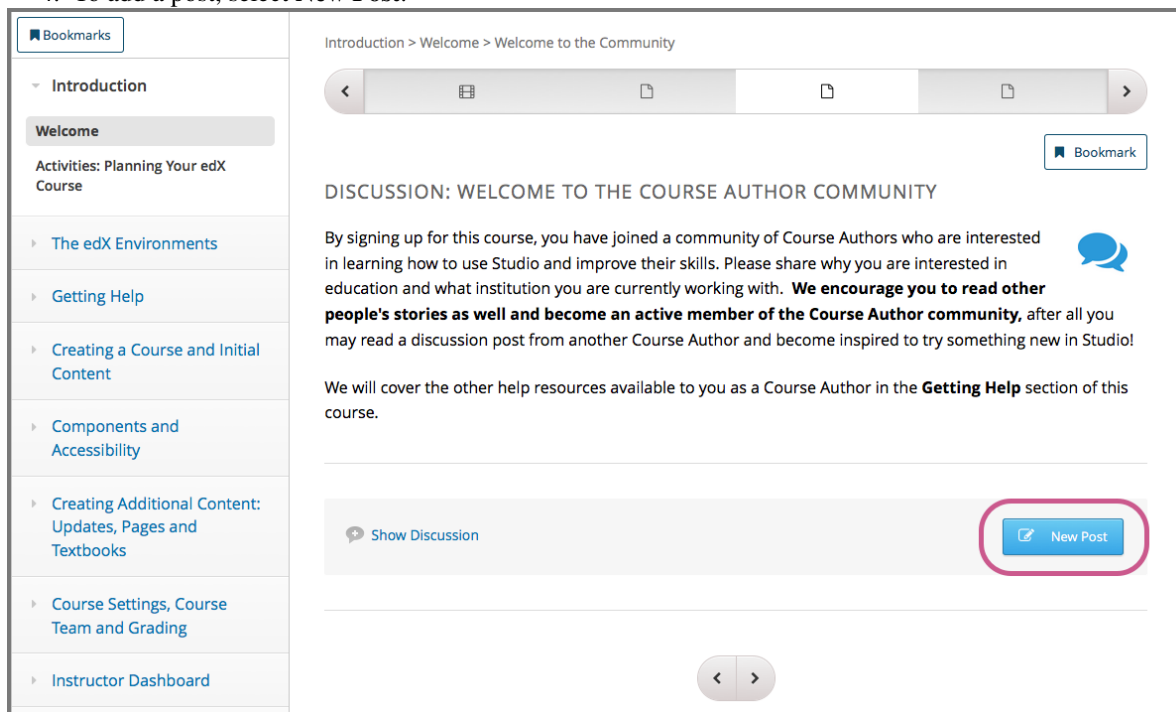
To make sure that other learners and the course team can find and respond to your post, determine the type for your post: either question or discussion.

Add a Post to a Content-Specific Discussion Topic

1. Select **Course**.
2. Open the part of the course that includes the discussion topic that you want to add to.
3. To read what others have already contributed to the conversation, select **Show Discussion**.

You can scroll through the posts that have already been added: the title and the first sentence or two of each post appear. To read an entire post, view the responses to it, and see any comments, select **Expand discussion**.

4. To add a post, select **New Post**.



5. Select the type of post: **Question** or **Discussion**.
6. Enter a short, descriptive identifier for your post in the **Title** field. The title is the part of your post that others see when they are browsing on the **Discussion** page or scrolling through one of the content-specific topics.
7. Enter the complete text. Options for formatting the text and for adding links or images are available: select the buttons above the text field.

Note: Any text formatting or images that you add are only visible when others read your post in a web browser. The edX mobile apps do not currently display added formatting or images.

Add a Post to a Course-Wide Discussion Topic

You can also use this procedure to add a post to any of the content-specific discussion topics.

1. Select the **Discussion** page.
2. Select **New Post**.
3. Select the type of post: select **Question** or **Discussion**.
4. Select the most appropriate discussion topic for your post.

The screenshot shows the 'Discussion' tab selected in the top navigation bar. On the left, there's a sidebar with a search bar and a list of recent posts. The main content area is titled 'New Post'. Under 'POST TYPE', 'Question' is selected. Under 'TOPIC AREA', a dropdown menu is open, displaying a list of topics. The 'General' topic is highlighted in pink. Below the topic area, there's a 'Title' field and a text area labeled 'Enter your' with formatting options like bold (B), italic (I), and a link icon. To the right of the topic area dropdown, there are links for 'Question ideas and answers' and 'Add your own question'.

5. Supply a short, descriptive **Title**. The title is the part of your post that others see when they are browsing on the **Discussion** page or scrolling through one of the content-specific topics.
6. Enter the complete text. Options for formatting the text and for adding links or images are available: select the buttons above the text field.

Note: Any text formatting or images that you add are only visible when others read your post in a web browser. The edX mobile apps do not currently display added formatting or images.

Add a Response or Comment

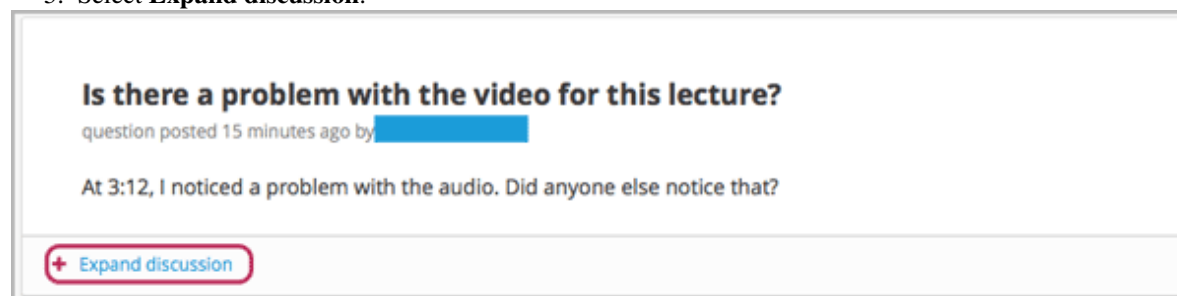
To participate in an ongoing discussion, you reply to the initial post by adding a response, or expand on a particular response by adding a comment.

The same options for formatting the text and for adding links or images are available for responses and comments as for posts.

Note: Any text formatting or images that you add are only visible when others read your post in a web browser. The edX mobile apps do not currently display added formatting or images.

Add a Response or Comment to a Content-Specific Discussion Topic

1. Select **Course**.
2. Open the part of the course with the discussion topic where you want to make your contribution.
3. Select **Show Discussion**.
4. Scroll to the post where you want to add your thoughts.
5. Select **Expand discussion**.

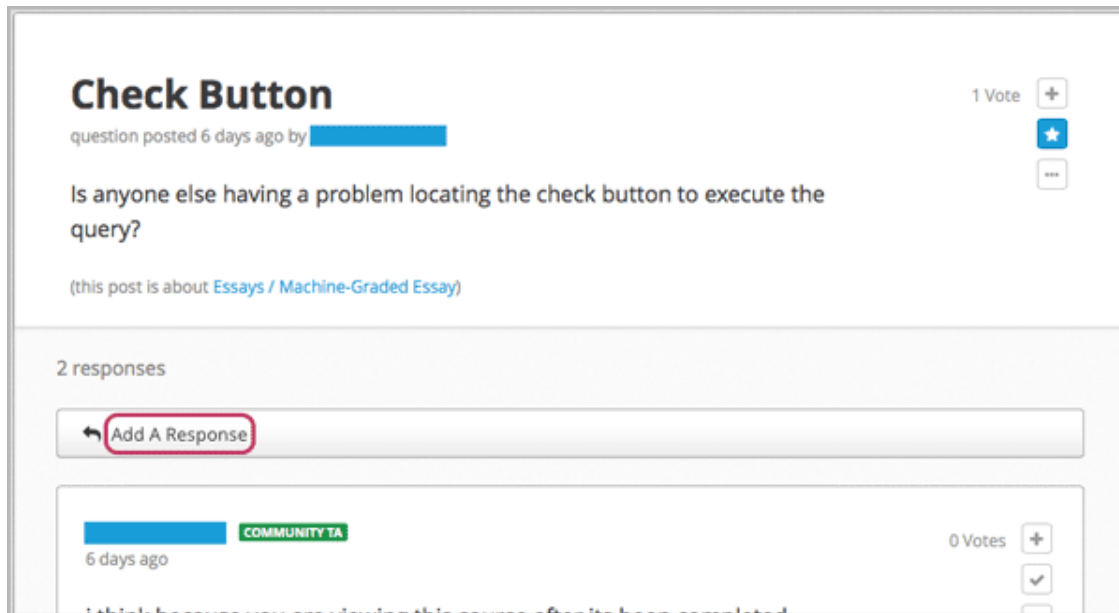


6. Add a response or comment.
 - To add a response to the post, select **Add A Response**. When your response is complete, select **Submit**.
 - To add a comment to a response, enter text in the **Add a comment** field below the response. When your comment is complete, select **Submit**.

Add a Response or Comment to a Course-Wide Discussion Topic

You can also use this procedure to add a response or comment to any of the content-specific discussion topics.

1. Select the **Discussion** page.
2. Find the post that you want to contribute to. To help you decide where to add your thoughts, review the current responses and their comments.
3. Add a response or comment.
 - To add a response to the post, select **Add A Response**. When your response is complete, select **Submit**.



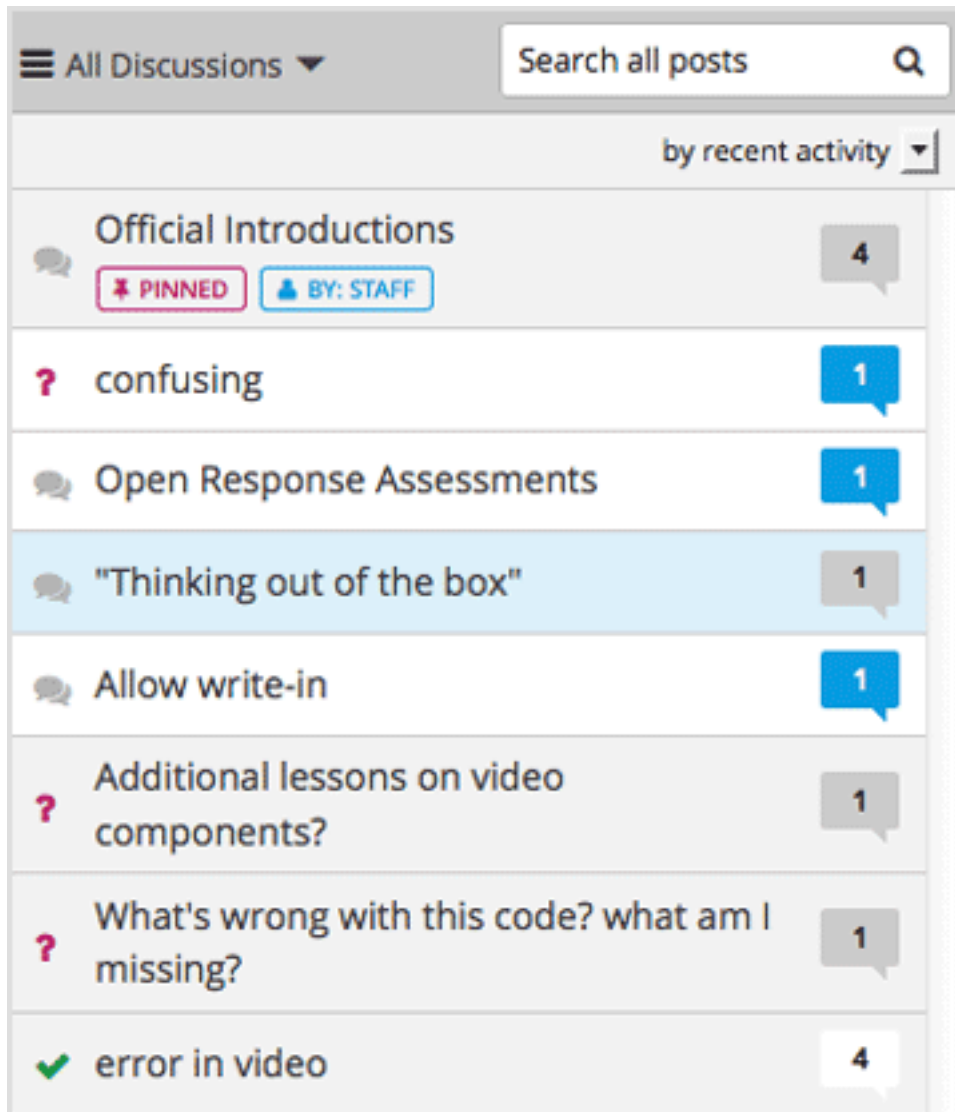
- To add a comment to a response, enter text in the **Add a comment** field below the response. When your comment is complete, select **Submit**.

13.6.4 Keep Up with New Activity

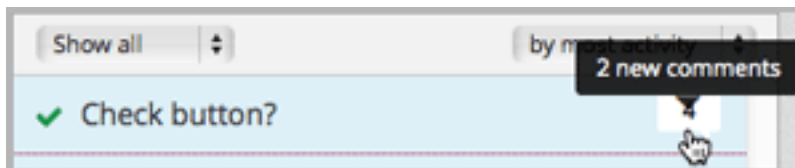
Read New or Updated Posts

The discussion navigation pane on the **Discussion** page provides visual cues to help you identify posts that are new, or that have responses or comments that you have not read yet, and to distinguish them from exchanges that you have already read completely.

- Posts that you have not read yet have a blue callout image.
- Posts that you have read, but with responses or comments that you have not read yet, have a white callout image.
- Exchanges that you have read completely have a gray callout image and background.



The total number of contributions in the exchange (the post and its responses and comments) appears in each callout image. To see how many contributions are still unread, move your pointer over the callout image.



The color-coded callout images appear when you sort the list of posts in the discussion navigation pane **by recent activity** or **by most activity**. If you sort the list of posts by most votes instead, the number of votes that the post has received appears in place of the callouts. For more information, see [Vote for Posts or Responses](#).

