

GETTING STARTED WITH OWL AUTHORING



Online Web Learning

Cengage Learning
and

University of Massachusetts at Amherst

**A Series of Hands-on Activities to Teach You the
Various Tools in the OWL Authoring System**

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1 INTRODUCTION

What is OWL?

OWL stands for Online Web-based Learning. Basically it is a content presentation and assessment tool. Students log into the system, choose an assignment, read any given information, and then answer questions. The questions are graded automatically by the system, and the scores are reported to the student.

OWL has 4 components: the student quiz engine, instructor tools, authoring tools, and administrative tools. All components are accessed over the web through individual logins. The quiz engine delivers the content, questions, and scores to the student. The authoring tools provide for the creation of the content material, questions, assignments, and courses, as well as management of students and grades. Administrative tools allow for the addition of new authors as well as other high-level administrative tasks.

The History

OWL was developed in the Center for Computer Based Instructional Technology (CCBIT) at the University of Massachusetts. It was created in 1996 in collaboration with the Chemistry department as a web-based replacement for the electronic homework system currently in use. Next, the department of Physics began to use OWL and furthered its development. Since then it has been revised and expanded and now is used by over 20 departments and thousands of students at the University. An additional training component is also used by the University's Department of Environmental Health and Safety for their training and certification programs. In 2001 Harcourt College Publishers (which became Thomson Learning and is now Cengage Learning) began licensing the system for use with their Chemistry textbooks.

How It Works

OWL can be accessed from any type of computer running a reasonably up-to-date web browser. The information that you author in OWL is saved in a database. There may be one or many databases set-up at your site, and you may have colleagues from your department working in the same database as you. (Each unique combination of institution, department, and textbook has its own database.) As OWL runs, information is obtained from the appropriate database, and then web pages are generated based on that information. Thus, OWL's web pages are dynamic and change as the information in the database changes.

Organization and Use of This Manual

This is a training manual. It is designed for people that will need to use OWL's authoring (instructor) tools. It is not a user manual (the Authoring Manual is available on-line in OWL by pressing the **Help** link from an authoring page), but rather a series of hands-on activities to introduce you to the various tools in the OWL authoring system. It does not explain everything in the system, but rather gives you an overview to get you started. First you'll get onto the system as a student to see what OWL looks like from a student's perspective. Next, you'll learn to get onto the system as an author, begin authoring questions, put them into assignments, and then from a student's perspective, check what you've created. But that is only half the story. When you are done with this manual, you'll need to also do the **Getting Started with OWL – Course Management** training to cover all the aspects of the instructor tools that you'll need to run your course.

Getting Started With OWL is intended to be done sequentially. The exercises are ordered and later ones depend on earlier work. You do not need to go through the whole training in one sitting, but can log out and then log back in later and continue where you were. (All your information is saved in the database in which you are working.)

Each page in the system has a *title bar* and title. There will be a *navigation bar* on the left side of the page. In addition for authors and administrators, there will sometimes be a *command bar* at the top of the page underneath the title.

This training will refer to OWL pages by their title in bold. For example, while creating and editing questions, you'll often be on the **Question Editor** page. Below are some examples of the authoring items you'll be using consistently throughout the manual.

Buttons look like this:

Questions

Command bar items and links look like this: **Edit**

When you are told to type something into the system, the words you are to type will appear like this: `type this now`. Any quote marks should be typed in as they appear. You may also be told to press **Enter**; since keyboards are different, this may be the **Return** key on your system instead.

Often, you will be told to enter a title with your initials when you are creating something. These titles need to be unique across the system. Since other authors may be working in the same database and completing these same tutorial exercises as you, your initials will make the title *unique*, or different from theirs. (You'll also then be able to tell yours from theirs!)

Before You Get Started

You should have received an email notifying you that you have been added as an instructor (author) to the system and supplying you with some general information. You will need this information before you start working through these exercises. Use the email that you received to make sure that you have the following items.

- 1) The base URL (web address) for accessing the OWL system.

OWL URL: _____

- 2) Your login and password for getting into the system.

Login: _____

Password: _____

- 3) Access to the file: `tajmahal.jpeg` (downloaded from **Getting Started** page).

Now turn this page to continue **Getting Started With OWL**.

