



How to Create, Deliver and Manage Online Exams

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About Academic Integrity

Online learning tools have evolved tremendously over the last twenty years and have enhanced the teaching experience for instructors and learning experiences for students. They have helped countless students succeed and made education more accessible to millions of students. And with today's necessity of distance learning, online learning tools have become a critical piece of education around the world.

Many instructors are asking the question of how to deliver the same level of academic rigor and quality in the online environment. One place where the online environment can really fall short compared to live teaching is when it comes time to do assessments. It is challenging to give quizzes, tests and exams to your students online and prevent cheating because you can't monitor your students in the same way you can in a classroom environment.

However, by using the built-in tools in OWLv2 along with other technology if you choose there are still a lot of ways you can maintain academic integrity in your exams. We acknowledge that it's impossible to eliminate all cheating, but there's a lot we can do to reduce it.

This document gives an overview of the best practices, tips, techniques and how-to steps for creating and managing exams in OWLv2.

Online Proctoring

When an exam is given in a classroom or testing center, certain rules and monitoring are put in place to ensure that academic integrity is maintained throughout the testing process. Generally students can't bring anything into the testing room besides their writing instruments and calculators. Books and backpacks must be stowed. Cell phones are turned off and for large classes student IDs are checked to ensure the intended student is actually the one taking the exam.

It is very difficult to maintain this level of scrutiny in an online environment but there are many online proctoring services that try to replicate this kind of monitoring. And online proctoring is the solution that most instructors think of first when they think of giving online exams in a secure way. Online proctoring simply means the use of webcams and browser monitoring tools to observe the student while they work – basically watching them remotely to ensure they aren't cheating.

Each service works a little differently and can take a lot of different forms. The most secure services have students set an appointment time to take the exam, show their student ID, get verified and then get watched by a live proctor for the duration of their online exam. Special web browser tools are used to "lock down" the student's browser so the proctor can observe not only the student while they take the exam, but also the student's computer screen to ensure that only the test material is being viewed. Sometimes these sessions are monitored by a trained person in real time and other times the session is recorded and software is used to scan for visual anomalies like extra people in the background or voices or even sideways glances off camera that could indicate cheating. Other less robust services just offer a portion of full monitoring such as only locking down the browser or using just the web camera to monitor the student using technology, but no involvement of a live proctor.

The biggest advantage of online proctoring services is that each student gets monitored in some way while they take their exam. The drawback is that online proctoring services can be cumbersome to set

up and can be expensive. Generally the more robust and secure the monitoring is, the more expensive it will be. For example, for a full proctoring service with ID verification and live monitoring the cost per student per exam can be as high as \$25. Another emerging problem with these services is privacy concerns. Because each proctoring service essentially asks the student to be watched and recorded in their own homes, some schools are trying to figure out how to maintain privacy while still requiring proctoring service.

Below is matrix showing some of the third party services to monitor students while they take an exam that have been tested with OWLv2. If you don't see your system here please contact your proctoring service support to run tests to see if it works with OWLv2 and your Learning Management System.

Proctoring Solutions Matrix



Platform	LMS Configuration	Respondus Monitor	ProctorU	Proctorio	Examity	Honorlock	Honorlock (3 rd party exam)
OWLv2	Standalone (no LMS in use)	✗	✓	Not supported by vendor	✗	Not supported by vendor	Not supported by vendor
	Canvas	✓	NYT	✓	✓	✓	✗
	Blackboard (classic)	✓	NYT	✓	NYT	✗	✗
	Blackboard (ultra)	✓	NYT	Not supported by vendor	NYT	Not supported by vendor	Not supported by vendor

Many schools have ongoing licenses with companies that provides these services. If you are interested in proctoring the **first step is to check with your institution to see if your school already has a policy for proctoring and an existing school wide contract.** Because if they do, this will likely be your easiest and most cost effective option.

HINT: All proctoring services will need you to work with them in advance to set up your exam and may require the students to set up appointments. So, if you're planning on using a third party service it's a good idea to start planning for your exam at least a month in advance so you know everything will go smoothly on exam day.

All of the following techniques in this manual can be used with proctoring services, but they also work well as standalone techniques online proctoring isn't available for you and your students. Online proctoring isn't absolutely necessary to delivery exams with integrity!

How To Build an Exam in OWLv2

From your **Assignments** tab click **Create Assignment**.

Choose **Test** for the type of assignment and click **Continue**.