Receive Daily Digests

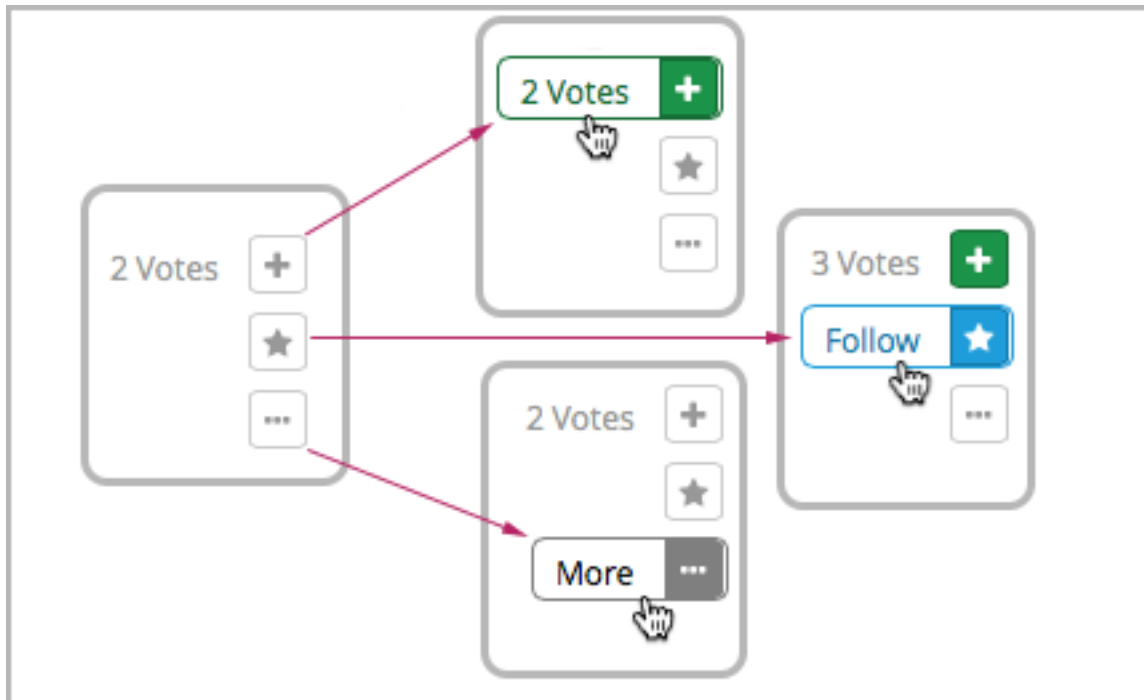
You have the option to receive an email message each day that summarizes discussion activity for the posts you are following. To receive this daily digest, select **Discussion** and then select the **Receive updates** checkbox.

13.6.5 Provide Feedback on Contributions

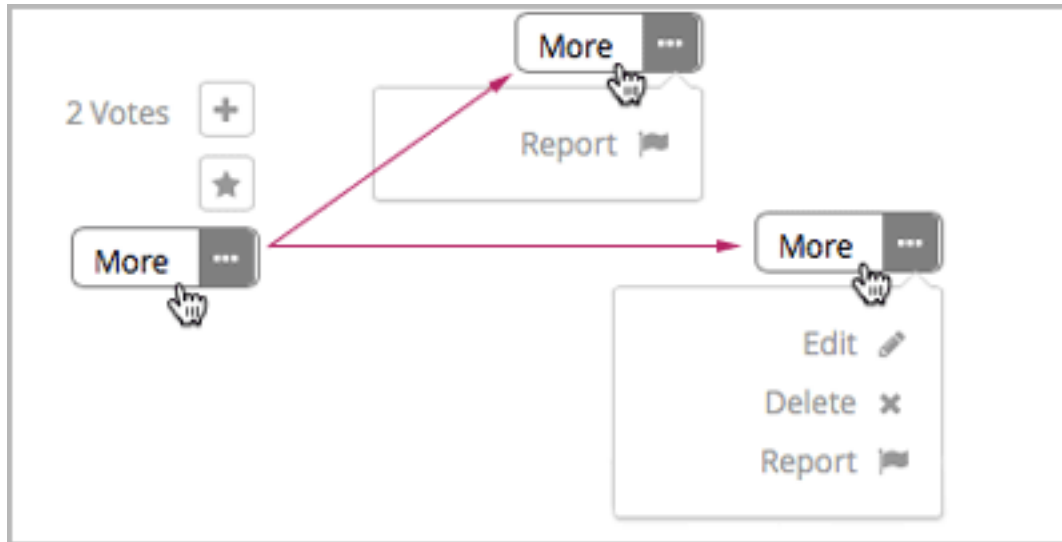
As you read the contributions that other learners and team members make to discussion topics, you can provide feedback without writing a complete response or comment. You can provide feedback in these ways.

- *Vote for posts and responses* to provide positive feedback.
- *Follow posts* so that you can check back in on interesting conversations and questions easily.
- *Answer questions, and mark your questions as answered.*
- *Report a contribution* that is inappropriate to the discussion administration team.

To select a feedback option, you use the icons at the top right of each post, response, or comment. When you move your pointer over these icons a label appears.



When you select the “More” icon, a menu of the options that currently apply appears.

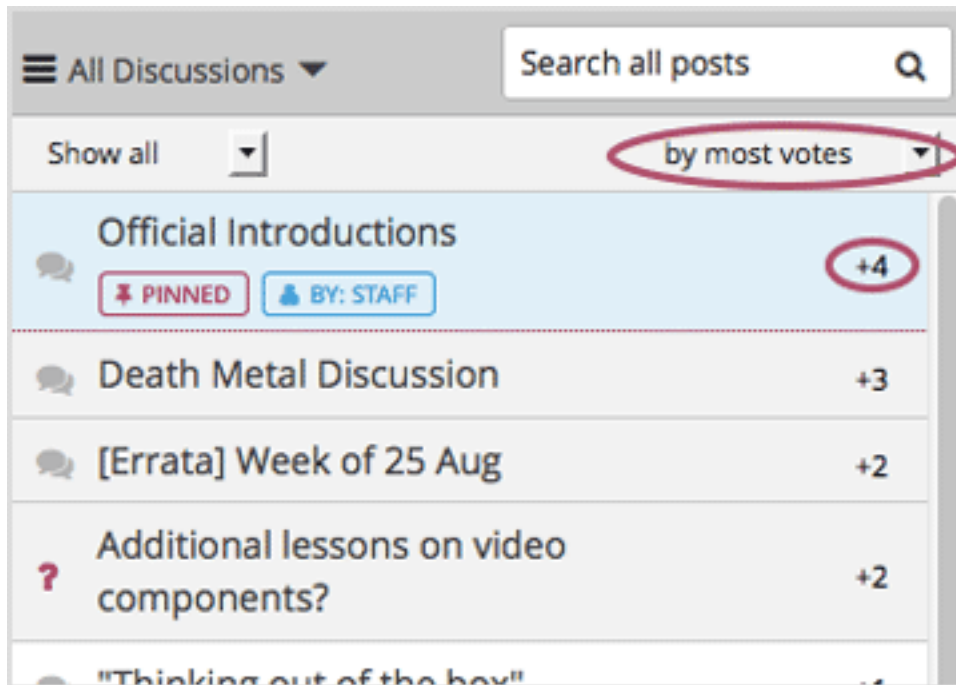


Vote for Posts or Responses

If you like a post or one of its responses, you can vote for it: view the post or response and select the “Vote” icon at top right.



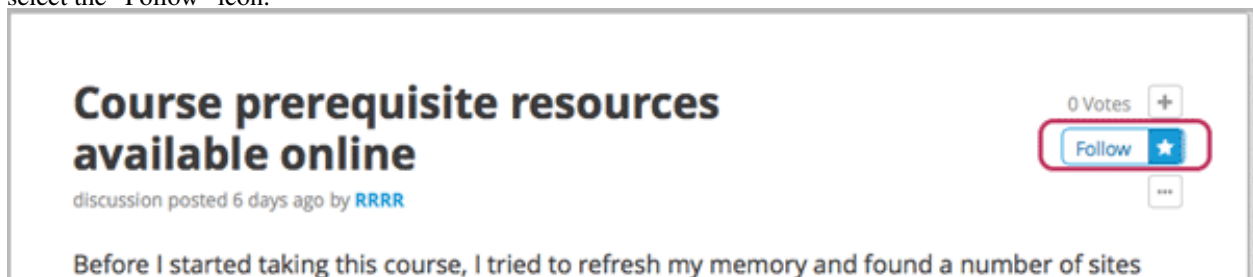
You can sort the list of posts in the discussion navigation pane so that the posts with the most votes appear at the top: select the drop-down list of sorting options and select **by most votes**.



The number of votes that each post has received displays in the discussion navigation pane. (Votes for responses are not included in the number.)

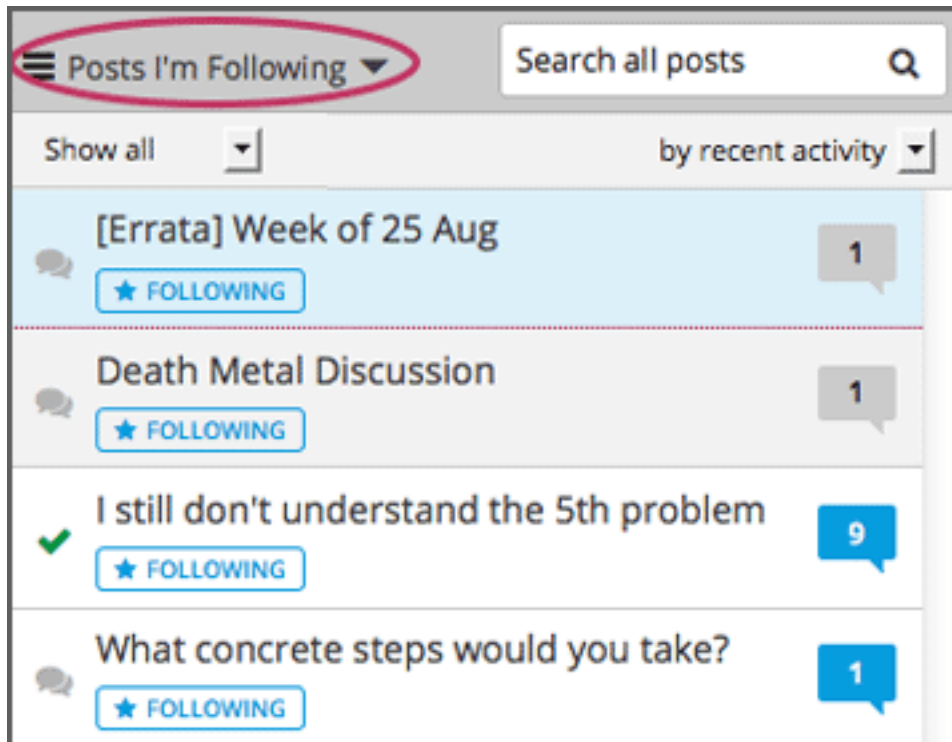
Follow Posts

If you find a post particularly interesting and want to return to it in the future, you can follow it: view that post and select the “Follow” icon.



Each post that you follow appears with a “Following” indicator in the list of posts.

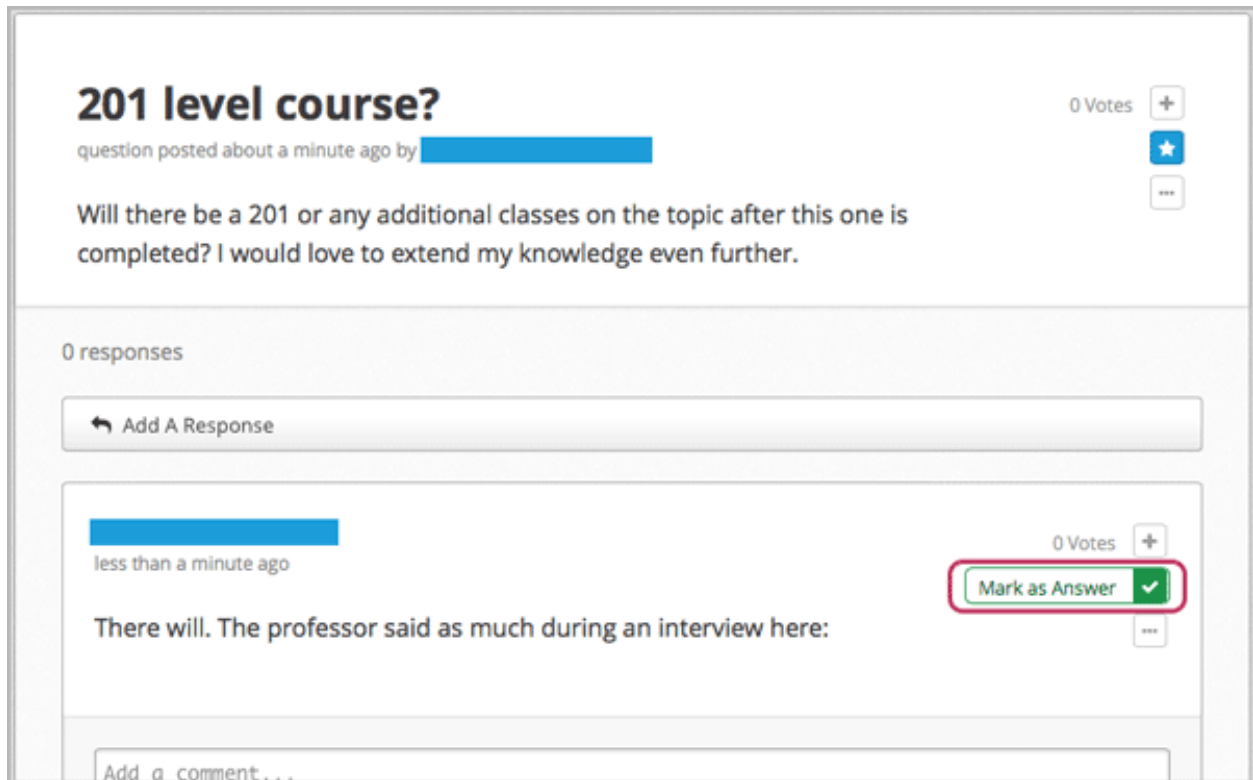
To list only the posts that you are following, regardless of the discussion topic they apply to, select the drop-down Discussion list and select **Posts I’m Following**.



Answer Questions and Mark Questions as Answered

Anyone in a course can answer questions. Just add a response to the question post with your answer.

The person who posted the question (and members of the discussion administration team) can mark responses as correct: select the “Mark as Answer” icon that appears at upper right of the response.



Note: You can only mark questions as answered when you work in a web browser. This option is not available when you work in an edX mobile app.

After at least one response is marked as the answer, a check or tick mark image replaces the question mark image for the post in the list on the **Discussion** page.

The screenshot shows the 'All Discussions' page in Open edX. At the top, there is a search bar labeled 'Search all posts' and a dropdown menu set to 'by most activity'. The list of discussions includes:

- I still don't understand the 5th problem** (9 replies, green checkmark)
- error in video** (4 replies, green checkmark, **FOLLOWING** button)
- I disagree with the choices the couple in the example made. What do others think?** (3 replies, speech bubble icon)
- After watching the videos** (2 replies, green checkmark)
- Organizational culture** (2 replies, red question mark icon)
- What's wrong with this code? what am I missing?** (1 reply, red question mark icon, **FOLLOWING** button)
- What concrete steps would you take?** (1 reply, speech bubble icon)

Report Discussion Misuse

You can flag any post, response, or comment for a discussion moderator to review: view the contribution, select the “More” icon, and then select **Report**.

Get my product for only \$19.99/month for 12 months!

discussion posted about a minute ago by **staff** STAFF

REPORTED

Spam message! Click [here](#).

(this post is about [Basic Question Types / Selection from Options](#))

0 Votes +

More ...

Report

1 response

↩ Add A Response

staff STAFF

less than a minute ago

Off-topic complaint about getting spam in a discussion forum!

0 Votes +

More ...

Report

13.7 Guidance for Discussion Moderators

Discussion forums are hugely important tools in running a successful MOOC; they allow for substantive community development, in addition to being excellent sources of feedback and ideas for future iterations of the course.

Moderators are the key to effectively managing these online communities. Moderators keep the discussions productive and relay important information (errors, learner confusion with or interest in particular topics, and so on) to the rest of the course team. Discussions can be moderated by any of a number of members of the course team, but dedicating enough time to moderation is the best way to cultivate a successful discussion culture.

Feel free to use some or all of the information in this section to guide the contributions of your discussion moderators.