2 Getting Into OWL

Authoring Window

Users log in on an OWL User Login page. When you log in, OWL checks to see if you are a student or an instructor. Students are presented with a student window from which they can access their assignments. Instructors are presented with an Instructor View window.

Logging In

- 1) Start your browser.
- 2) Go to the OWL URL.
- 3) Select your textbook, institution, and department.
- 4) You should see the **OWL User Login** page.
- 5) Enter your *Login*.
- 6) Enter your *Password*.
- 7) Press **LOG IN**

If you have never logged into OWL before, continue below with **First Time Information**. Otherwise, skip ahead to **Using OWL as a Student**.

First Time Information (only for initial log in)

The first time that you log in, you will be asked to supply your contact information and change your default password to a new one. You can change all of it again later if needed.

- 1) After successfully logging in the first time, you should be on the **Instructor's Contact Information and Password** page.
- 2) Enter your *Current Password*.
- 3) Enter a *New Password*. (Remember this new password because you'll need it the next time you log in to OWL.)
- 4) Enter it again to *Confirm New Password*.
- 5) Edit your *First Name*, *Last Name*, *E-Mail* address, *Telephone Number*, and *Office* as needed.
- 6) Click the **Submit** button.
- 7) You are now on the **Welcome to OWL!** page.

Using OWL as a Student

OWL provides an initial course based on the textbook that is associated with the database. (You basically create a copy of this course to modify for your own use.) When you are added as an author to the system, you are also added as a student to the initial course. In this way, you can try out the course before you create your own copy of it.

The course contains one or more introductory or tutorial assignments to ensure that students understand the system before completing any coursework. These assignments are fairly quick and simple, providing students with an overall understanding of how OWL works and a chance to try it out before doing a real assignment.

Before learning any of the authoring tools, it is important to log into OWL as a student and, at least, complete the tutorial.

Completing the Tutorial or Introductory Assignments

To see things as a student, select the **Student Window** link from the view pull-down underneath the OWL logo. This opens a browser window containing the student view of OWL.

The introductory or tutorial assignments will have different names depending on which textbook you are using. Scroll through the list of assignments to find the introductory or tutorial assignments.

- You may need to click the **Unstarted Assignments** or **Past Due Assignments** tab on the Assignment List page, if you do not see the assignments listed.
 - Assignments may be ordered alphabetically. You'll be able to change this to whatever order you want for your class.
- 1) Click on the link for an introductory or a tutorial assignment.
 - 2) You are now on the **Unit Menu** page for that assignment.
 - Note: At the top of the unit menu page, the student is given specific information such as the name of the assignment, the assignments mode (**Type**), the **Due Date** of the assignment, an overview of their scoring (**Grade**), and the **Requirement Status** of the assignment.
 - 3) In the Unit Menu table, choose the first link.
 - 4) Follow the directions to work through all of the questions and units in the assignment.
 - Note the **Feedback** offered at the bottom of the page after you submit the answer to a question. The feedback in the tutorial supplies directions for navigating through the tutorial.
 - 5) When you are done with the tutorial, click the **Assignment List** link.
 - 6) A course assignment page will appear showing your updated performance on the assignment.
 - 7) Do other introductory or tutorial assignments, if there are any.

Getting to the Authoring View

Before you opened the student window, you were in a browser window containing the OWL instructor tools. That window should still be available. Just select that window to return to the instructor tools. (You can close the student window if you like. You can always open it again if you need it.) Then to get to the authoring tools, select **Author View** from the view pull-down menu underneath the OWL logo. You should be on the **Authoring Home** page.

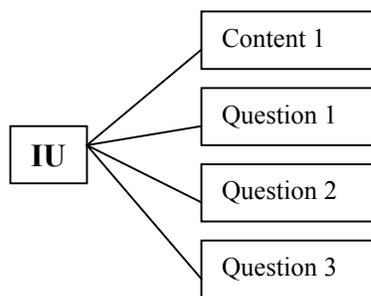
3 Instructional Units and Questions

One of the unique features of OWL is that you create your content and assessment materials first. These are independent entities and are not locked to a particular course as they are in other systems. They become part of a reusable pool of material that anyone in your database can use to construct assignments for their courses.