- Mastery
- Activities, Problems, and/or EOCs
- Test
- Readings (not graded)
- Quick Prep
- Adaptive Study Plan
- External Web Link

Choose a name and available date and due date for your test and click **Continue**. (Example: Final Exam or MidTerm Exam or Quiz 1)

Test Name: *

Test Available On: *

Test Due On:

Test Unavailable On: Same as Due Date

Allow students to use this assignment for practice?

Yes, but only after the unavailable date;

And yes, immediately after their final submission of the assignment for grading.

Have the exam available for a short period of time. For example, have your 1-hour exam available during a 1.5 hour time window rather than a 24 hour time window. This helps reduce the possibility of the question content being shared between students. Uncheck the Practice options.

Choose the chapter/s and section/s you want to draw questions from by putting a checkmark next to them. Move questions from the Available list to the Included Questions list to add content to your test. Preview questions in the bottom window.

Choose Content Source

From: Brown/Iverson/Anslyn/Foote: Organic Chemistry, 8th Edition

- Brown/Iverson: Organic Chemistry (Test), 8e (browoc08t)**
 - Chapter 1 - Covalent Bonding and Shapes of Molecules**
 - Chapter 2 - Alkanes and Cycloalkanes**
 - Chapter 3 - Stereoisomerism and Chirality**
 - Chapter 4 - Acids and Bases**
 - Chapter 5 - Alkenes: Bonding, Nomenclature, and Properties**
 - Chapter 6 - Reactions of Alkenes**
 - Chapter 7 - Alkynes**
 - Chapter 8 - Haloalkanes, Halogenation, and Radical Reactions**
 - Chapter 9 - Nucleophilic Substitution and β -Elimination**

Available Questions (50 questions)

Chemical and Physical Change: Particulate	Diff: 1	00:25
Classify Pure Substances: Particulate	Diff: 3	00:41
Classify Pure Substances from Names: Macroscopic	Diff: 2	00:38
Classify Pure Substances & Mixtures: Particulate	Diff: 2	01:55
Classify Mixtures: Macroscopic	Diff: 1	01:21
Pure Substances & Mixtures: Macroscopic	Diff: 2	01:54
Subatomic Particles	Diff: 1	00:44
Monatomic Ions: Name and Formula	Diff: 3	03:57
Writing Ionic Formulas: Binary	Diff: 2	02:17
Naming Ionic Compounds: Transition Metal Cations	Diff: 3	03:33
Writing Ionic Formulas: Transition Metal Cations	Diff: 3	03:02

Include Selected >>
<< Exclude Selected

Include All >>
<< Exclude All

Show previews in lists

Included Questions (20 questions)

Naming Covalent Compounds	Edit Details	Diff: 3	02:38
Naming Hydrates	Edit Details	Diff: 3	03:27
Chemical Equations: Balancing (2 Reactants...	Edit Details	Diff: 2	03:13
Elements: Calculate Moles from Mass	Edit Details	Diff: 1	04:17
Ionic Compounds: Calculate Grams from Mol...	Edit Details	Diff: 2	08:49
Covalent Compounds: Calculate Mass Perce...	Edit Details	Diff: 2	02:04
Percent Composition to Formulas	Edit Details	Diff: 3	05:38
Percent Yield	Edit Details	Diff: 3	06:45
Write NIE from Molecular: Carbonate or Phos...	Edit Details	Diff: 2	09:41
Oxidation States	Edit Details	Diff: 3	04:11
Chemical Equations: Combination Reactions	Edit Details	Diff: 2	00:44
Average Difficulty: 2		Average Completion Time: 01:26:47	

[\[References\]](#) [\[Report Content Error\]](#)

Use the References to access important values if needed for this question.

1. How many **GRAMS** of **ammonium chromate** are present in **2.68** moles of this compound ? grams.

2. How many **MOLES** of **ammonium chromate** are present in **4.91** grams of this compound ? moles.

Look for the bolded values in questions. This indicates algorithmic variation where the chemicals and numbers change for each student, each attempt. This is the BEST anti cheating technology available because it greatly reduces the possibility that the answer can be posted online since there are multitudes of variations. Also, students can't share answers even if they are taking the same

Choose enough questions that the exam is very challenging. If students are going online or combing through their textbook looking for answers they will run out of time and will score poorly. As you build your exam in OWLv2, look to the average time per question in the assignment builder to gauge the amount of content you're including.

When finished, click **Done**.

On the Assignment Options page, notice that there are some extra options that aren't available for regular OWL assignments. You can set the assignment to be more than 1 Take allowed and have the Best Score be saved from all the student's takes as well as set a time limit. Below are our recommended settings.