- *Responsibilities*
- *Qualities of Good Discussion Moderators*
- *Best Practices for Discussion Moderation*
- *Guidelines for Specific Types of Posts*

13.7.1 Responsibilities

- Answer basic questions posed by learners, and direct learners with questions to the right resources: syllabi, course documents, course updates, useful lecture segments, example problems, etc.

- Relay reports of errata, common misconceptions and questions, highly disruptive participants, bugs, and amusing or interesting posts to the most appropriate course team members.
- Enforce the Honor Code by editing or deleting problem answers, or requests for answers, promptly.
- Edit out offensive content from the discussion, and remind the originators of discussion etiquette and expectations.
- Communicate problems and successes to your fellow moderators.
- Identify learners whose presence in the discussions has a strongly positive impact. These learners can be promoted to community TA role and publicly acknowledged.
- Add helpful items to the FAQ or **Home** page.

13.7.2 Qualities of Good Discussion Moderators

- Good or great content knowledge: stellar learners from previous years often make good moderators.
- Solid communication skills: the ability to organize positive, consistent, and effective communication with learners, other moderators, and members of the course team.
- Time: keeping up-to-date with the discussions for a large MOOC requires at least 5 hours per week for reading posts, replying to or editing posts, and communicating with the other moderators and the course team.
- Enthusiasm: this is the best predictor of moderator excellence!

13.7.3 Best Practices for Discussion Moderation

- Always maintain a positive attitude. Keeping a positive attitude is crucial to encouraging participation in the discussion community.
- Encourage discussion between learners. Actively thank learners who answer the questions of others.
- Use the course's FAQ and **Home** pages as resources. Provide links to these pages in your responses when appropriate. Suggest that information be added to these resources when necessary to respond to a common question or fix confusion.
- Always make it obvious that you have read the learner's question. When you post a response, make sure that you are on topic. Respond in the context of the thread.
- Develop a discussion persona. Try to answer your questions in your own slightly unique way.

13.7.4 Guidelines for Specific Types of Posts

Certain types of posts require more attention from the moderators than others, or might need to be handled in a particular way.

Time Sensitive Problems

- Try to be present on discussion threads when assignment due dates are approaching or new content is being released. The discussions tend to be extra busy at these times.
- Alert the course team about problems that need to be dealt with quickly, such as problems with graded assignments. Setting up a course email address that is checked frequently is a good way to manage such alerts.

Content Questions

- Assist with content questions sensitively, but be careful not to post spoilers. Do not ask learners to post their solutions!
- A good guiding question can be better than an answer.

Redundant Posts

- When possible, help discourage redundancy by responding to such posts with links to an earlier or higher quality thread that asks the same question.
- When responding to a post, search for similar posts and respond to the most pertinent thread. Redirect the other posts to the thread with your response and then close the redundant threads.

Off Topic, Inappropriate, or Offensive Posts

- Do not simply delete inappropriate or offensive posts. Instead, edit and explain why the posts were edited. Inappropriate posts include spoilers, solutions, and information on how to pirate educational materials.
- Check links that learners post. If you find links to offensive sites and materials, they need to be edited quickly.

Bugs or Errors

- Check to confirm that there is in fact an error.
 - If not, suggest to the learners that they check their work.
 - If so, contact members of the course team, and notify the thread that the error has been reported.
- Use language that does not assign blame or discourage users from the platform.

You might say: “Thanks for letting us know about that issue. We are working with edX to get it fixed as quickly as possible.”

Feature Requests

- Keep an organized collection of feature requests cultivated by the course team. That list can subsequently be shared with an edX product manager, who will log those requests internally.
- Reply to the post to let the person know that their request was heard, without promising that the feature will be implemented.

You might say: “Thanks for your suggestion. I’ve logged it for review by edX staff, who will prioritize feature requests on the development roadmap.”

- Search the discussions for other similar requests, and respond to and close those as well.

13.8 Staff Debug Info

The edX system keeps track of learners’ progress through a course – recording when the learner watches videos, responds to problems, and so on. If you are a member of a course team, some of that data is visible to you for debugging purposes. Under every problem is a **Staff Debug Info** button: selecting this button opens a window with information about the problem.

None of this information should be necessary for day-to-day usage of edX, but for the sake of clarity, some of these fields are documented here.

is_released Indicates whether the problem is visible to learners.

location An internal unique identifier that corresponds to this problem.

markdown The text of the problem, in Markdown format. This is often written using Studio.

display_name The name of the problem, as shown to the learner.

max_attempts The maximum number of times that a learner can attempt to answer the problem correctly.

attempts The number of times that the currently logged in learner has attempted to answer the problem correctly, so far. Every time this learner attempts to answer this question, this number will go up, until it reaches `max_attempts`.

parent An internal unique identifier that corresponds to the unit that contains this problem.

Managing Learner Progress and Grades

Use the topics in this section to learn about accessing learner data and managing learners' answers and grades in your course.

14.1 Learner Data

You can access data about the individuals who are enrolled in your course at any time after you create the course.

- *Guidance for Working with Personal Information*
- *Accessing Learner Data*
 - *Learner-Reported Data*
 - *Columns in the Student Profile Report*
 - *Download or View Learner Data*
- *Accessing Anonymized Learner IDs*

To supplement the learner data that is available from the Instructor Dashboard, you can use the charts and reports that are available from edX Insights. With Insights, you can review demographic and geographic distributions for enrolled learners. You can also monitor learner activity and review the number of learners who, each week, interacted with your course. For more information, see [Using edX Insights](#).

14.1.1 Guidance for Working with Personal Information

The information that edX collects from site registrants includes personal information that can be used to identify, contact, and locate individuals. This information is available to course team members with the Admin or Staff role for the learners who are enrolled in their courses.

Members of the course team should follow the policies established by their organizations and comply with the legal requirements of their locales to prevent public distribution or misuse of this information.

14.1.2 Accessing Learner Data

From the Instructor Dashboard, you can download data about the individuals who are currently enrolled in your course in a .csv (comma-separated values) file. For courses that have fewer than 200 learners enrolled, you can also view data for enrolled learners on the Instructor Dashboard.

For information about course enrollment, see [Enrollment](#).

Learner-Reported Data

When learners create, or register, their user accounts, they select a public username and supply their full names and email addresses. Learners also have the option to provide personal demographic information, including highest level of education completed, gender, year of birth, and preferred language. Because this information is optional, not all of the learners who are enrolled in your course provide it.

After learners create an account, they can enroll in as many individual courses as they choose.

- The learner data that is available from the Instructor Dashboard reflects the set of live, current enrollments. Data for the course team, who are also enrolled in the course, is included.
- Learners can enroll in your course throughout the defined enrollment period, and they can unenroll from a course at any time.
- Learners can update their personal information at any time on the [Account Settings](#) page.

As a result, you might want to download learner data periodically to gain an understanding of how the learner population changes over time.

Columns in the Student Profile Report

The student profile report includes a row for each enrolled learner or course team member and the following columns.

The descriptions of columns in the following table apply to edx.org. Required or optional fields shown to learners during registration and available for editing in **Account Settings** might vary for Open edX sites.

Column	Description
id	The user account ID number that the system assigns to each registrant.
username	The public username entered by the learner. Usernames are required and cannot be changed.
name	The full name entered by the learner. A name is required. Learners can update this value on the Account Settings page.
email	The email address entered by the learner. An email address is required. Learners can update this value on the Account Settings page.
language	This column is included for backward compatibility only. This data is no longer collected during account creation. The selection that a learner makes for language on the Account Settings page is not included in this report.
location	This column is included for backward compatibility only. The selection that a learner makes for Country during registration or for Country or Region on the Account Settings page is displayed in the “country” column of this report.
year_of_birth	This value is optional and can be updated on the Account Settings page.
gender	This value is optional and can be updated on the Account Settings page.
level_of_education	This value is optional and can be updated on the Account Settings page. For a list of the possible values, see the description of the Columns in the auth_userprofile Table table’s level_of_education column in the <i>EdX Research Guide</i> .
mailing_address	No longer collected during registration. Previously, this value was optional and was supplied only at registration.
goals	This value is optional and is supplied only at registration.
cohort	This column is included only if the course has cohorts enabled. For courses that include learner cohorts, shows the name of the cohort group that is assigned to the learner. If a learner is not assigned to a cohort, the value is <code>[unassigned]</code> .
team	This column is included only if the course has teams enabled. For courses that include teams, shows the name of the team that the learner belongs to. If a learner has not joined a team, the value is <code>[unavailable]</code> .
city	Data for this column is not currently collected on edx.org.
country	Learners are required to specify Country during registration, and can update this value on the Account Settings page.

Download or View Learner Data

You can download a report of learner data to gain more information about the individuals who are enrolled in your course. For courses with fewer than 200 learners enrolled, you also have the option to view learner data on the Instructor Dashboard.

Download Learner Data

To download learner data, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. To download data about enrolled learners in a .csv file, select **Download profile information as a CSV**.

A status message indicates that report generation is in progress. The number of learners enrolled in your course, and whether your course has the cohort feature enabled, affect how long this process takes. This process can take some time to complete, but you can navigate away from this page and do other work while it runs.

To track the progress of the report process, reload the page in your browser and scroll down to the **Pending Tasks** section.

4. To open or save a student profile report, select the `{course_id}_student_profile_info_{date}.csv` file name at the bottom of the page.

All learner-supplied data is included in this file without truncation. For more information, see [Columns in the Student Profile Report](#).

View Learner Data

To view learner data, follow these steps.

Note: This option is available only for courses with an enrollment of less than 200.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. To display data about enrolled learners, select **List enrolled students' profile information**.

A table of profile data displays, with one row for each enrolled learner. Longer values, such as goals, are truncated. For more information, see [Columns in the Student Profile Report](#).

14.1.3 Accessing Anonymized Learner IDs

Some of the tools that are available for use with the edX platform, including external graders and surveys, work with anonymized learner data. If it becomes necessary for you to deanonymize previously anonymized data, you can download a CSV file to use for that purpose.

To download a file of assigned user IDs and anonymized user IDs, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. Select **Get Student Anonymized IDs CSV**.

You are prompted to open or save the `{course-id}-anon-id.csv` file for your course. This file contains the user ID that is assigned to each learner at registration and its corresponding edX-wide anonymized user ID and course specific anonymized user ID. Values are included for every learner who ever enrolled for your course.

To research and deanonymize learner data, you can use this file together with the `{course_id}_student_profile_info_{date}.csv` file of learner data or the `{course_id}_grade_report_{date}.csv` file of grades.

14.1.4 Using the Learner Engagement Report

With the learner engagement report, you can monitor what individual learners are doing in your course. The report contains a row for each enrolled learner, and has columns that quantify overall course activity and engagement with course problems, videos, discussions, and textbooks.

With this report, you can identify which learners are, and which are not, visiting course content. Further, you can identify the learners who are attempting problems, playing videos, participating in discussions, or viewing textbooks.

The server generates a new learner engagement report every day for the previous day's activity. On Mondays, an additional report is generated to summarize activity during the previous week (Monday through Sunday).

- *Understanding the Learner Engagement Report*
 - *Reported Problem Types*
 - *Report Columns*
- *Download the Learner Engagement Report*

Understanding the Learner Engagement Report

Reported Problem Types

To measure problem-related activity, the learner engagement report includes data for capa problems. That is, the report includes data for problems for which learners can select **Check**, including these problem types.

- Checkboxes
- Custom JavaScript
- Drag and Drop
- Dropdown
- Math expression input
- Multiple choice
- Numerical input
- Text input

The report does not include data for open response assessments or LTI components.

For more information about the problem types that you can add to courses, see [Creating Exercises and Tools](#).

Report Columns

The learner engagement report .csv files contain the following columns.

Column	Description
Date	Included only in the daily report. The date of the reported activity.
End Date	Included only in the weekly report. The last date of the report period.
Course ID	The identifier for the course run.
Username	The unique username for an edX account.
Email	The unique email address for an edX account.
Cohort	Indicates the learner's assigned cohort. Blank if the learner is not assigned to a cohort.
Was Active	Included only in the daily report. 1 for learners who visited any page (URL) in the course at least once during the reported day, 0 otherwise.
Days Active This Week	Included only in the weekly report. Identifies the number of days during the week that the learner visited any page (URL) in the course.
Unique Problems Attempted	The number of unique problems for which the learner selected Check to submit an answer.
Total Problem Attempts	The number of times the learner selected Check to submit answers, regardless of the particular problem attempted.
Unique Problems Correct	The number of unique problems for which the learner submitted a correct answer.
Unique Videos Played	The number of times the learner played a video. Each video that the learner began to play is included in this count once.
Discussion Posts	The number of new posts the learner contributed to the course discussions.
Discussion Responses	The number of responses the learner made to posts in the course discussions.
Discussion Comments	The number of comments the learner made on responses in the course discussions.
Textbook Pages Viewed	The number of pages in a .pdf textbook that the learner viewed.
URL of Last Subsection Viewed	The URL of the last subsection the learner visited.

Download the Learner Engagement Report

An automated process runs daily on the system server to update learner engagement data and create the daily or weekly .csv file for you to download. Links to the .csv files are available on the Instructor Dashboard.

To download a learner engagement report, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, then select **Data Download**.
3. At the bottom of the page, select the `student_engagement_daily_{date}.csv` or `student_engagement_weekly_{end date}.csv` file name. You might have to scroll down to find a specific file.

14.2 Answer Data

To review learner answers to the problems in your course, you can review the answer submitted by a selected learner for a specific problem or download a course-wide report of any learner answers to a specific problem. You can also download an answer distribution report for course problems.

- [Learner Answer Submissions](#)
- [Student Answer Distribution](#)

Learner answer distribution data, including both charts and reports, is also available from edX Insights. For more information, see [Using edX Insights](#).

14.2.1 Learner Answer Submissions

You can review a single learner's complete submission history for a specific problem, or the answers submitted by all learners for that problem. For either a single learner or all learners, you can review the exact response submitted, the number of attempts made, and the date and time of the submission.

- [View One Learner's Submission History](#)
- [Interpret a Learner's Submission History](#)
- [Report All Learners' Answer Submissions](#)
- [Interpret the Student State Report](#)

View One Learner's Submission History

Before you can check the answer or answers submitted by a learner, you need the learner's username. For more information about how to obtain usernames, see [Download or View Learner Data](#).

To review a response submitted by a learner, follow these steps.

1. View the live version of your course.
2. Select **Course** and navigate to the unit that contains the problem you want to review.
3. Display the problem, and then select **Submission History** below the problem.
4. Enter the username for the learner whose work you want to review, and then select **View History** at the end of the page.

Information about the response or responses provided by the learner displays. For more information, see [Interpret a Learner's Submission History](#).

To close the Submission History Viewer, click on the browser page outside of the viewer.

Interpret a Learner's Submission History

The Submission History Viewer shows every timestamped database record of the interactions between a learner and a problem, which can include processes completed both in the browser and on the server. These records appear with the most recent interaction at the top of the Submission History Viewer, followed by each previous interaction.

This topic provides an example submission history for a capa problem with guidelines that can help you interpret a submission history. The number and complexity of the records that appear in this report vary based on the type of problem and the settings and features defined.