Instructional Units

An **Instructional Unit (IU)** is a group of content material and questions related to the same concept. For example, the possible Instructional Units for an American History course might be divided into such topics as “Heroes of the Revolutionary War” or “The Haymarket Riot.” For now we will just focus on putting questions into IUs. (We’ll add content later.) IUs may contain one or more questions. When an IU is included in an assignment, either all of the questions or a manually or randomly chosen subset of the questions is presented to the student.

For additional information, see: [Help | Question Building Tools | Instructional Units](#)



Creating a New Instructional Unit

- 1) Click **IUs** from the navigation bar.
- 2) You are now on the **Search Instructional Units** page.
 - This only happens the first time that you select this tool. Subsequently when you go to **IUs**, you will be on the **Instructional Unit Management** page of the last IU that you visited.
- 3) Press the **New IU** link in the command bar at the top of the page.
- 4) You are now on the **New Instructional Unit** page.
- 5) In *Name*, enter: `Static Earth Questions - your initials`.
- 6) Press the **Save New IU** button at the bottom.

Static Questions

Questions are the basic assessment entities in OWL. They may be *Multiple* or *Multiple Choice*, *Matching*, *True/False* or *Short Answer/Fill in the Blank(s)*, *Manually Graded Short Answer*, *Programming* or *Manually Graded Programming*. Questions are also either static or parameterized. **Static** questions appear exactly the same each time they are presented to the student, while **parameterized** questions vary on each presentation.

For additional information, see: [Help](#) **Question Building Tools | Questions**

You should be on the **Instructional Unit Management** page for the Static Earth Questions IU that you just created. Note the name, number, and creator that appear on the page just under the command bar.

Creating a New, Short Answer Question in the Question Editor

Let's create a short answer question in the Question Editor page. In this part of the manual, the *Description*, *Ask*, *Answer*, and *Feedback* boxes will appear similar to how they actually appear on the Question Editor page. In succeeding examples, those boxes will appear only when necessary, and the questions and answer data will be given in the text.

- 1) Under **Content/Questions in IU:**, press the **Add New Question** link.
- 2) Under **Select type of question to create** choose "Short Answer" from the drop-down list.
- 3) Click on the **Create Question** button.
- 4) You are now on the **Question Editor** page.
 - The top of the page contains commands, navigation, and information about the question that you are on. In this case, you are on a new question with not much in it yet. The rest of the page contains 5 boxes into which you type information to define the question.
- 5) In the *Description* box, enter: π . (Leave the other settings as they are.)

Description:	π
--------------	-------

- 6) Skip over the *Variables* box. (It is not used in static questions.)
- 7) In the *Ask* box, enter: To calculate the radius of the Earth, you need to know the value for PI. What is it to 2 decimal places?

Ask:

To calculate the radius of the Earth, you need to know the value for PI. What is it to 2 decimal places?

- 8) In the *Answer* box, enter: 3.14

Answer:

3.14

- 9) In the *Feedback* box, enter: An approximate fraction is $\frac{22}{7}$.

Feedback:

An approximate fraction is $\frac{22}{7}$.

10) Press **Save**

- There are multiple **Save** buttons to avoid having to scroll up and down the page. It doesn't matter which **Save** button you press, they all work the same. After you press **Save**, the **Question Editor** page will return with your newly authored question.

Testing the Question

Testing a question ensures that you have authored it correctly. This exercise will help you understand how OWL grades numerical questions.

- 1) Press **View** from the command bar to see how the question will appear to a student.
- 2) Answer the question; in the input box type: 3 . 12
- 3) Press **Check Answer**
 - Notice that this answer was graded as correct. Unless you specify an exact range, OWL uses a default of 2% for a numerical answer. You will learn more about controlling answer ranges in the next section.
- 4) Press **View** to try the question again.
- 5) In the input box type: 3 . 75
- 6) Press **Check Answer**
 - Notice that this time the answer is incorrect since it is outside OWL's default range for numerical answers.

Input Box and Answer Range

An **Input Box** is the box in which the student types the answer to a question (for example, 3.14 and 3.12 from above.) In the question that you just wrote and tested, you may have noticed that OWL automatically created an input box for you. Instead of letting OWL generate the input box, you can specify one and control its placement, size, and the number of characters that it will accept. Doing so will provide you with much greater control on the look and function of your questions.