Edit Test Options for the Test: Final Exam - Assignment Options

Apply Option Set: **Default Test Set** Current Option Set: Custom Set

Update Set

Rename Set

Delete Set

Save As New Set

Assignment Takes

Takes allowed

1

In most cases this will be set to "1" to allow only one take.

Time allowed per take

45 Minutes

Unlimited

Set the time limit for the exam. The clock will start as soon as the student opens the exam and the student will see a countdown clock within their take.

When time allowed per take is Unlimited, allow students to save assignment and resume later.

Yes

No

Only available for Unlimited time, this allows students to exit the exam and resume it at a later time.

Restrictions

Password to take assignment

Usually a password and prerequisite are not used. Instead, access is controlled by the Available date where the exam isn't available until a specific date and time.

Prerequisite

Select a condition:

No prerequisite

Grading

Possible Score

100.0 Points

Not Graded Each question in the exam will be worth 1 point by default and can be seen as "points" or a "percentage" in the OWLv2 gradebook, just like all other assignments. Click Edit next to an assignment then Edit Assignment Content and Edit Details to change the weight of individual questions.

Scoring when multiple assignment takes are allowed

Best Score

Generally only use this when more than one take is allowed. For example, an instructor may want to give students 2 tries at the exam and the best score will feed into the gradebook.

Curve Factor of:

100.0 %

Most instructors leave this at 100% and add any curves in their LMS when calculating final grades, but you can set a curve here if desired.

Pass/Fail at:

%

Use to set a threshold for pass/fail grading. Scores will reflect in Gradebook as the words PASS or FAIL for each student.

Extra credit

No

Yes

Questions

Regenerate algorithmic questions

Most instructors choose regenerated algorithmic questions

- For each student and each take
- For each student on first take only
- Never

Question attempt limit

1

Recommend leaving this at 1 attempt for exams.

Feedback during Assignment

Show hints

- No
- Yes

Show correct/incorrect

No

Show feedback

No

Generally we recommend turning off ALL feedback and setting all options to NO so no feedback is given during the exam

Feedback after Assignment

Show overall assignment score

- Never
- Immediately after assignment take
- Beginning

This will show the student their score immediately after submission of the exam. Student will only be able to see the score but no exam details.

Plus, show question details, student responses and question scores.

- Never
- Immediately after assignment take
- Beginning

Mar 14, 2020 12:00 AM

Generally we recommend setting these two options to show on the date and time the exam is due for the whole class. Let your students know what date you enter here so they can check their work and see what they got wrong.

Plus, show correct answers and feedback.

- Never
- Immediately after assignment take
- Beginning

Mar 14, 2020 12:00 AM

Cancel

Save Changes

Managing Exam Day

To help make your online exam successful, good communication with students is key so they know what to expect. An email template is provided below that you can fill in with your own details. Feel free to modify to meet your needs.

Dear Students,

Your final exam will be given **online** using Cengage OWLv2.

The exam will be available at **(insert time)** and you have **(xx minutes)** to complete the exam from the time you open it.

Please read this important information and tips for a successful online exam session.

BEFORE THE EXAM

- Prepare for this exam as you normally would for an in-person exam. Study adequately! Although there are no enforced restrictions on using other materials during the exam this is NOT an open book exam. If you don't know the material you will not be able to finish the exam in the allotted time and will likely score poorly.
- Get yourself to a quiet location with a strong and stable internet connection well **before** the exam start time. Make sure your computer is plugged in or charged up and ready to go. Retakes will NOT be provided for technical issues.
- Have a pen, paper and calculator ready
- Visit the bathroom prior to the exam and have all your materials and food/drinks you want ready
- [Insert your favorite tips here on how or what students should study]

DURING THE EXAM

- Questions may only allow one submission so check your work carefully before clicking the submit buttons!
- Be sure to follow significant figure rules in all of your OWLv2 answers. Using the wrong number of significant figures means your answer may be marked wrong because it will fall outside the acceptable tolerance level. (HINT: Review your significant figure rules before the exam as part of your studying!)
- A Periodic Table and other tables of reference needed to answer questions are always available to you in the References link at the top of the page while you are taking the exam.
- [Insert information about what a student should do if they have a question or problem during the exam – see more below]
- [Insert information about online proctoring if you will be using it]

AFTER THE EXAM

- Grades and correct answers will be posted at **XXX** after the quiz is due. See your score by clicking on the Grades tab in OWLv2.