Record 1: Problem Viewed (Server)

The first interaction, shown at the bottom of the Submission History, records when the server delivered the problem component to the browser for the learner to view.

```
#1: 2015-09-04 08:34:53+00:00 (America/New_York time)

Score: None / None

{
  "input_state": {
```

```
"e58b639b86db44ca89652b30ea566830_2_1": {}  
},  
"seed": 1  
}
```

Record 2: Problem Checked (Browser)

The next interaction shown as you scroll up from the bottom records when the learner selected **Check** in the browser to submit an answer. Note that this record does not contain the actual answer submitted.

```
#2: 2015-09-04 08:35:03+00:00 (America/New_York time)  
  
Score: 0.0 / 1.0  
  
{  
  "input_state": {  
    "e58b639b86db44ca89652b30ea566830_2_1": {}  
  },  
  "seed": 1,  
  "student_answers": {  
    "e58b639b86db44ca89652b30ea566830_2_1": "choice_1"  
  }  
}
```

Record 3: Problem Checked (Server)

The next interaction records the results of the server processing that occurred after the learner submitted the answer. This record includes `student_answers` with the submitted answer value, along with `attempts`, `correctness`, and other values.

```
#3: 2015-09-03 18:15:10+00:00 (America/New_York time)  
  
Score: 0.0 / 1.0  
  
{  
  "attempts": 1,  
  "correct_map": {  
    "e58b639b86db44ca89652b30ea566830_2_1": {  
      "answervariable": null,  
      "correctness": "incorrect",  
      "hint": "",  
      "hintmode": null,  
      "msg": "",  
      "npoints": null,  
      "queuestate": null  
    }  
  },  
  "done": true,  
  "input_state": {  
    "e58b639b86db44ca89652b30ea566830_2_1": {}  
  },  
  "last_submission_time": "2015-09-03T18:15:10Z",  
  "seed": 1,  
  "student_answers": {  
    "e58b639b86db44ca89652b30ea566830_2_1": "choice_1"  
  }  
}
```

Record 4: Problem Retrieved (Browser)

When a problem gives learners multiple attempts at the correct answer, and the learner tries again, an additional record

is added when a learner selects **Check** again. The server has not yet processed the new submission, so the data in the record is almost identical to the data in record 3.

Record 5: Problem Retrieved (Server)

The most recent interaction in this example records the results after the learner attempts the problem again and submits a different answer. Note the differences between values in this record and in record 3, including the reported `Score` and the values for `student_answers`, `attempts`, and `correctness`.

```
#5: 2015-09-03 18:15:17+00:00 (America/New_York time)

Score: 1.0 / 1.0

{
  "attempts": 2,
  "correct_map": {
    "e58b639b86db44ca89652b30ea566830_2_1": {
      "answervariable": null,
      "correctness": "correct",
      "hint": "",
      "hintmode": null,
      "msg": "",
      "npoints": null,
      "queuestate": null
    }
  },
  "done": true,
  "input_state": {
    "e58b639b86db44ca89652b30ea566830_2_1": {}
  },
  "last_submission_time": "2015-09-03T18:15:17Z",
  "seed": 1,
  "student_answers": {
    "e58b639b86db44ca89652b30ea566830_2_1": "choice_2"
  }
}
```

Report All Learners' Answer Submissions

Before you can download a report of all learner answers for a problem, you need the *unique identifier* of the problem that you want to investigate.

To download the Student State report, which is a report of the answers submitted for a problem by every learner, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. In the **Reports** section, enter the **Problem location**. For capa problems, you can use the **Staff Debug Info** option to *find this identifier* for a problem.
4. Select **Download a CSV of problem responses**.
5. At the bottom of the page, select the `{course_id}_student_state_from_{problem_location}_{date}.csv` file.
6. Use a text editor or spreadsheet application to open the file. For more information, see *Interpret the Student State Report*.

Interpret the Student State Report

The Student State report contains a row for each learner who has viewed a problem or submitted an answer for the problem, identified by username. The **State** column reports the results of the server processing for each learner's most recently submitted answer.

When you open the report, the value in the **State** column appears on a single line. This value is a record in JSON format. An example record for a text input capa problem follows.

```
{
  "correct_map": {
    "e58b639b86db44ca89652b30ea566830_2_1": {
      "hint": "",
      "hintmode": null,
      "correctness": "correct",
      "msg": "",
      "answervariable": null,
      "npoints": null,
      "queuestate": null
    }
  },
  "input_state": {
    "e58b639b86db44ca89652b30ea566830_2_1": {}
  },
  "last_submission_time": "2015-10-26T17:32:20Z",
  "attempts": 3,
  "seed": 1,
  "done": true,
  "student_answers": {
    "e58b639b86db44ca89652b30ea566830_2_1": "choice_2"
  }
}
```

You can use a JSON “pretty print” tool or script to make the value in the **State** column more readable, as in the following example.

```
{
  "correct_map": {
    "e58b639b86db44ca89652b30ea566830_2_1": {
      "hint": "",
      "hintmode": null,
      "correctness": "correct",
      "msg": "",
      "answervariable": null,
      "npoints": null,
      "queuestate": null
    }
  },
  "input_state": {
    "e58b639b86db44ca89652b30ea566830_2_1": {}
  },
  "last_submission_time": "2015-10-26T17:32:20Z",
  "attempts": 3,
  "seed": 1,
  "done": true,
  "student_answers": {
    "e58b639b86db44ca89652b30ea566830_2_1": "choice_2"
  }
}
```

When you add line breaks and spacing to the value in the **State** column for this capa problem, it becomes possible to recognize its similarity to the server problem check records in the Submission History. For more information, see *Interpret a Learner's Submission History*.

A **State** value that appears as follows indicates a learner who has viewed a capa problem, but not yet submitted an answer.

```
{
  "seed": 1,
  "input_state": {
    "e58b639b86db44ca89652b30ea566830_2_1": {}
  }
}
```

For open response assessment problems, the **State** value appears as follows for learners who have submitted an answer.

```
{
  "submission_uuid": "c359b484-5644-11e5-a166-0a4a2062d211",
  "no_peers": false
}
```

For open response assessment problems, `"no_peers": false` indicates that the learner has completed at least one peer assessment, while `"no_peers": true` indicates that no peer assessments have been submitted.

14.2.2 Student Answer Distribution

For certain types of problems in your course, you can download a .csv file with data about the distribution of learner answers. Student answer distribution data is included in the file for problems of these types.

- Checkboxes (<choiceresponse>)
- Dropdown (<optionresponse>)
- Multiple choice (<multiplechoiceresponse>)
- Numerical input (<numericalresponse>)
- Text input (<stringresponse>)
- Math expression input (<formularesponse>)

The file includes a row for each problem-answer combination selected by your learners. For example, for a problem that has a total of five possible answers the file includes up to five rows, one for each answer selected by at least one learner. For problems with **Randomization** enabled in Studio (sometimes called rerandomization), there is one row for each problem-variant-answer combination selected by your learners. For more information, see [Problem Settings](#).

Note: Certain types of problems can be set up to [award partial credit](#). When a learner receives either the full or a partial score for a problem, this report includes that answer as correct.

The .csv file contains the following columns.

Column	Description
ModuleID	The internal identifier for the problem component.
PartID	For a problem component that contains multiple problems, the internal identifier for each individual problem. For a problem component that contains a single problem, the internal identifier of that problem.
Correct Answer	0 if this AnswerValue is incorrect, or 1 if this AnswerValue is correct. For a problem that is set up to award partial credit, 1 if the AnswerValue awards either the full or a partial score.
Count	The number of times that learners entered or selected this answer as their most recent submission for the problem or problem variant. For problems with the number of Attempts set to a value greater than 1, this means that each learner contributes a maximum of 1 to this count, even if the same answer is provided in multiple attempts.
ValueID	The internal identifier of the answer choice for checkboxes and multiple choice problems. Blank for dropdown, numerical input, text input, and math expression input problems.
AnswerValue	The text label of the answer choice for checkboxes, dropdown, and multiple choice problems. The value entered by the learner for numerical input, text input, and math expression input problems.
Variant	For problems that use the Randomization setting in Studio, contains the unique identifier for a variant of the problem. Blank for problems that do not use the Randomization setting, or that use the Never option for this setting.
Problem Display Name	The Display Name defined for the problem.
Question	The text in the problem that is identified with accessible label formatting. In Studio's <i>The Simple Editor</i> , this text appears with two angle brackets on either side pointing inward. For example, >>Is this the question text?<<. This column does not include a value for problems that do not have an accessible label defined.

Entries are sorted by the value in each column, starting with the ModuleID on the left and continuing through the columns to the right.

Download the Student Answer Distribution Report

An automated process runs periodically on the edX servers to update the .csv file of learner answer data. A link to the most recently updated version of the .csv file is available on the Instructor Dashboard.

To download the most recent file of learner answer data, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. At the bottom of the page, select the {course_id}_answer_distribution.csv file. You may have to scroll down to find this file.

Frequently Asked Questions about the Student Answer Distribution Report

Answers to questions about the student answer distribution report follow.

My course doesn't have a student answer distribution report. How can I generate it?

Student answer distribution reports are generated automatically, and refreshed several times each day. The `{course_id}_answer_distribution.csv` file displays after all of the `{course_id}_grade_report_{date}.csv` files. Be sure to scroll to the end of the list of available reports.

Why are some problems missing from this report? The ones that are missing do have the problem types listed under *Answer Data*.

This report includes only problems that at least one learner has answered since early March 2014. For those problems, this report only includes activity that occurred after October 2013.

Why don't I see an AnswerValue for some of my problems?

For checkboxes and multiple choice problems, the answer choices actually selected by a learner after early March 2014 display as described in the previous answer. Answer choices selected by at least one learner after October 2013, but not selected since early March 2014, are included on the report but do not include an **AnswerValue**. The **ValueID** does display the internal identifiers, such as `choice_1` and `choice_2`, for those answers.

Why don't I see a Question for some of my problems?

The value in the **Question** column is the question text that you identified for the problem with the accessible label formatting. If you did not identify question text for the problem, you will not see a question. For more information about how to set up accessible labels for problems, see *The Simple Editor*.

Also, for problems that use the **Randomization** setting in Studio, if a particular answer has not been selected since early March 2014, the **Question** is blank for that answer.

My learners are saying that they answered a question, but it isn't showing up in the report. How can that be?

Only questions that have a **Maximum Attempts** setting of 1 or higher are included on the report.

I made a correction to a problem after it was released. How can I tell which learners tried to answer it before I made the change?

Problem **Count** values reflect the entire problem history. If you change a problem after it is released, it may not be possible for you to determine which answers were given before and after you made the change.

Why is the same answer showing up in two different rows when I view the report in a spreadsheet?

Some spreadsheet applications can alter the data in the .csv report for display purposes. For example, for different learner answers of "0.5" and ".5" Excel correctly includes the two different lines from the .csv, but displays the **AnswerValue** on both of them as "0.5". If you notice answers that appear to be the same on separate lines with separate counts, you can review the actual, unaltered data by opening the .csv file in a text editor.

Why are there strange characters in the report when I view it in a spreadsheet?

The .csv file is UTF-8 encoded, but not all spreadsheet applications interpret and render UTF-8 encoded characters correctly. For example, a student answer distribution report with answer values in French displays differently in Microsoft Excel for Mac than in OpenOffice Calc.

Answer Values in Microsoft Excel for Mac:

ValueID	AnswerValue
choice_0	J'ai particip_ la discussion.
choice_0	J'ai regard_ la vid_o: "Une focale sur la non-democratie"
choice_2	le politique
choice_0	le pouvoir
choice_1	l'_conomie

Answer Values in OpenOffice Calc:

ValueID	AnswerValue
choice_0	J'ai participé à la discussion.
choice_0	J'ai regardé la vidéo: "Une focale sur la non-democratie"
choice_2	le politique
choice_0	le pouvoir
choice_1	l'économie

If you notice characters that do not display as expected in a spreadsheet, try a different spreadsheet application such as LibreOffice or Apache OpenOffice to open the .csv file.

Interpret the Student Answer Distribution Report

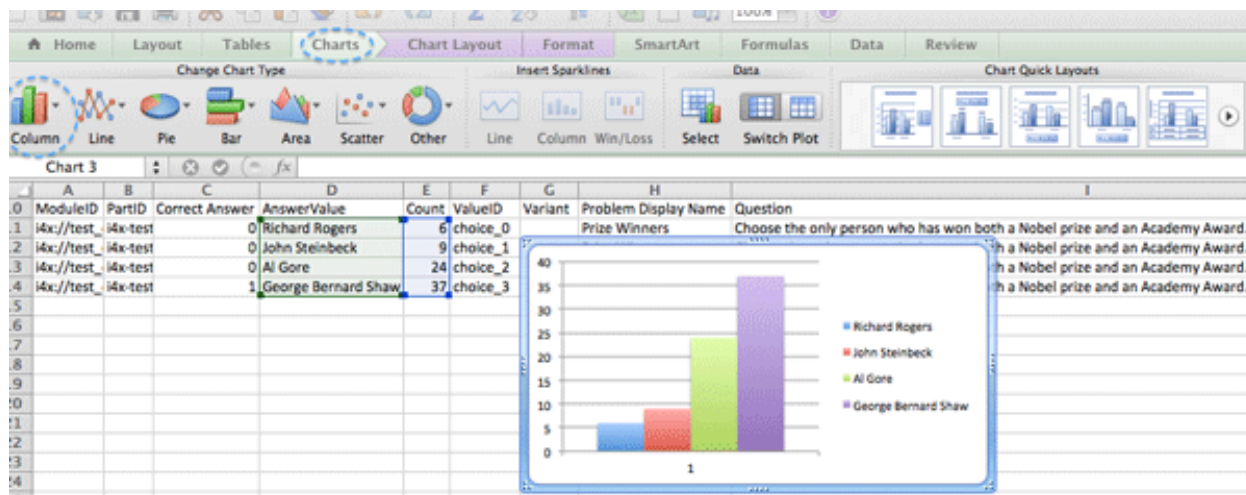
You can use the Student Answer Distribution report to review learner responses to assignments, which can then help you evaluate the structure and completeness of your course content and problem components.

As an example, you define a text input question in Studio to have a single correct answer, “Warfarin”. When you produce the Student Answer Distribution report, you verify that this answer was in fact marked correct: there is a 1 in the **Correct Answer** column for this **AnswerValue**.

A	B	C	D	E	F	G	H	I
Mod	Partl	Correct	Answer	Count	Valu	AnswerValue	Vari	Problem Disp Question
14x:/j	14x-t	0	107	Coumadin				Other Danger Name an anticoagulant that is now used to prevent thrombosis, but that originally was used to poison rodents.
14x:/j	14x-t	0	55	Warfarin or Coumadin				Other Danger Name an anticoagulant that is now used to prevent thrombosis, but that originally was used to poison rodents.
14x:/j	14x-t	1	6454	Warfarin				Other Danger Name an anticoagulant that is now used to prevent thrombosis, but that originally was used to poison rodents.
14x:/j	14x-t	0	1	Cubicin				Other Danger Name an anticoagulant that is now used to prevent thrombosis, but that originally was used to poison rodents.
14x:/j	14x-t	0	3	Coufarin				Other Danger Name an anticoagulant that is now used to prevent thrombosis, but that originally was used to poison rodents.

However, as you view the report you notice other learner answers that you did not set up to be marked as correct in Studio, but that you might (or might not) also consider to be correct, such as “Warfarin or Coumadin”. The **Correct Answer** column shows that the other answers were marked incorrect (0), but for future iterations of your course you may want to revise the question or update the problem to evaluate additional variations of the answer as correct.

Many spreadsheet applications offer data visualization options, such as charts or graphs. Charts can help make your learners’ common misconceptions easier to identify.



In this example, the Student Answer Distribution report is open in Microsoft Excel. To create a chart that shows how many of your learners chose various answers to a multiple choice question, you move the **AnswerValue** and **Count** columns next to each other. After you click and drag to select the report cells that contain the data you want to chart, you select the Charts toolbar and then select the type of chart you want.