An input box is signified in the question editor's Ask box by two underscores (). Anywhere in a question's Ask section that you type in two underscores, you'll see an input box when you view the question. (Thus you can make an answer with more than one part. More on that later.) When OWL automatically generates an input box, it is 20 characters long. If you designate your own box, it will be 20 characters long as well. But, you can add a number to the designation (#) to change the box's size. Moreover, input boxes usually allow the student to type in any number of characters. If there are more characters than the length of the box, then the characters will scroll. You can also limit this behavior in your answer designation as the exercise below will demonstrate.

An **Answer Modifier** controls how a question is graded by specifying constraints on the answer. Modifiers include range, capitalization, etc. Modifiers are placed in the Answer section after an answer's value and are separated by a vertical bar. More than one modifier may be used with an answer.

For additional information, see: **Help | Question Building Tools | Questions | Question Definition | Answer Modifiers**

Let's edit your current question (not create a new one) to control the input box and the grading range for the answer. We'll change the range from the default of 2% to 0% (r=0 modifier.)

- 1) Press **Edit** from the command bar.
- 2) In the *Ask* box, press **Enter** (on the keyboard) twice after the question mark.

- 3) Type: $\text{PI} = \underline{\underline{\quad}}$ (notice the 2 underscores!)

Ask:

To calculate the radius of the Earth, you need to know the value for PI. What is it to 2 decimal places?

PI =

- 4) In the *Answer* box, after the 3.14, add the answer modifier: | r=0

Answer:

3.14 | r=0

- 5) Press **Save**

➤ Don't forget to **Save** the question or your changes will be lost!

- 6) **View** the question.

➤ Notice that you get an input box next to PI = just as you designated.

- 7) Test the question with both 3.12 and 3.14 as answers.

➤ Notice that this time, 3.12 is *not* correct.

- 8) **Edit** the question again and change the input box to: 5

- 9) **Save and View** the question

➤ **Save and View** is a short cut for pressing the **Save** button and then the **View** link. There are multiple ones on the page that all function the same just as is the case for the **Save** buttons.

- 10) Try typing this in the input box: 1234567

➤ You've only changed the size of the input box, not the number of characters that the student can enter.

- 11) **Edit** the input box designation to: 5m

- 12) **Save and View** the question again.

- 13) Again, try typing the following in the input box: 1234567

➤ You've now limited a student to typing a maximum of five characters in the box. (It really only needs to be 4, but we don't want to give away the answer completely!)

Multiple Choice Questions

Now let's add a new, multiple-choice question to the Static Earth Questions IU.

- 1) Return to the question editor (**Edit**).

- 2) Press **New** from the navigation bar (makes a *new* question in the *same/current* IU).

- 3) Under **Select type of question to create** choose "Multiple Choice" from the drop-down list.

- 4) Click on the **Create Question** button.

- 5) In the *Description* box, enter: oceans

- 6) Skip over the *Variables* box.

- 7) In the *Ask* box, enter: Which of the following is not an ocean?

- 8) In the *Answer* box, enter the following:

Answer

	*	Choice Text
A		Pacific
B		Indian
C	•	Aunt Arctic
D		Atlantic

- 7) **Save** and then **View** the question.
- 8) Test the question a number of times. Notice that the order of the choices changes.

Multiple-Multiple Choice Questions

In order to answer a multiple-multiple choice question correctly, the student must choose all the answers that apply to the question, not just one. We'll add a new one of these.

- 1) Return to the question editor (**Edit**).
- 2) Press **New** from the navigation bar.
- 3) Under **Select type of question to create** choose "Multiple-Multiple Choice" from the drop-down list.
- 4) Click on the **Create Question** button.
- 5) For *Description*: Amazon River
- 6) Skip over the *Variables* box.
- 7) For *Ask* enter: The Amazon River runs through which two countries?
- 8) For *Answer* enter the following:

Answer

	*	Choice Text
A	√	Peru
B		Poland
C	√	Brazil
D		Mexico

- 9) **Save** and then **View** the question.
- 10) Test the question a number of times. Notice that again the choices change order.

• IU Check •

Now let's do a quick IU check to make sure that you have the correct number of questions.