You and/or your Teaching Assistants should be available during the testing window to monitor student communications during the exam. This gives students a resource if they have a problem. You could add something like this to the instructions above for problems during an exam: "If your connection goes out during the exam or you accidentally close your browser, don't panic. Simply log back in and resume the exam where you left off. If you have a *technical* issue during the exam such as a major computer crash or another large problem email them at **xxxx**. Be sure to include your name, school email and student number along with a description of what happened. Issues will be handled in the order they are received so don't keep emailing if you don't hear back right away."

Email is only one way to communicate with students during their exam. If you have the ability to set up a student Slack Channel, a chat board, texting or other way for students to immediately contact you DURING the exam that is better than email you may want to consider using it!

How to Use Zoom to Run Your Own Proctored Exam

Even without using a third party proctoring service many instructors are running successful exams by using Zoom or other web meeting technologies. This is a great anti-cheating technique because even if you're not watching each student for the whole exam duration, knowing they are on camera can reduce the temptation to cheat.

Below is an outline of how Zoom proctoring can work.

Remind students they will need to log into Zoom and will be watched during their exam. Consider having a required live session a week before the exam to go over all the details and give students an opportunity to ask questions.

Basically, students will be taking their exam on their **computer** and then will use a **second device** such as phone or table to log into the Zoom session that will act as the proctoring. The second device will allow you to watch the student and their screen during the exam.

- Have each student log into Zoom on a phone or tablet. This second device must be set up to show student, work area, and computer screen, unless they have permission to use Zoom just on their computer.
- Once all students are on zoom, have them all open chat window, then give out password for exam (you can set a password for the exam in Assignment Options)
- Instructors/TAs proctor by looking at zoom windows of sets of students for the duration of the exam. For very large lasses you may need to divide up into sets of about 50 students each.
- Use spotlight video to see 1 student of the set more closely and unmute to listen to the sound for a student if you need to chat or suspect they are talking to someone else.
- Use Zoom chat to send a message out to all or to 1 student. You can receive a message privately from 1 student in Zoom as well.

- If needed you can pull 1 student into a breakout room with you to talk privately via voice. Practice this ahead of time so you know how to use the chat, breakout room, and highlight video tools in Zoom.
- Students can send a chat if there is an accidental early submission of a question. Save the chat. Later you can adjust the student's grade manually in the gradebook to reflect the correct answer they supplied in chat.
- Be sure to keep your eye on your email or phone if students use that to contact you in case of an internet failure or computer crash where they lose the Zoom connection and chat.
- Students should send a chat message when they are done, then log out of OWL and Zoom

Special Accommodations

Some of your students may have special accommodations to take exams and be allowed extra time. This is done by making a copy of the original exam and then extending the time allowed in the copied exam. Most students get assigned the original exam but only specific students get assigned to the extra time version.

1. From your **Assignments tab** select the timed Exam that you need to adapt by putting a check mark next to it.
2. Click **Copy** at the top of the page then **Paste**. Follow the prompts to paste the copied assignments into your course.
3. Next, click on **Reorder Assignments** and find the copy of the Exam. Move it by dragging and dropping it so it appears next to the original Exam (this is an optional step, but it makes keeping track of things much easier) Save and Return.
4. Click **Edit** next to the copied Exam and choose **Edit Assignment Information**. We recommend naming it something that will distinguish this Exam from the original assignment. So, as a sample name:
Final Exam 1.5x Only available to select students
5. Click **Edit** next to the copied Exam and choose **Edit Assignment Options**. Extend the time limit on the exam.
6. Finally, you'll make the Extra Time version assigned only to select students and unassign it from the rest of the class.

Go to the **Gradebook** tab.

Choose the person icon on the right side of the page next to "Create External Gradebook Column".

Choose **Customize Assignment Options** for Specific Students.

From the drop-down menu at the top of the page select the Extra time version of the exam.

Under the Continue button change the drop down menu from 10 to 100.

Select all students and click **Continue** (Hint: Select all students at once by checking the box at the top of the name list)

In the top row for "Apply to Students Listed Below" select "**Not Assigned**" to select all students. Click **Save**.

6. Click **Gradebook** tab again.

Choose the person icon on the right side of the page next to "Create External Gradebook Column".

Choose **Customize Assignment Options** for Specific Students.

From the drop-down menu at the top of the page select the original version of the exam.

Use the Find Students window in the upper right to locate the first student who needs the extra time version.

Put a checkmark next to the name and click **Continue**

Click **Change Selected Students** then find the next student who needs the extra time version and click **Continue**. Repeat until all the students who need the extra time version have been selected and are shown in the list.