Note: Refer to the help for the spreadsheet application that you use for information on using these options. You may have to make changes to your spreadsheet, such as reordering columns. Save a copy of the file you originally downloaded as a backup before you begin.

You can adjust your course content based on common mistakes. While most learners in this example selected the correct answer, the number of incorrect answer(s) can guide future changes to the course content.

14.3 Learner Grades and Grading

You can review information about how grading is configured for your course, and access learner grades, at any time after you create the course. You can also make adjustments to learner grading for a problem, for a single learner or all learners. For information about the grading data that you can access and the changes you can make, see the following topics.

- *Review How Grading Is Configured for Your Course*
- *Generate a Grade Report for Enrolled Learners (All Courses)*
- *Generate a Problem Grade Report for Enrolled Learners (All Courses)*
- *Review Grades for Enrolled Learners (Small Courses)*
- *Check the Progress of a Single Learner*
- *Adjust Grades*

To review learner answers to course problems, you can check the answer submissions for a specific problem, either for a selected learner or for all learners. You can also review answer distribution data for all of the problems. See [Answer Data](#).

For open response assessments, you can generate an ORA data report that provides details of each learner's response and of assessments that were performed on each response. For details, see [Generate a Report for ORA Assignments](#).

For information about how you establish a grading policy and work with the Problem components in your course, see [Establishing a Grading Policy For Your Course](#) or [Working with Problem Components](#).

14.3.1 Review How Grading Is Configured for Your Course

You can review the assignment types that are graded and their respective weights on the Instructor Dashboard.

You establish a grading policy for your course when you create it in Studio. While the course is running, you can view an XML representation of the assignment types in your course and how they are weighted to determine learners' grades.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download > Grading Configuration**.

A list of the assignment types in your course displays. In this example, Homework is weighted as 0.3 (30%) of the grade.

```
=====
Course grader:
<class 'xmodule.graders.WeightedSubsectionsGrader'>

Graded sections:
  subgrader=<class 'xmodule.graders.AssignmentFormatGrader'>, type=Homework, category=Homework, weight=0.3
  subgrader=<class 'xmodule.graders.AssignmentFormatGrader'>, type=Midterm Exam, category=Midterm Exam, weight=0.3
  subgrader=<class 'xmodule.graders.AssignmentFormatGrader'>, type=Final Exam, category=Final Exam, weight=0.4
=====
Listing grading context for course test_doc/SB101/2014_Jan
graded sections:
[u'Midterm Exam', u'Homework']
--> Section Midterm Exam:
  Second Verse (format=Midterm Exam, Assignment=Midterm 01)
--> Section Homework:
  Line 1 (format=Homework, Assignment=HW 01)
  Dusk (format=Homework, Assignment=HW 02)
  Parsing the distinctions (format=Homework, Assignment=HW 03)
  Verse 2 (format=Homework, Assignment=HW 04)
  Line 2 (format=Homework, Assignment=HW 05)
all descriptors:
length=37
```

In Studio, you define this information by selecting **Settings** and then **Grading**. For more information, see *Configure the Assignment Types*.

Assignment Type Name	Abbreviation:	
Homework	HW	
<small>e.g. Homework, Midterm Exams</small>	<small>e.g. HW, Midterm</small>	
Weight of Total Grade	Total Number	Number of Droppable
30	7	1
<small>as a percent, e.g. 40</small>	<small>total exercises assigned</small>	<small>total exercises that won't be graded</small>

Important: Any changes that you make to the course grading policy, to graded subsections, or to graded components after the course begins will affect learners' experiences in the course as well as analysis of its data. EdX recommends that you announce any unavoidable changes learners by using, for example, the **Home** page. You should also carefully track these changes for researchers.

14.3.2 Generate a Grade Report for Enrolled Learners (All Courses)

For any course, you can generate grades and then download a file with the results for each enrolled learner.

When you initiate calculations to grade learner work, a process starts on the edX servers. The complexity of your grading configuration and the number of learners enrolled in your course affect how long this process takes. You can download a report of the calculated grades in a comma-separated values (.csv) file when the grading process is complete.

For courses with fewer than 200 learners enrolled, you also have the option to review learner grades on the Instructor Dashboard. For more information, see *Review Grades for Enrolled Learners (Small Courses)*.

To generate and download the grade report for the learners who are currently enrolled in your course, follow these steps.

Important: Because the grade report file contains confidential, personally identifiable data which might be subject to the Family Educational Rights and Privacy Act (FERPA), be sure to follow your institution's data stewardship policies when you open or save this file.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. To start the grading process, select **Generate Grade Report**.

A status message indicates that the grading process is in progress. This process can take some time to complete, but you can navigate away from this page and do other work while it runs.

4. To check the progress of the grading process, reload the page in your browser and scroll down to the **Pending Tasks** section. The status of active tasks is shown in the table.

When the report is complete, a linked .csv file name becomes available above the **Pending Tasks** section. File names are in the format {course_id}_grade_report_{datetime}.csv. The most recently generated reports appear at the top of the list.

5. To open or save a grade report file, locate and select the link for the grade report you requested.

You can open .csv files in a spreadsheet application to sort, graph, and compare data.

Note: To prevent the accidental distribution of learner data, you can download grade report files only by selecting the links on this page. Do not copy these links for reuse elsewhere, as they expire within 5 minutes. The links on this page also expire if the page is open for more than 5 minutes. If necessary, refresh the page to generate new links.

Interpret the Grade Report

A grade report for your course is a time-stamped .csv file that identifies each enrolled learner by ID, email address, and username, and provides a snapshot of their cumulative course scores.

Scores in the grade report are presented by assignment. There is a column for every assignment that is included in your grading configuration: each homework, lab, midterm, final, and any other assignment type you added to your course.

Note: The grade report does not include information about individual problems within assignments, or include learner answer distributions. For a report that shows problem-level information, see [Generate a Problem Grade Report for Enrolled Learners \(All Courses\)](#).

The report indicates the enrollment track for each learner. For professional and verified track learners it also shows whether they have verified their identity. The report shows whether each learner is eligible to receive a certificate (determined by whether he has earned a passing grade at the time the report was requested), whether a certificate has been generated, and the type of certificate earned.

If your course includes [cohorts](#), [content experiments](#), or [teams](#), the grade report includes additional columns indicating the name of the cohort, experiment group, or team that each learner belongs to.

id	email	username	grade	HW 01	HW 02	HW 03	HW 04	HW 05	HW 06	HW 07	HW Avg	Midterm	Final
			0.43	1	1	1	1	0	0	0	0.666666667	0.75	0
			0.05	0	1	0	0	0	0	0	0.166666667	0	0
			0.38	1	1	1	0.5	0	0	0	0.583333333	0.666666667	0
			0.3	1	1	0	0	0	0	0	0.333333333	0.666666667	0
			0.13	0	0	0	0.5	0	0	0	0.083333333	0.333333333	0

The grade report .csv file contains one row of data for each learner, and columns that provide the following information.

- Learner identifiers, including an internal **id**, **email** address, and **username**.
- The overall **grade**, with the total score a learner has currently attained in the course. This value is expressed as a decimal: a learner with a grade of 0.65 has earned 65% of the credit in the course, and a learner with a grade of 1 has earned 100%.
- Each **{assignment type} {number}** defined in your grading configuration, with the score that the learner attained for that specific assignment. For example, column HW 03 shows the scores for the third homework assignment.
- An **{assignment type} Avg** with each learner's current average score for that assignment type: for example, HW Avg.
- If *cohorts* are used in the course, a **Cohort Name** column indicates the name of the cohort that each learner belongs to, including the default cohort. The column is empty for learners who are not yet assigned to a cohort.
- If *content experiments* are used in the course, an **Experiment Group** column indicates the name of the experiment group that each learner belongs to within a group configuration. The column heading includes the name of the group configuration. The column is empty for learners who are not assigned to an experiment group. If you have more than one experiment group configuration in your course, you see one column for each group configuration.
- If *teams* are enabled in the course, a **Team Name** column indicates the name of the team that each learner belongs to. The column is empty for learners who have not joined a team.
- The **Enrollment Track** column indicates whether each learner is enrolled in the course in the honor code, verified, or professional education track.
- The **Verification Status** column applies only to learners who are enrolled in the verified or professional tracks. The value in this column indicates whether the verified or professional education learner has verified her identity to edX by using a webcam to submit her photo and an official ID. The value is "N/A" for learners who are not in the verified or professional tracks.
- The **Certificate Eligible** column indicates whether a learner is eligible for a certificate for your course. The value in this column is "Y" for learners who attained a passing grade before this report was requested, and for all whitelisted learners, regardless of grade attained. The value is "N" for learners who did not attain a passing grade and for those who live in embargoed countries.
- For learners who are eligible to receive a certificate, the **Certificate Delivered** column has a value of "Y" when the certificates for a course have been generated. The value is "N" for learners who are not eligible to receive a certificate.
- The **Certificate Type** column indicates the type of certificate that the learner is eligible for, such as "honor" or "verified". If a learner is not eligible for a certificate, or if the certificates for a course have not yet been generated, the value in this column is "N/A".

14.3.3 Generate a Problem Grade Report for Enrolled Learners (All Courses)

For any course, you can calculate grades for problems and generate a report that can be downloaded. The problem grade report for a course shows the number of points that each learner has earned for each problem, and the number of possible points for every problem in the course. In addition, the report shows the final grade score for each learner.

To generate and download the problem grade report for the learners who are currently enrolled in your course, follow these steps.

Important: Because the problem grade report file contains confidential, personally identifiable data which might be subject to the Family Educational Rights and Privacy Act (FERPA), be sure to follow your institution's data stewardship policies when you open or save this file.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. To start the problem grading process, select **Generate Problem Grade Report**.

A status message indicates that the problem grading process is in progress. This process can take some time to complete, but you can navigate away from this page and do other work while it runs.

4. To check the progress of the problem grading process, reload the page in your browser and scroll down to the **Pending Tasks** section. The status of active tasks is shown in the table.

When the report is complete, a linked .csv file name becomes available above the **Pending Tasks** section. File names are in the format {course_id}_problem_grade_report_{datetime}.csv. The most recently generated reports appear at the top of the list.

5. To open or save a problem grade report file, locate and select the link for the problem grade report you requested.

You can open .csv files in a spreadsheet application to sort, graph, and compare data.

Note: To prevent the accidental distribution of learner data, you can download problem grade report files only by selecting the links on this page. Do not copy these links for reuse elsewhere, as they expire within 5 minutes. The links on this page also expire if the page is open for more than 5 minutes. If necessary, refresh the page to generate new links.

Interpret the Problem Grade Report

A problem grade report for your course is a time-stamped .csv file that identifies each enrolled learner by ID, email address, and username, and provides a snapshot of earned scores compared with the possible scores for each problem.

The problem grade report includes two columns for every problem that is included in your grading configuration. For each homework, lab, midterm, or final exam problem, there is one column for earned points, and one column for possible points. In addition, the report shows the final grade score for each learner, expressed as a decimal.

Student ID	Email	Username	Final Grade	Quiz 1: Quiz 1 - X-ray Technology (Earned)	Quiz 1: Quiz 1 - X-ray Technology (Possible)	Quiz 2: Quiz 2 - CT Technology (Earned)	Quiz 2: Quiz 2 - CT Technology (Possible)	Exam 1: Midterm - Clinical Applic
			0.6	1	1	0	1	
			0.57	1	1	1	1	
			0.48	0	1	1	1	
			0.6	1	1	1	1	

The .csv file contains one row of data for each learner, and columns that provide the following information.

- Learner identifiers, including an internal **Student ID**, **Email** address, and **Username**.
- The **Final Grade**, with the total score that a learner has currently attained in the course. This value is expressed as a decimal: a learner with a grade of 0.65 has earned 65% of the credit in the course, and a learner with a grade of 1 has earned 100%.
- For each problem (identified by assignment, subsection, and problem name), a column showing the number of points actually earned by each learner. If a learner has not viewed a problem, the value in this column is "N/A". If a learner has not answered a problem, the value in this column is "0".

- For each problem (identified by assignment, subsection, and problem name), a column showing the number of points that it is possible to earn for the problem. If a learner has not viewed a problem, the value in this column is “N/A”.

14.3.4 Review Grades for Enrolled Learners (Small Courses)

For courses with enrollments of up to 200 learners, you can review a gradebook on the Instructor Dashboard.

- View the live version of your course.
- Select **Instructor**, and then select **Student Admin**. For courses with fewer than 200 learners enrolled, this tab includes a **Student Gradebook** section.
- Select **View Gradebook**. Grades are calculated and the gradebook displays.

Gradebook

Search students

	HW 01	HW 02	HW 03	HW 04	HW 05	HW 06	HW 07	HW Avg	Midterm
	17	100	0	0	0	0	0	19	67
	0	0	0	0	0	0	0	0	0
	0	100	0	0	0	0	0	17	0
	100	100	100	100	0	0	0	67	100
	17	100	100	100	0	0	0	53	100
	0	0	0	50	0	0	0	8	33

The gradebook includes the following features.

- You can select the username in each row to review that learner’s **Course Progress** page. For more information, see [Check the Progress of a Single Learner](#).
- There is a column for each **{assignment type} {number}** defined in your grading configuration, with the scores that the learner attained for that specific assignment.

The gradebook does not have a scroll bar, but it can be dragged: to see columns that are hidden at one side of the grade book, select the gradebook and then drag left or right to reveal those columns.

- For assignment types that include more than one assignment, an **{assignment type} Avg** column displays each learner’s current average score for that assignment type.
- The **Total** column presents the total score that each learner has currently attained in the course. This value is expressed as a whole number: a learner with a grade of 65 has earned 65% of the credit in the course, and a learner with a grade of 100 has earned 100%.
- To filter the data that displays you can use the **Search students** option. This option is case-sensitive and limits the rows shown in the gradebook to usernames that match your entry.

14.3.5 Check the Progress of a Single Learner

To check a single learner’s progress, you can locate the specific row on the grade report or review the learner’s **Progress** page. The **Progress** page includes a chart that plots the score the learner has earned for every graded assignment and the total grade as of the current date. Below the chart, each assignment and the score attained are listed.