- 1) Scroll to the top of the page and view the following information: *Author*, *Last Modified by*, and *Last Modified*.
 - You should be the author and the modifier, and the date should read as the current date.
- 2) At the left of the previous information, find your current question and IU number.
- 3) Below that you'll find a drop-down list next to *Go To Question in IU*.
- 4) Click on the down arrow in the gray box to see the question numbers in the IU.
 - You should have authored three questions by now. Your question numbers may not be consecutive. Question numbers are unique in the system and others in your database may be creating questions at the same time.

Additional Input Boxes, Answer Ranges, and Capitalization

A short answer question may include more than one input box. You can create **Additional Input Boxes** by, once again, typing 2 underscores (“__”) where you wish an input box to be. A question can also contain various possible correct answers signified with **Answer Ranges**. In the question below, students may supply a number of correct answers for the first part of the question.

This question will also be the first example of a short answer question with a text answer. (The previous short answer question had a numeric answer.) Text answers *must* be enclosed in either single or double quotes. Also by default, answers are case-insensitive. If you want to make sure that your students capitalize things correctly, you can set OWL to be case-sensitive by using the answer modifier `c=0`.

Create a new question in the IU as follows:

- 1) Press **New** on the command bar.
- 2) Under **Select type of question to create** choose “Short Answer” from the drop-down list.
- 3) Click on the **Create Question** button.
- 4) *Description*: Everest
- 5) Skip over the *Variables* box.
- 6) *Ask*:

__15 has traditionally been considered to be the highest peak on Earth.
It is __5 meters high.

- 7) *Answer*: (the answer for each part *must* be on a separate line)

'Everest', 'Mt. Everest', 'Mount Everest' | c=0

8848!n|r=.05

- A student is allowed to answer the first part of this question in three different ways; they may choose to simply answer “Everest”, or they may be more specific by answering “Mt. Everest” or “Mount Everest”. Either way, students must capitalize their answer as signified by the modifier `c=0`.
 - The `!n` forces the number to be displayed as an integer instead of with decimal places. When number display formatting is used, numeric values are graded differently, and you may need to specify the range. In this case we've allowed a range of 5% to allow for different and changing estimates of Everest's height. For additional information, see: **Help | Question Building Tools | Questions | Question Definition | Variable and Number Formatting**.
- 8) **Save** and then **View** the question. Try the answers: Mt. Everest and 8840.
 - Both parts should be correct.
 - 9) Try these answers: everest and 7500.

- Both parts should be incorrect since “everest” isn’t capitalized and “7500” is outside the range.

Matching Questions

Matching Questions allow a student to link related information together. Matching questions require multiple input boxes, and multiple answers.

Create a new question in the IU as follows:

- 1) Select **New** from the command bar.
- 2) Under **Select type of question to create** choose “Matching” from the drop-down list.
- 3) Click on the **Create Question** button.
- 4) *Description:* city/country
- 5) Skip over the *Variables* box.
- 6) *Ask:* Match the city with the country:
- 7)

Answer: (Left Side)

	*	Choice Text
A	3	Paris
B	4	Boston
C	1	Cairo
D	2	Delhi

Answer: (Right Side)

	Choice Text
1	Egypt
2	India
3	France
4	U.S.A.

- 8) **Save** and then **View** the question.

Using Custom Inputs in Questions

Sometimes you want to write questions that have students input their answers in a format that doesn’t fit one of the standard OWL question types. **Custom inputs** are additions to the OWL system that expand the ways that students answer questions.

Create a new question in the IU as follows:

- 1) Select the **New** link from the command bar.
- 2) Under **Select type of question to create** choose “Short Answer” from the drop-down list.

- 3) Click on the **Create Question** button.
- 4) *Description:* circumference
- 5) Skip over the *Variables* box.
- 6) *Ask:* The circumference of the earth is

```
{input.select|choices='350,4657,24901'} miles.
```

 - Don't start a new line after the "is"; the line will wrap automatically because of its length.
- 7) *Answer:* 24901!n
- 8) **Save** and then **View** the question. Try the different answers.
- 9) Return to the **Question Editor** page and click the **Custom Inputs** link next to *Ask*.
 - A small window will open describing custom inputs and the various ones that are available. If you look at **Drop-down List**, you'll see that it is the custom input that was used in this question. We implemented it a bit differently than described since you won't learn about Variables until the next section of the training.
- 10) Close the small window.
- 11) You should be on the **Question Editor** page.