Change their status to "**Not Assigned**" and click **Save**.

7. Using the Assignment drop-down menu at the top of the page, select the Extra time version of the exam.

Click **OK** to agree to selecting the assignment.

Change the status of all students on the list to "**Assigned**" and click Save. If the Exam is only available for a short window of time extend the due time here as well. For example, if your extra time version is 90 minutes but you've only allowed the exam to be available from 8AM to 9:20AM you should extend the due time to 10AM so students can use the full 90 minutes allotted. It is always good to allow the time window to take the exam 20-50% longer than the exam time limit to account for logging in and technical issues.

HINT: Check your work by looking at the Gradebook tab. All of your extra-time students should have clock icon for the original exam indicating it is "offline" for them. And all other students in the course should have the clock icon for the extra-time exam, indicating that version is "offline" for them.

If you need help with this, contact your sales rep and ask for assistance!

Dr. Vickie Williamson's Tips for Special Accommodations and Makeup Exams Using Password Protection

- Once you have the exam completed (1 submission, password, a time limit that fits your class and the average time in OWL, and the open/close times set), then just make three or more copies.
- Use copy 1 for disability students with 1.5 times the normal time for exams
 1. Name this one something like: Exam 1- 1.5x time for select students.
 2. Change the time limit and may be the open/close times to fit

3. Verify that disability students can take their extended time after your class.
 4. Give this exam an unique password that you will email to these students just before the exam.
 5. Randomly rearrange the questions
- Use copy 2 for disability students with 2 times the normal time on exams
 1. Name this one something like: Exam 1- 2x time for select students.
 2. Continue with steps 2-5 from above
 - Use copy 3 for your makeup exam
 1. Name this one something like: Exam 1- Makeup for select students.
 2. Continue with steps 2-5 from above

Frequently Asked Questions

Can I write my own unique exam questions?

YES! Please see this link for the full authoring how-to manual.

<http://embed.widencdn.net/pdf/plus/cengage/hbtvnsokeu/owlv2-instructor-authoring-guide.pdf>

Authoring questions takes additional time so we recommend that you look at the available testbanks in OWLv2 first to see if that will fit your needs.

Are exam questions unique or will students encounter the same questions in an test that they do in homework assignments?

The available questions for exams are the Mastery questions so it is very possible that students may see a repeat of a question on an exam that they saw in a previous homework assignment. However, almost all of the questions are algorithmic variable so the chemical and number values will be different for each student for each attempt. Two students could be doing their exams side-by-side and will get different question variables. All of the variations also help prevent answers from being posted online – there are just too many variation combinations for most questions to end up posted online.

Are there any prepared tests or quizzes included in OWLv2?

Tests and quizzes are not pre-built within course templates. You will need to create your own unique test/exam assignments from scratch.

Is there a way to prevent students from moving backwards through an exam?

No, students can complete the exam questions in any order they choose.

Is it possible to let students retake tests/exams until they earn a minimum, required score?

Yes, you can set the Exam to Pass/fail grading and allow unlimited attempts to reach the required minimum score. Even without pass/fail grading you can allow students to take the exam as many times as you wish.

Can test bank questions be imported from other Cengage textbooks?

At this time, no, but we are looking into adding all End of Chapter (Apply) questions to popular textbooks' test banks for added variety. We can't offer content from other textbooks due to author royalty restrictions.

Are you able to set exams for students who cannot take exams in synchronous settings due to work, residing in a different timezone, or other approved obligations?

Yes, you can change the available and due date window for an individual student to take an exam.

- i. Go to the OWLv2 Gradebook tab
- ii. Find the student and click on the student's score in the gradebook for the exam
- iii. This will take you to the Edit Grade Details page. Click Customize Assignment Options.
- iv. Change the available date and time and the due date and time for the student and click save (HINT: Both the Due Date and Unavailable dates must be filled in. Copy and paste the date and time from the Due Date into the Unavailable Date to avoid getting an error message.)

If you need to grant a student additional time to take an exam please see the section above about "Special Accommodations"

How many different question variations are available? What are the chances that two students will get the same question?

The number of possible variations are different for each question. Questions with numerical variants generally have the most variables because the number values get pulled randomly from a range. Chemical variables can range from just a handful to dozens. For questions that have both chemical and numerical randomization, the quantity of unique variations can be in the hundreds. Organic Chemistry questions have the least variables since these often involve structures and no numbers, but there are at least four variables for recent Organic Chemistry questions.