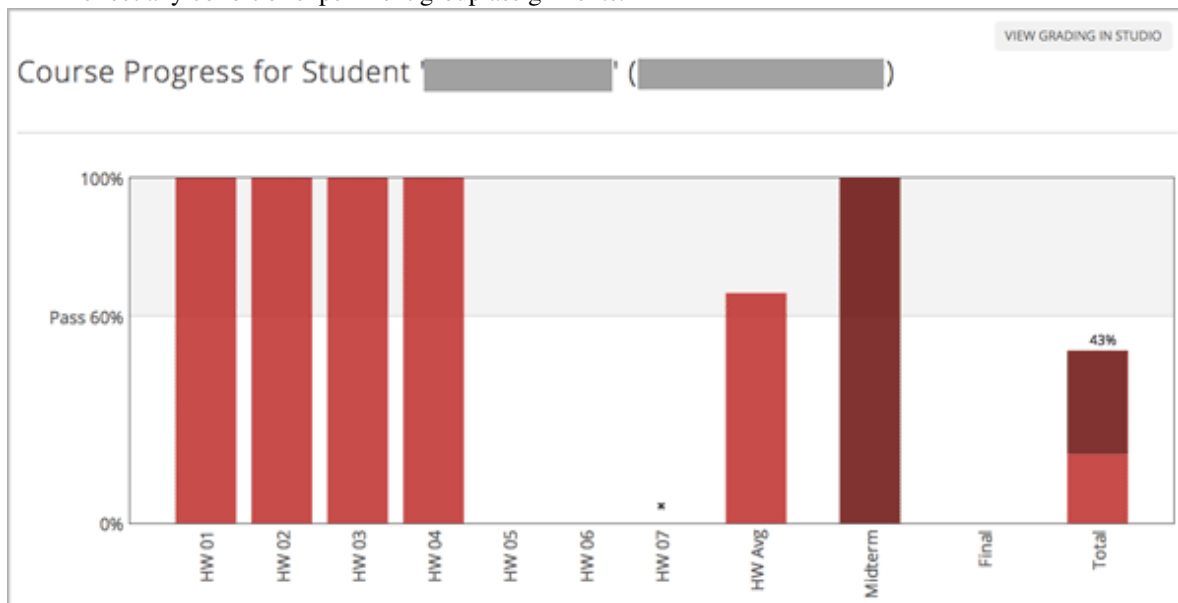
To review a learner's **Progress** page, you supply an email address or username. You can check the progress for learners who are either enrolled in, or who have unenrolled from, the course.

Learners can view a similar chart and assignment list (of their own progress only) when they are logged in to the course. For more information, see [A Learner's View of Course Progress](#).

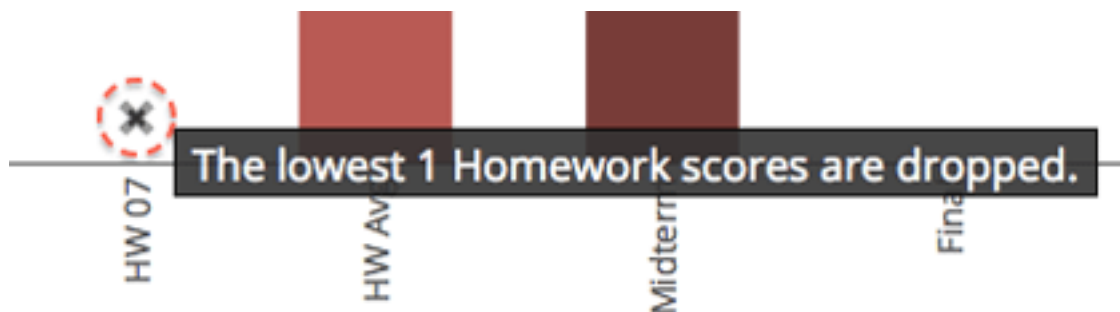
To view the **Progress** page for a learner, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Student Admin**.
3. In the Student-Specific Grade Inspection section, enter the learner's email address or username.
4. Select **Student Progress Page**.

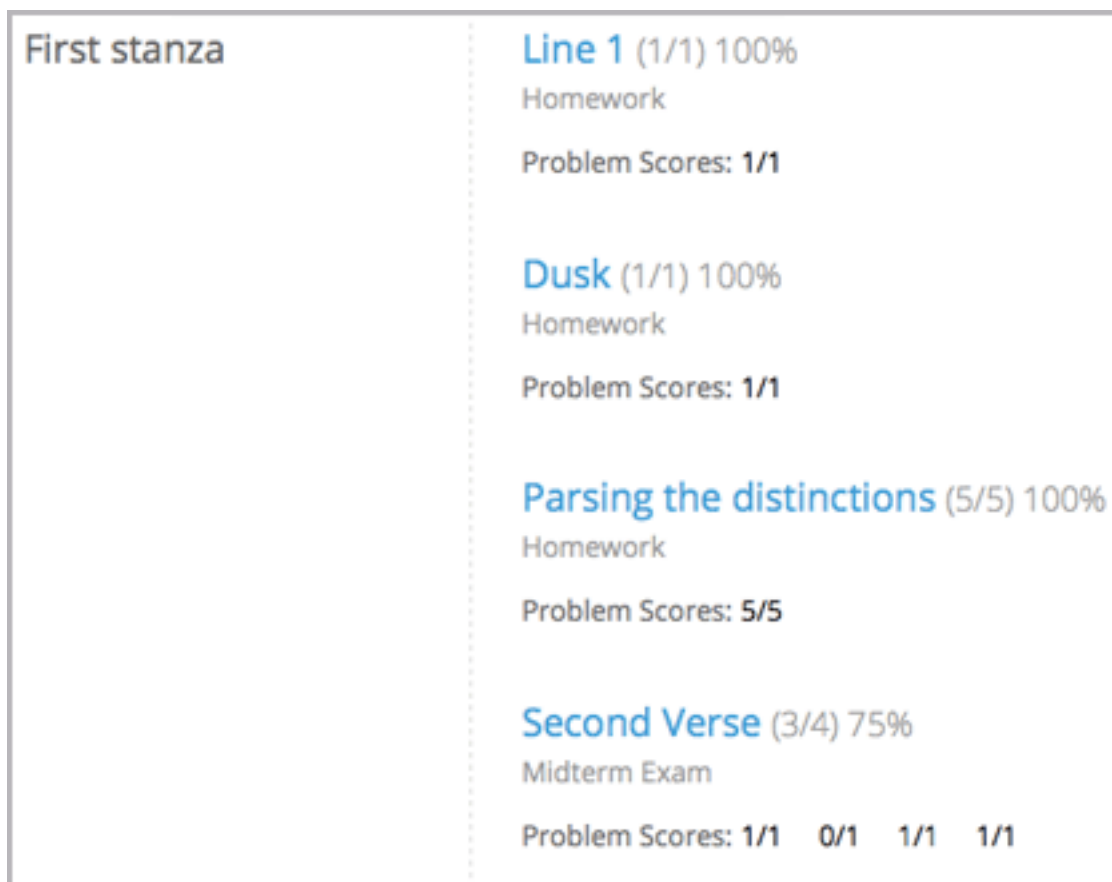
The **Progress** page for the learner displays a chart with the grade for each homework, lab, midterm, final, and any other assignment types in your course, and the total grade earned for the course to date. The chart does not reflect any cohort or experiment group assignments.



To learn more about a particular assignment, move the cursor onto the value in the chart. A brief description displays.



Below the chart, subsections are listed on the left and the units that contain assignments are listed on the right. The learner's individual problem scores display.



Interpret the Learner Progress Page

The chart of a learner's scores on the **Progress** page and the rows of data on the grade report present assignment scores in a similar order. However, the total, cumulative score earned for the course is placed in a different position on the **Progress** page.

In this example grade report, the indicated learner has a current grade of 0.43 (43%).

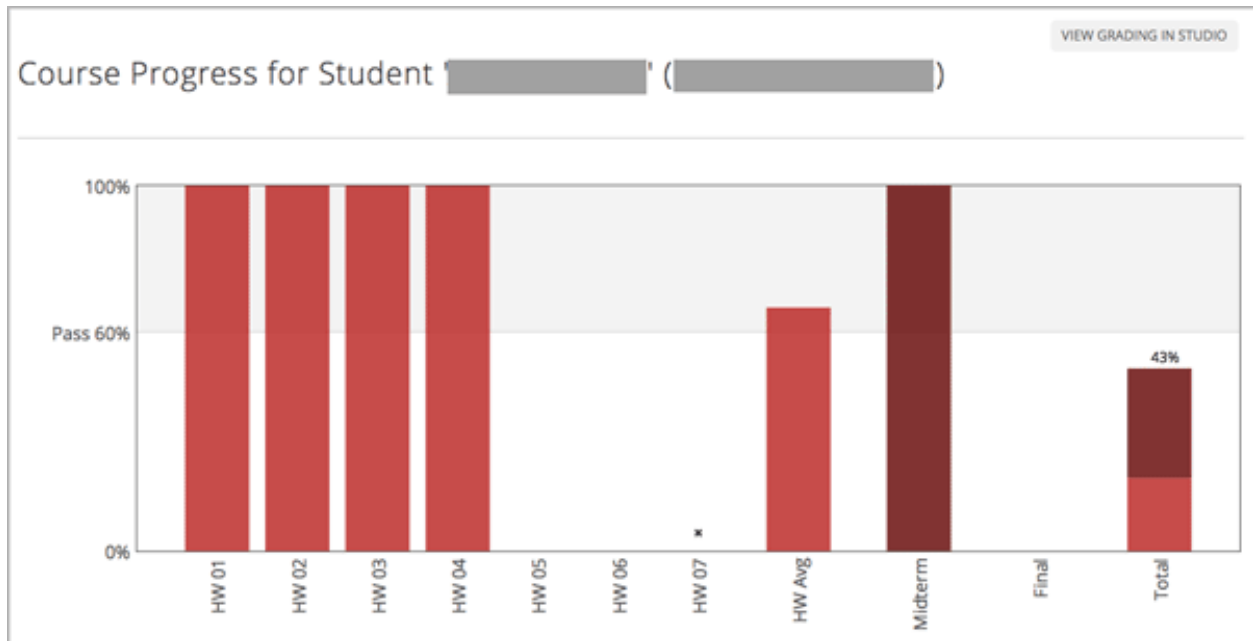
id	email	username	grade	HW 01	HW 02	HW 03	HW 04	HW 05	HW 06	HW 07	HW Avg	Midterm	Final
			0.43	1	1	1	1	0	0	0	0.66666667	0.75	0
			0.05	0	1	0	0	0	0	0	0.16666667	0	0
			0.38	1	1	1	0.5	0	0	0	0.58333333	0.66666667	0
			0.3	1	1	0	0	0	0	0	0.33333333	0.66666667	0
			0.13	0	0	0	0.5	0	0	0	0.08333333	0.33333333	0

- On each of the first four homework assignments the learner scored 1 (100%), but currently has a 0 (0%) on each of the remaining three assignments.

Notice, however, that the learner's current average score for homework assignments is listed as 0.66666667 (67%): in this course, the homework assignment with the lowest score is dropped, so this average is over six assignments rather than all seven.

- The learner has a score of 0.75 (75%) on the midterm, and a score of 0 (0%) on the final.

On the learner's **Progress** page, you see the same information graphically represented; however, the learner's "total" of 43% is on the far right.

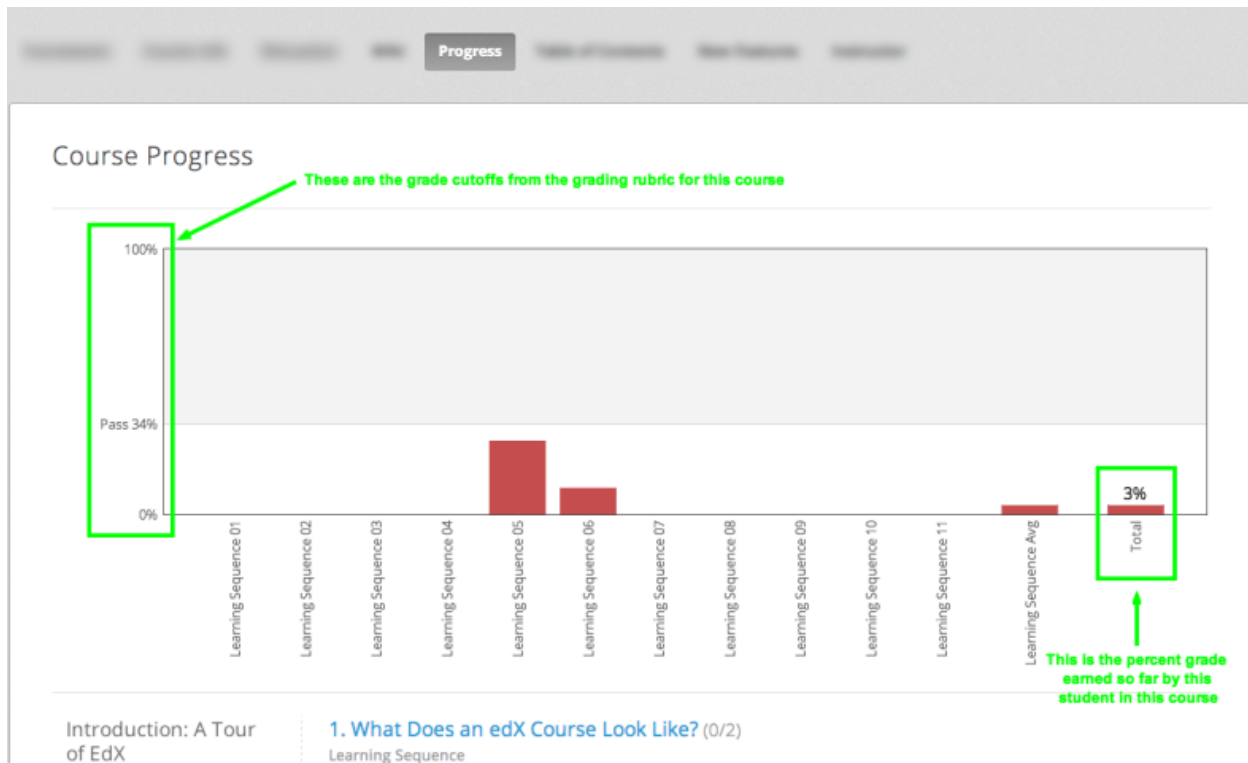


The chart on the **Progress** page includes y-axis labels for the grade ranges defined for the course. In this example, Pass is set to 60%, so at the end of the course, learners with a grade of 0.60 or higher can receive certificates.

Note: Learner scores on the **Progress** page are a snapshot of the current state of the problem score database. They can, at times, be out of sync with actual problem scores. For example, asynchronicities can occur if the weight of a live problem was changed during an assignment, and not all learners have resubmitted their answers for that problem.

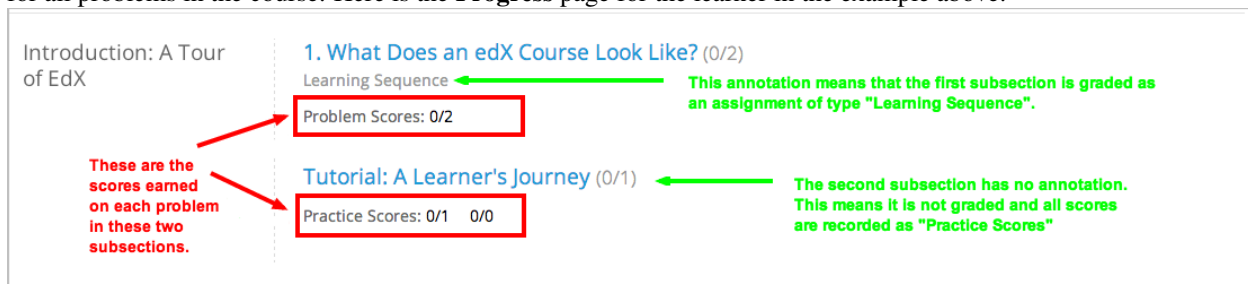
A Learner's View of Course Progress

Learners can check their progress by selecting **Progress** in the course navigation bar. The learner's progress through the graded part of the course displays at the top of this page, above the subsection scores. Progress is visualized as a chart with entries for all the assignments, total percentage earned in the course so far, and percent needed for each grade cutoff. Here is an example of a learner's progress through edX101.



The learner can see from this page that edX101 was graded as a Pass/Fail course with a cutoff of 34% and that the grading rubric contained one assignment type, called Learning Sequence, consisting of 11 assignments total. Furthermore, this particular learner has only submitted correct responses to two assignments, and her current total percent grade in the course is 6%. By hovering over each progress bar, learners can get further statistics of how much each assignment was counted as.