Manually Graded Questions

You may want to have students answer a question that OWL cannot grade automatically. You can add these kinds of questions to OWL, but you need to be willing to grade them (or find someone else who will) by hand. Questions can have both automatically as well as manually graded parts in them.

Create a **New** short answer question in the IU as follows:

- 1) The question type should be **Manually Graded Short Answer**.
- 2) *Description:* layers
- 3) *Ask:* What are the 4 main layers of the earth?

```
__10, __10, __10, __10
```

Briefly describe each layer.

```
{input.textarea}
```

 - Note that the first 4 input boxes are standard, automatically graded parts, and the fifth one is a custom input.
- 4) *Answer:* 'inner core'|g='layers'
'outer core'|g='layers'
'mantle'|g='layers'
'crust'|g='layers'
'' | evaluator='ManualGrade'

 - To enable students to supply the 4 answers to the first question in any order, we've used the g (for group) answer modifier and set all the answers to belong to the same group. For the fifth answer, we've used a **Custom Evaluator**. Some **Custom Inputs** need to be matched with a special evaluator

so that they can be graded. Click on the **Custom Evaluators** link next to *Answer* for more information.

- 5) **Save** and then **View** the question.
- 6) Try answering the question a number of times using different orderings for the Earth's layers.
 - Manually grading questions is discussed in the **Getting Start with OWL – Course Management** training.

● IU Check ●

Now let's do another quick IU check to see what has been created.

- 1) From the **Question Viewer** (or **Question Editor**) page, click the number link next to **IU**: just under the command bar at the top of the page.
- 2) You should now be on the **Instructional Unit Management** page for your Static Earth Questions IU.
- 3) Under the heading **Content/Questions in IU**, check to see that there are seven authored questions listed: pi, oceans, Amazon River, Everest, city/country, circumference, and layers.

Parameterized Questions

Parameterized Questions vary slightly from one viewing to the next. This feature allows the student to redo the question and get a different version of it with a different answer. (So, they can't do the question, then just redo it and cheat by putting in the correct answer that they just viewed!) Parameterized questions are one of the highlights of the OWL system and enable authors to write one question that contains an infinite number of variations.

For additional information, see: **Help | Question Building Tools | Questions | Parameterized Questions**

Creating a New IU for Parameterized Questions

You are now going to create a new IU to put your parameterized questions into.

- 1) Make sure that you are on the **Instructional Unit Management** page.
- 2) Press the **New** link from the command bar.
- 3) In *Name*, enter: `Parameterized Earth Questions - your initials`.
- 4) Press the **Save New IU** button at the bottom.
- 5) You are now on the **Instructional Unit Management** page.

Creating a Parameterized Question

The first example will show you how to parameterize a question by just varying numbers in it.

- 1) Under **Content/Questions in IU**: press the **Add New Question** link.
- 2) Under **Select type of question to create** choose "Short Answer" from the drop-down list.
- 3) Click on the **Create Question** button.
- 4) You are now on the **Question Editor** page.
- 5) Create the question as follows:

- 6) *Description:* days to climb
- 7) *Variables:* num = 1,2,3,4,6,12
 each = 12/num # the answer
- Look up variables in the Help manual to better understand them. (Help | Question Building Tools | Questions | Question definition | Variables) For instance, Variables must be one per line. The “num” variable is randomly set to one of the values in the list, and the “each” variable is then calculated based on the chosen value.
- 6) *Ask:* Your goal is to climb 12 miles up Mt. Kilimanjaro. If you climb {num!n} mi. per day, how many days will it take you to accomplish your goal? __3m
- Variables are inserted into the Ask, Answer, or Feedback sections by entering them inside of **curly braces {}**, not parentheses ()!
- 7) *Answer:* {each!n}
- 8) *Feedback:* mi / days = 12 / {num!n} = {each!n}
- 9) Press **Save** and then **View** the question.
- 10) Test the question a number of times using the **View** link.

Viewing Math Operators, Symbols, and Functions

A glossary of Mathematical Operations explaining Math Symbols and Arithmetic Operations, Trigonometric Functions, and Vector Functions exists in the author manual.

For additional information, see: **Help | Question Building Tools | Questions | Question Definition | Mathematical Operators**

Parameterized Questions Using String and Vector Functions

Sometimes you want more than numbers to vary in your questions. You can use coordinated lists of strings and numbers to parameterize your questions even further.

Create a **New** short answer question in the IU as follows:

- 3) *Description:* shapes
- 4) *Variables:*
- ```
shapes = stringList('triangle','square','rectangle','pentagon','octagon')
sides = vector(3,4,4,5,8)
index = 1,2,3,4,5
item = stringAt(shapes, index)
answer = vcomp(sides, index)
```
- The **shapes** and **sides** variables are string and number lists that contain the question’s parameters. **Index** is a randomly selected number that determines which item in the list should be selected, and it is then used in the **stringAt** and **vcomp** functions to get that item from the string and number lists.
- 7) *Ask:* A {item} has \_\_2 sides.
- 8) *Answer:* {answer!n}
- 9) **Save** and then **View** the question.
- 10) Test the question a number of times using the **View** link.

## Instructional Unit Content

**Instructional Unit Content** – IUs may also contain content material exclusively or in addition to questions. Any content material provided is presented to the student before the questions in the IU. Content in an IU may appear in the regular OWL window or in a new, separate window. The content may also be *internal* (defined and managed inside of OWL) or *external* (an existing URL).

For additional information, see: **Help | Question Building Tools | Content**

### Adding Internal Content to an IU

So far, all the IUs you have created contain questions only. You will now go back to one of your previously authored IUs and add **Internal content** to it. Internal content may consist of a lot of information, if you like. However, for training purposes, you will only add one sentence of internal content to your IU.

- 1) Click on the **IUs** link from the navigation bar.
- 2) Next to **Search for IU Name** enter: `Static Earth Questions - your initials.`
- 3) Click the **Search for IU Name** button.
- 4) Click on the number link in the **IU Number** column.
  - Make sure the IU found has *your initials!*
- 5) Click the **Add New Content** link.
- 6) Leave the *no* option (●) selected for *Display in New Browser Window*.
- 7) Choose the *internal* option (●) for *Content Type*.
- 8) Press **Continue**
- 9) For *Name*, enter: `Static Questions Content.`
- 10) For *Internal URL Text*, enter: `The earth is a large place containing many different types of landmasses and bodies of water.`
- 11) Press the **Save New Content Page** button.
  - Later on, you will have a chance to test your newly authored questions as a student. This internal content will appear with the static questions.
- 12) Press the **IU** link from the command bar.

### Adding External Content to an IU (in a New Window)

With this option, it is possible for students to access a current web-site in a *new* window. They can read and observe all information contained on that web-site before attempting to answer the questions in an IU. Students also have the option of keeping the new window open for reference while they are completing an assignment.

- 1) You should be on the **Instructional Unit Management** page.
- 2) Press the **Search** link from the command bar.
- 3) In *Name*, enter: `Parameterized`
- 4) Press the **Search** button.
- 5) Click on the number link in the **IU Number** column next to your `Parameterized Earth Questions IU`.

6) You are now on the **Instructional Unit Management** page.

7) Click the **Add New Content** link.

8) You are now on the **New IU Content** page.

9) Choose the *yes* option (●) for *Display in new Window*.

10) Leave the *external* option (●) selected for *Content Type*.

11) Press **Continue**

You are now on the **New IU Content Page** page.

For *Name*, enter: Parameterized Questions Content

12) For *External URL Link*, enter: <http://earth.jsc.nasa.gov>

13) For *Notes Displayed to Students*, leave any existing text and add: Read the information and then go on to the first question by choosing the '?' from above.

14) Press the **Save New Content Page** button.

➤ Later on, you will have a chance to test your newly authored questions as a student. This external content (web-site) will appear with the parameterized questions.

15) Press the **IU** link from the command bar.

## ● IU Check ●

Now let's do one more quick IU check to see what has been created.

1) You are now on the **Instructional Unit Management** page.

2) Check the *Name* (should be Parameterized Earth Questions - *your initials*) and *Creator* (should be you).

3) Under **Content/Questions in IU**, there should be one content page and two questions created: days to climb and shapes.