Further down on the **Progress** page is a list of all the subsections in the course, with the scores recorded for the learner for all problems in the course. Here is the **Progress** page for the learner in the example above:



Note that point scores from graded sections are called "Problem Scores", while point scores from ungraded sections are called "Practice Scores".

14.3.6 Adjust Grades

If you modify a problem or its settings after learners have attempted to answer it, learners' grades can be affected. For information about making changes to problems in Studio, see [Modifying a Released Problem](#).

To make adjustments to learner grades, you need the unique location identifier of the modified problem. For more information, see [Find the Unique Location Identifier for a Problem](#).

The following sections describe the various ways in which you can adjust learners' grades when a correction or other

change is unavoidable.

- *Find the Unique Location Identifier for a Problem*
- *Rescore Learner Submissions for a Problem*
- *Reset Learner Attempts for a Problem*
- *Delete a Learner's State for a Problem*

Find the Unique Location Identifier for a Problem

When you create each of the problems for a course, edX assigns a unique location to it. To make grading adjustments for a problem, or to view data about it, you need to specify the problem location.

Location identifiers for problems can be in one of these formats.

- `location = block-v1:{org}+{course}+{run}+type@problem+block@{id}`, for example,
`location = block-v1:edX+BlendedX+1T2015+type@problem+block@72e0f73cdf5c4d648ebec002285`
- `location = i4x://{org}/{course}/problem/{id}`, for example, `location = i4x://edX/edX101/problem/680cc746e8ee473490841334f0235635`

Courses created since Fall 2014 typically have usage IDs in the first format, while older courses have usage IDs in the second format.

To find the unique location identifier for a problem, follow these steps.

1. View the live version of your course.
2. Select **Course**, and then navigate to the unit that contains the problem.
3. Display the problem, and find the **Submission History** and **Staff Debug Info** options that appear below it.
4. Select **Staff Debug Info**. Information about the problem appears, including its **location**.
5. To copy the location of the problem, select the entire value after `location =`, right click, and then select **Copy**.

To close the Staff Debug viewer, click on the browser page outside of the viewer.

Rescore Learner Submissions for a Problem

Each problem that you create for your course includes the definition of a correct answer, and might also include a tolerance or acceptable alternatives. If you decide to make a change to the answers for a problem, you can also rescore any responses that were already submitted. For a specified problem, you can rescore the work submitted by a single learner, or rescore the submissions made by every enrolled learner.

Note: You can only rescore problems that have a correct answer defined in edX Studio. This procedure cannot be used to rescore open response assessment problems, or problems that are scored by an external grader.

Additionally, errors might occur if you rescore a problem that has multiple response fields and you have completed any of the following actions.

- You removed a response field.
- You added a response field.
- You reordered any of the response fields.

Note: Do not use this method to rescore open response assessment (ORA) problems. For ORA problems, you can *override a learner assessment grade* in Studio.

Rescore a Submission for an Individual Learner

To rescore a problem for a single learner, you need that learner's username or email address.

1. View the live version of your course.
2. Select **Course** and navigate to the component that contains the problem you want to rescore.
3. Display the problem, and then select **Staff Debug Info**. The Staff Debug viewer opens.
4. In the **Username** field, enter the learner's email address or username, and then select **Rescore Student Submission**. A message indicates a successful adjustment.
5. To close the Staff Debug viewer, click on the browser page outside of the viewer.

Rescore Submissions for All Learners

To specify the problem you want to rescore, you need its location identifier. See *Find the Unique Location Identifier for a Problem*. To rescore a problem:

1. View the live version of your course.
2. Select **Instructor**, and then select **Student Admin**.
3. In the **Course-Specific Grade Adjustment** section of the page, enter the unique problem location, and then select **Rescore ALL students' problem submissions**.
4. When a dialog box notifies you that the rescore process is in progress, select **OK**.

This process can take some time to complete for all enrolled learners. The process runs in the background, so you can navigate away from this page and do other work while it runs.

5. To view the results of the rescore process, select either **Show Background Task History for Student** or **Show Background Task History for Problem**.

A table displays the status of the rescore process for each learner or problem.

Note: You can use a similar procedure to rescore the submission for a problem by a single learner. You work in the **Student-Specific Grade Adjustment** section of the page to enter both the learner's email address or username and the unique problem identifier, and then select **Rescore Student Submission**.

Reset Learner Attempts for a Problem

When you create a problem, you can limit the number of times that a learner can try to answer that problem correctly. If unexpected issues occur for a problem, you can reset the value for one particular learner's attempts back to zero so that the learner can begin work over again. If the unexpected behavior affects all of the learners in your course, you can reset the number of attempts for all learners to zero.

Note: You cannot use this method with open response assessment (ORA) problems. To allow a learner to start an ORA problem again and resubmit responses, you must *delete the learner's state*.

Reset Attempts for an Individual Learner

To reset the number of attempts for a single learner, you need that learner's username or email address.

1. View the live version of your course.
2. Select **Course** and navigate to the component that contains the problem you want to reset.
3. Display the problem, and then select **Staff Debug Info**. The Staff Debug viewer opens.
4. In the **Username** field, enter the learner's email address or username, and then select **Reset Student Attempts**. A message indicates a successful adjustment.
5. To close the Staff Debug viewer, click on the browser page outside of the viewer.

Reset Attempts for All Learners

To reset the number of attempts that all enrolled learners have for a problem, you need the unique identifier of the problem. For more information, see *Find the Unique Location Identifier for a Problem*.

To reset attempts for all learners, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Student Admin**.
3. To reset the number of attempts for all enrolled learners, you work in the **Course-Specific Grade Adjustment** section of the page. Enter the unique problem location, and then select **Reset ALL students' attempts**.
4. A dialog opens to indicate that the reset process is in progress. Select **OK**.

This process can take some time to complete. The process runs in the background, so you can navigate away from this page and do other work while it runs.
5. To view the results of the reset process, select either **Show Background Task History for Student** or **Show Background Task History for Problem**.

A table displays the status of the reset process for each learner or problem.

Note: You can use a similar procedure to reset problem attempts for a single learner. You work in the **Student-Specific Grade Adjustment** section of the page to enter both the learner's email address or username and the unique problem identifier, and then select **Reset Student Attempts**.

Delete a Learner's State for a Problem

You can completely delete a learner's database history, or "state", for a problem. You can only delete learner state for one learner at a time.

For example, you realize that a problem needs to be rewritten after only a few of your learners have answered it. To resolve this situation, you rewrite the problem and then delete learner state only for the affected learners so that they can try again.

To delete a learner's entire history for a problem from the database, you need that learner's username or email address.

Important: Learner state is deleted permanently by this process. This action cannot be undone.

When you delete a learner's state for an open response assessment (ORA) problem, the learner will have to start the assignment from the beginning, including submitting responses and going through the required assessment steps.

You can use either the Staff Debug viewer or the Instructor Dashboard to delete learner state.

To use the Staff Debug viewer, follow these steps.

1. View the live version of your course.
2. Select **Course** and navigate to the component that contains the problem.
3. Display the problem, and then select **Staff Debug Info**. The Staff Debug viewer opens.
4. In the **Username** field, enter the learner's email address or username, and then select **Delete Student State**. A message indicates a successful adjustment.
5. To close the Staff Debug viewer, click on the browser page outside of the viewer.

To use the Instructor Dashboard, you need the unique identifier of the problem. See [Find the Unique Location Identifier for a Problem](#).

1. Select **Instructor**, and then select **Student Admin**.
2. In the **Student-Specific Grade Adjustment** section of the page, enter both the learner's email address or username and the unique problem identifier, and then select **Delete Student State for Problem**.

14.4 Obtaining Certificate Data

This topic describes how to access data about certificates that have been issued for a course.

- [Access Certificate Data](#)
 - [Columns in the Certificate Report](#)

For more information, see the following other topics about certificates.

- [Setting Up Course Certificates](#)
- [Assign Final Grades and Issue Certificates](#)

14.4.1 Access Certificate Data

From the Instructor Dashboard, you can view data about the certificates that have been issued for your course. You can also download a .csv (comma-separated values) file with the certificate data.

View Certificate Data

To view certificate data, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.

3. Select **View Certificates Issued**.

A table of certificate data is displayed, with one row for each type of certificate issued. For more information on the contents of this report, see *Columns in the Certificate Report*.

Download Certificate Data

To download certificate data, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Data Download**.
3. Select **Download CSV of Certificates Issued**.

The CSV file is downloaded to your computer.

For more information on the contents of this file, see *Columns in the Certificate Report*.

14.4.2 Columns in the Certificate Report

The certificate report includes a row for each type of certificate issued for the course.

Column	Description
CourseID	The unique ID of the course for which you are viewing certificate data.
Certificate Type	The type of certificate issued. For example, Verified or Honor.
Total Certificates Issued	The number of certificates of the specific type that have been issued to learners as of the report date.
Date Report Run	The date the report was created.

14.5 Assign Final Grades and Issue Certificates

This topic describes how to assign grades and issue certificates to learners in your course.

- *Overview*
- *On-Demand Certificates*
- *Generate Certificates*

For more information, see the following other topics about certificates.

- *Setting Up Course Certificates*
- *Obtaining Certificate Data*

14.5.1 Overview

As you prepare for the end of your course, you can send learners a *course farewell* email message.

To assign a final grade to each learner enrolled in a course, you generate grades after the **Course End Date** and **Time** have passed. For more information, see *Generate a Grade Report for Enrolled Learners (All Courses)*.

The learner's final grade and the grading configuration you set in Studio are used to determine whether the learner has earned a certificate for the course.

14.5.2 On-Demand Certificates

If you have a self-paced course, you can allow your learners to request their certificates as soon as they have completed enough of the course with a high enough grade to qualify for a certificate. Learners might want to request a certificate right away, or they might wait until they have completed the course.

Allow Learners to Request Certificates

To allow learners to request certificates from the **Progress** page, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Certificates**.
3. Select **Enable Student-Generated Certificates**.

When they have qualified, learners can request their certificates from the Progress page.

To prevent learners from requesting certificates, select **Disable Student-Generated Certificates**.

Note: If you do not allow learners to request certificates, you must *generate certificates*.

Communicate to Learners about Requesting Certificates

If your course offers on-demand certificates, we encourage you to include this information on your course About page, on the **Home** page, and in communication with your learners.

Allow Learners to Download Certificates when they Qualify

To allow learners to download certificates from the dashboard when they qualify for them, you must modify the **Certificates Display Behavior** advanced setting in Studio.

1. From the **Settings** menu, select **Advanced Settings**.
2. On the **Advanced Settings** page, locate **Certificates Display Behavior**.
3. In the **Certificates Display Behavior** field, enter "early_no_info". Be sure that you include the double quotation marks.
4. Select **Save Changes**.

14.5.3 Generate Certificates

Unless you *allow learners to request certificates* in a self-paced course, you must generate certificates.

To generate certificates, follow these steps.

1. View the live version of your course.
2. Select **Instructor**, and then select **Certificates**.
3. Select **Generate Certificates**.

Learners who have qualified can now view their certificates on the dashboards.

Re-running Your Course

Use the topics in this section to learn about re-running your course.

For information on how to develop your course content in the Studio Outline, see *Developing Your Course*.

15.1 Re-running a Course

Another way to create a course in Studio is to re-run an existing course. When you re-run a course, most, but not all, of the original course content is duplicated to the new course. The original course is not changed in any way.

- *Data Duplicated When You Re-Run a Course*
- *Using Re-Run to Create a Course*
- *Update the New Course*

15.1.1 Data Duplicated When You Re-Run a Course

Type of Content	Duplicated to New Course?
Course start date	No. Set to midnight on January 1, 2030 (UTC).
All other course dates	Yes. You must update all release dates and due dates.
Course structure (sections, subsections, units) and state (published, hidden)	Yes.
Individual problems and other components	Yes.
Files uploaded to the course, including videos and textbooks	Yes.
Pages added to the course	Yes, including all page content and the defined page order.
Course Updates	Yes.
Advanced Settings	Yes.
Grading policy	Yes.
Student enrollment data	No.
Course team privileges, including admins, discussion moderators, beta testers	No. Only the user who created the new course has access to it.
Manually created cohorts	No.
Student answers, progress, and grading data	No.
Certificates	Yes.
Discussion posts, responses, comments, and other data	No.
Wiki contributions	No.

After you re-run a course, modifications to the original course and the re-run course are independent. Changes to either course have no effect on the other course. Therefore, you should ensure that the original course content is as complete as possible before you re-run the course.

For more information, see [Using Re-Run to Create a Course](#) and [Update the New Course](#).

15.1.2 Using Re-Run to Create a Course

Only global or system administrators have the permissions needed to re-run a course. To re-run a course, contact your system administrator. After your system administrator creates a new course using the re-run feature, you can complete the steps to [update the new course](#).

Note: Before you re-run a course, make sure that its settings and content are complete. Additions and changes that you make to the original course after you create the new course have no effect on the new course.

15.1.3 Update the New Course

When you create a course by re-running another course, you must carefully review the settings and content of the new course. To assure a quality experience for learners, be sure to test the course thoroughly before the course start date. See [Testing Your Course Content](#) and [Beta Testing a Course](#).

At a minimum, you must make the following changes to prepare the new course for release.

- Add course team members, including discussion admins, moderators, and community TAs. See [Add Course Team Members](#) or [Staffing](#).
- Update course-wide dates, including course and enrollment start and end dates. See [Setting Start and End Dates](#).
- Change the release dates of course sections, subsections, and units. See [Release Dates](#).

- Change the due dates of subsections that are part of your grading policy. See *Set the Assignment Type and Due Date for a Subsection*.
- Delete or edit posts on the **Course Updates** page in Studio. See *Add a Course Update*.
- Review the files on the **Files & Uploads** page. To update a file that contains references to course-related dates, you must complete the following steps.
 1. Locate the source file.
 2. Change course-related dates in the file.
 3. Upload the revised version of the file.

Note: If you use the same file name when you upload a revised file, links to that file in course components and course handouts will continue to work correctly. If you rename a file and then upload it, you must also update all links to the original file name. See *Identify a Course Handout* or *Add a Link to a File*.

- Review the staff biographies and other information on the course summary page and make needed updates. See *The Course About Page*.
- Create initial posts for discussion topics and an “introduce yourself” post. See *Managing Course Discussions*.
- Add initial wiki articles.
- For a course that includes *learner cohorts*, set up the cohorts and select a strategy for assigning learners to the cohorts.
- For a course that includes drag and drop problems, replace any problems created prior to April 2016, with the newer drag and drop problem component, which is accessible and mobile ready. For more information about enabling the new drag and drop problem type and adding these problems to your course, see *Drag and Drop Problem*.

You can also refer to the *Course Launching Activities* topic for tools and ideas that help you prepare the course for launch.

Note: Changes you make in the new course have no effect on the original course.

Glossary

A - C - D - E - F - G - H - I - K - L - M - N - O - P - R - S - T - V - W - XYZ

Note: Most of the links to documentation provided in this glossary are to the [Building and Running an edX Course](#) guide, for edX partners. Many of the same topics are available in the Open edX version of this guide, [Building and Running an Open edX Course](#).

16.1 A

A/B Test

See [Content Experiment](#).

About Page

The course page that provides potential learners with a course summary, prerequisites, a course video and image, and important dates.

For more information, see [The Course About Page](#).

Accessible Label

In a problem component, you use special formatting to identify the specific question that learners will answer by selecting options or entering text or numeric responses.

This text is referred to as the accessible label because screen readers read all of the text that you supply for the problem and then repeat the text that is identified with this formatting immediately before reading the answer choices for the problem. This text is also used by reports and Insights to identify each problem.

All problems require accessible labels.

For more information, see [The Simple Editor](#).

Advanced Editor

An XML-only editor in a problem component that allows you to create and edit any type of problem. For more information, see [The Advanced Editor](#).

Assignment Type

The category of graded student work, such as homework, exams, and exercises. For more information, see [Establishing a Grading Policy For Your Course](#).

16.2 C

CAPA Problem

A “Computer Assisted Personalized Approach” (CAPA) problem refers to any of the problem types that are implemented in the edX platform by the `capa_module` XBlock. Examples range from text input, drag and drop, and math expression input problem types to circuit schematic builder, custom JavaScript, and chemical equation problem types.

Other assessment methods are also available, and implemented using other XBlocks. An open response assessment is an example of a non-CAPA problem type.

Certificate

A document issued to an enrolled learner who successfully completes a course with the required passing grade. Not all edX courses offer certificates, and not all learners enroll as certificate candidates. For information about setting up certificates for your course, see [Setting Up Course Certificates](#).

Chapter

See [Section](#).

Checkbox Problem

A problem that prompts learners to select one or more options from a list of possible answers. For more information, see [Checkbox Problem](#).

Chemical Equation Response Problem

A problem that allows learners to enter chemical equations as answers. For more information, see [Chemical Equation Problem](#).

Circuit Schematic Builder Problem

A problem that allows learners to construct a schematic answer (such as an electronics circuit) on an interactive grid. For more information, see [Circuit Schematic Builder Problem](#).

Closed Captions

The spoken part of the transcript for a video file, which is overlaid on the video as it plays. To show or hide closed captions, you select the **CC** icon. You can move closed captions to different areas on the video screen by dragging and dropping them.

For more information, see [Watching Videos on the edX Video Player](#).

Cohort

A group of learners who participate in a class together. Learners who are in the same cohort can communicate and share experiences in private discussions.

Cohorts are an optional feature of courses on the edX platform. For information about how you enable the cohort feature, set up cohorts, and assign learners to them, see [Using Cohorts in Your Courses](#).

Component

The part of a unit that contains your actual course content. A unit can contain one or more components. For more information, see [Developing Course Components](#).

Content Experiment

You can define alternative course content to be delivered to different, randomly assigned groups of learners. Also known as A/B or split testing, you use content experiments to compare the performance of learners who have been exposed to different versions of the content. For more information, see [Overview of Content Experiments](#).

Content Library

See [Library](#).

Content-Specific Discussion Topic

A category within the course discussion that appears at a defined point in the course to encourage questions and conversations. To add a content-specific discussion topic to your course, you add a discussion component to a unit. Learners cannot contribute to a content-specific discussion topic until the release date of the section that contains it. Content-specific discussion topics can be divided by cohort, so that learners only see and respond to posts and responses by other members of the cohort that they are in.

For more information, see [Working with Discussion Components](#). For information about making content-specific discussion topics divided by cohort, see [Setting up Discussions in Courses with Cohorts](#).

Course Catalog

The page that lists all courses offered in the edX learning management system.

Course Handouts

Course handouts are files you make available to learners on the **Home** page. For more information, see [Adding Course Updates and Handouts](#).

Course Navigation Pane

The navigation frame that appears at one side of the **Course** page in the LMS. The course navigation pane shows the sections in the course. When you select a section, the section expands to show subsections. When you select a subsection, the first unit in that subsection appears on the course page.

See also [Unit Navigation Bar](#).

Course Run

The term or time frame in which a specific offering of your course takes place. You set the course run when you create your course. For more information, see [Creating a Course](#).

Course Page

The page where learners access the primary instructional materials for your course. Sections, subsections, units, and components are all accessed from the **Course** page. This page was formerly called the **Courseware** page.

Courseware

In Open Learning XML (OLX) and in data packages, “courseware” refers to the main content of your course, consisting mainly of lessons and assessments. Courseware is organized into sections, subsections, units, and components. Courseware does not include handouts, the syllabus, or other course materials.

Note that the **Course** page was formerly called the **Courseware** page.

Course-Wide Discussion Topic

Optional discussion categories that you create to guide how learners find and share information in the course discussion. Course-wide discussion topics are accessed from the **Discussion** page in your course. Examples of course-wide discussion topics include Announcements and Frequently Asked Questions. Learners can contribute to these topics as soon as your course starts. For more information, see [Managing Course Discussions](#) and [Create Course-Wide Discussion Topics](#).

If you use cohorts in your course, you can divide course-wide discussion topics by cohort, so that although all learners see the same topics, they only see and respond to posts and responses by other members of the cohort that they are in. For information about configuring discussion topics in courses that use cohorts, see [Setting up Discussions in Courses with Cohorts](#).

Custom Response Problem

A custom response problem evaluates text responses from learners using an embedded Python script. These problems are also called “write-your-own- grader” problems. For more information, see [Write-Your-Own-Grader Problem](#).

16.3 D

Data Czar

A data czar is the single representative at a partner institution who is responsible for receiving course data from edX, and transferring it securely to researchers and other interested parties after it is received.

For more information, see the [EdX Research Guide](#).

Discussion

The set of topics defined to promote course-wide or unit-specific dialog. Learners use the discussion topics to communicate with each other and the course team in threaded exchanges. For more information, see [Managing Course Discussions](#).

Discussion Component

Discussion topics that course teams add directly to units. For example, a video component can be followed by a discussion component so that learners can discuss the video content without having to leave the page. When you add a discussion component to a unit, you create a content-specific discussion topic. See also [Content Specific Discussion Topic](#).

For more information, see [Working with Discussion Components](#).

Discussion Thread List

The navigation frame that appears at one side of the **Discussion** page in the LMS. The discussion thread list shows the discussion categories and subcategories in the course. When you select a category, the list shows all of the posts in that category. When you select a subcategory, the list shows all of the posts in that subcategory. Select a post to read it and its responses and comments, if any.

Dropdown Problem

A problem that asks learners to choose from a collection of answer options, presented as a drop-down list. For more information, see [Dropdown Problem](#).

16.4 E

edX101

An online course about how to create online courses. The intended audience for [edX101](#) is faculty and university administrators.

edX Edge

[edX Edge](#) is a less restricted site than edX.org. While only edX employees and consortium members can create and post content on edX.org, any users with course creator permissions for Edge can create courses with Studio on [studio.edge.edx.org](#), then view the courses on the learning management system at [edge.edx.org](#).

edX Studio

The edX tool that you use to build your courses. For more information, see [Getting Started with Studio](#).

Embargo

An embargo is an official ban on trade or commercial activity with a particular country. For example, due to U.S. federal regulations, edX cannot offer certain courses (for example, particular advanced STEM courses) on the [edx.org](#) website to learners in embargoed countries. Learners cannot access restricted courses from an embargoed country. In some cases, depending on the terms of the embargo, learners cannot access any edX courses at all.

Exercises

Practice or practical problems that are interspersed in edX course content to keep learners engaged. Exercises are also an important measure of teaching effectiveness and learner comprehension. For more information, see [Adding Exercises and Tools](#).

Export

A tool in edX Studio that you use to export your course or library for backup purposes, or so that you can edit the course or library directly in XML format. See also [Import](#).

For more information, see [Export a Course](#) or [Export a Library](#).

16.5 F

Forum

See [Discussion](#).

16.6 G

Grade Range

Thresholds that specify how numerical scores are associated with grades, and the score that learners must obtain to pass a course.

For more information, see [Set the Grade Range](#).

Grading Rubric

See [Rubric](#).

16.7 H

Home Page

The page that opens first every time learners access your course. You can post announcements on the **Home** page. The handout navigation sidebar appears at the side of this page. This page was formerly called the **Course Info** page.

HTML Component

A type of component that you can use to add and format text for your course. An HTML component can contain text, lists, links, and images. For more information, see [Working with HTML Components](#).

16.8 I

Image Mapped Input Problem

A problem that presents an image and accepts clicks on the image as an answer. For more information, see [Image Mapped Input Problem](#).

Import

A tool in edX Studio that you use to load a course or library in XML format into your existing course or library. When you use the Import tool, Studio replaces all of your existing course or library content with the content from the imported course or library. See also [Export](#).

For more information, see [Import a Course](#) or [Import a Library](#).

16.9 K

Keyword

A variable in a bulk email message. When you send the message, a value that is specific to the each recipient is substituted for the keyword.

16.10 L

Label

See [Accessible Label](#).

LaTeX

A document markup language and document preparation system for the TeX typesetting program. In edX Studio, you can [Import LaTeX Code into an HTML Component](#).

Learning Management System (LMS)

The platform that learners use to view courses, and that course team members use to manage learner enrollment, assign team member privileges, moderate discussions, and access data while the course is running.

Learning Sequence

See [Unit Navigation Bar](#).

Left Pane

See [Course Navigation Pane](#).

Library

A pool of components for use in randomized assignments that can be shared across multiple courses from your organization. Course teams configure randomized content blocks in course outlines to reference a specific library of components, and randomly provide a specified number of problems from that content library to each learner.

For more information, see [Working with Content Libraries](#) and [Randomized Content Blocks](#).

Live Mode

A view that allows the course team to review all published units as learners see them, regardless of the release dates of the section and subsection that contain the units. For more information, see [View Your Live Course](#).

LON-CAPA

The LearningOnline Network with Computer-Assisted Personalized Approach e-learning platform. The structure of CAPA problem types in the edX platform is based on the [LON-CAPA](#) assessment system, although they are not compatible.

See also [CAPA Problems](#).

16.11 M

Math Expression Input Problem

A problem that requires learners to enter a mathematical expression as text, such as $e=mc^2$.

For more information, see [Entering Mathematical and Scientific Expressions](#) in the *EdX Learner's Guide*.

MathJax

A LaTeX-like language that you use to write equations. Studio uses MathJax to render text input such as x^2 and $\sqrt{x^2-4}$ as “beautiful math.”

For more information, see [A Brief Introduction to MathJax in Studio](#).

Module

An item of course content, created in an XBlock, that appears on the **Course** page in the edX learning management system. Examples of modules include videos, HTML-formatted text, and problems.

Module is also used to refer to the structural components that organize course content. Sections, subsections, and units are modules; in fact, the course itself is a top-level module that contains all of the other course content as children.

Multiple Choice Problem

A problem that asks learners to select one answer from a list of options. For more information, see [Multiple Choice Problem](#).

16.12 N

Numerical Input Problem

A problem that asks learners to enter numbers or specific and relatively simple mathematical expressions. For more information, see [Numerical Input Problem](#).

16.13 O

Open Response Assessment

A type of assignment that allows learners to answer with text, such as a short essay and, optionally, an image or other file. Learners then evaluate each others' work by comparing each response to a [rubric](#) created by the course team.

These assignments can also include a self assessment, in which learners compare their own responses to the rubric, or a staff assessment, in which members of course staff evaluate learner responses using the same rubric.

For more information, see [Open Response Assessments](#).

16.14 P

Pages

Pages organize course materials into categories that learners select in the learning management system. Pages provide access to the course content and to tools and uploaded files that supplement the course. Links to each page appear in the course material navigation bar.

For more information, see [Adding Pages to a Course](#).

Partner Manager

Each EdX partner institution has an edX partner manager. The partner manager is the primary contact for the institution's course teams.

Pre-Roll Video

A short video file that plays before the video component selected by the learner. Pre-roll videos play automatically, on an infrequent schedule.

For more information, see [Adding a Pre-Roll Video to Your edX Course](#).

Preview Mode

A view that allows you to see all the units of your course as learners see them, regardless of the unit status and regardless of whether the release dates have passed.

For more information, see [Preview Course Content](#).

Problem Component

A component that allows you to add interactive, automatically graded exercises to your course content. You can create many different types of problems.

For more information, see [Working with Problem Components and Adding Exercises and Tools](#).

Progress Page

The page in the learning management system that shows learners their scores on graded assignments in the course. For more information, see [Checking Your Progress in a Course](#) in the *EdX Learner's Guide*.

16.15 Q

Question

A question is a type of post that you or a learner can add to a course discussion topic to bring attention to an issue that the discussion moderation team or learners can resolve.

For more information, see [Managing Course Discussions](#).

16.16 R

Research Data Exchange (RDX)

An edX program that allows participating partner institutions to request data for completed edx.org courses to further approved educational research projects. Only partner institutions that choose to participate in RDX contribute data to the program, and only researchers at those institutions can request data from the program.

For more information, see [Research Data Exchange](#).

Rubric

A list of the items that a learner's response should cover in an open response assessment. For more information, see the [Rubric](#) topic in [Open Response Assessments](#).

See also *Open Response Assessment*.

16.17 S

Section

The topmost category in your course outline. A section can represent a time period or another organizing principle for course content. A section contains one or more subsections.

For more information, see [Developing Course Sections](#).

Sequential

See *Subsection*.

Short Course Description

The description of your course that appears on the edX [Course List](#) page.

For more information, see [Describe Your Course](#).

Simple Editor

The graphical user interface in a problem component that contains formatting buttons and is available for some problem types. For more information, see [Editing a Problem in Studio](#).

Split Test

See *Content Experiment*.

Subsection

A division in the course outline that represents a topic in your course, such as a lesson or another organizing principle. Subsections are defined inside sections and contain units.

For more information, see [Developing Course Subsections](#).

16.18 T

Text Input Problem

A problem that asks learners to enter a line of text, which is then checked against a specified expected answer.

For more information, see [Text Input Problem](#).

Transcript

A text version of the content of a video. You can make video transcripts available to learners.

For more information, see [Step 2. Create or Obtain a Video Transcript in Working with Video Components](#).

16.19 U

Unit

A unit is a division in the course outline that represents a lesson. Learners view all of the content in a unit on a single page.

For more information, see [Developing Course Units](#).

Unit Navigation Bar

The horizontal control that appears at the top of the **Course** page in the LMS. The unit navigation bar contains an icon for each unit in the selected subsection. When you move your pointer over one of these icons, the name of the unit appears. If you have bookmarked a unit, the unit navigation bar includes an identifying flag above that unit's icon.

See also [Course Navigation Pane](#).

16.20 V

Vertical

See [Unit](#).

Video Component

A component that you can use to add recorded videos to your course.

For more information, see [Working with Video Components](#).

16.21 W

Whitelist

In edX courses, a whitelist is a list of learners who are being provided with a particular privilege. For example, whitelisted learners can be specified as being eligible to receive a certificate in a course, regardless of whether they would otherwise have qualified based on their grade.

In the grade report for a course, whitelisted learners have a value of “Yes” in the **Certificate Eligible** column, regardless of the grades they attained. For information about the grade report, see [Interpreting the Grade Report](#).

Wiki

The page in each edX course that allows both learners and members of the course team to add, modify, or delete content. Learners can use the wiki to share links, notes, and other helpful information with each other. For more information, see [Using the Course Wiki](#).

16.22 XYZ

XBlock

EdX's component architecture for writing course components: XBlocks are the components that deliver course content to learners.

Third parties can create components as web applications that can run within the edX learning management system. For more information, see [Open edX XBlock Tutorial](#).

XSeries

A set of related courses in a specific subject. Learners qualify for an XSeries certificate when they pass all of the courses in the XSeries. For more information, see [XSeries Programs](#).