## Navigating Through IUs and Questions

There are several ways to get to an IU. From anywhere in the system, if you'd like to return to the last IU you edited, simply click **IUs** from the navigation bar. Your other options are going to an IU by its number, retrieving all IU's, conducting a Quick Search, or conducting a Search by one or more specific IU categories. OWL also allows you to move between IUs and questions easily.

### Searching Instructional Units

1) Click the **IUs** link in the navigation bar.

You are now on the **Instructional Unit Management** page.

➤ The last IU you edited should appear.

2) Press **Search** from the command bar.

You are now on the **Search Instructional Units** page.

3) Make sure all the input boxes are empty by pressing **Clear Search Form**

4) Press the **Search** button at the bottom of the form .

➤ All of the IUs in your database will be listed.

- 5) Press **New Search** from the command bar.
- 6) In the *Name* input box, enter: Earth
- 7) Press the **Search** button at the bottom of the form.
  - All IUs whose name includes the word *Earth* should appear.

## Moving Between Question and IUs

Newly authored questions may or may not be in sequential order (depending on whether another author is creating new questions at the same time). There are several ways to move between Questions and IUs. The most convenient method is searching for a particular IU, then going to a particular question in that IU.

- 1) For each of the following, note the *Question Number* and *IU Number* at the top left of the page, and note the contents of the drop-down list just beneath them.
- 2) Click the **IUs** link in the navigation bar.
- 3) You are now on the **Instructional Unit Management** page.
- 4) Under the **Content/Questions in IU** heading click on a box containing a
- 5) You are now on the **Question Editor** page.
- 6) Note the question number and IU number at the top of the page.
- 7) Press **Next** from the command bar a few times.
- 8) Note the question number and the IU number each time.
- 9) Press **Previous** from the command bar a few times.
- 10) Note the question number and the IU number each time.
  - In the Question Editor, Next and Previous refer to the next/previous question numerically. They may or may not be in the same IU and may or may not be your questions.
- 11) Press the **IU** number link next to **IU**:
- 12) You are now on the **Instructional Unit Management** page.
- 13) Press **Next** from the command bar a few times.
- 14) Note the IU Name, Number, and Creator.
- 15) Press **Previous** from the command bar a few times.
- 16) Note the IU Name, Number, and Creator.
  - Similar to the Question Editor, Next and Previous will take you to the numerically next/previous IU in the database. Again, they may or may not be your IUs.

## **4** Tags and Tables

There are a number of authoring tools that enable OWL questions to be richly parameterized and visually complex. To enable you to write your own questions and then maintain them when you get a database update containing new OWL content, your access to the authoring tools is limited. You can't write questions as elaborate as those already in your database, but you should be able to author what you need to supplement your course with additional content.

### **Tags**

Tags are used to embed images, Java applets, and multi-media items in OWL questions. Tags use files that have been uploaded and saved on the OWL server. You can't create your own tags, but if you have access to a server, you can store your images (or other embedded html components) there and access them in an OWL question. Simply use the html code that you'd use in any html page to display the image or embedded object.

### **Tables**

Tables are collections of structured information that are the heart of the parameterized questions that are delivered with your course. You can't make your own tables, but using the string and vector functions that you've already learned, you should be able to sufficiently parameterize your own questions.

# 5 Authoring a Course

## Courses and Sections

A course (such as World Geography) has a name and a curriculum. Once you create a course and section to go with it, you then define the assignments for the class. The set of assignments is the course curriculum.

For additional information, see: [Help | Course Authoring | Course Curriculum \(Modules\)](#)

Sections are the active entities of a course. Students are rostered for a section of a course, and thus to use a course, it must have *at least* one section. When you create a course, you are required to create a section in it at the same time. Also whenever you create a section in a course, you are added to the section's roster and are set as the section's message recipient.

For additional information, see: [Help | Course Authoring | Courses and Sections](#)

| Course & Section Attributes |                                                                                                                                                                                                                                                           |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Name                 | must be unique                                                                                                                                                                                                                                            |
| Section Number              | identifies the section                                                                                                                                                                                                                                    |
| Instructor                  | name of instructor                                                                                                                                                                                                                                        |
| Location                    | building and classroom number                                                                                                                                                                                                                             |
| Time                        | time of day class starts                                                                                                                                                                                                                                  |
| Announcements               | New or edited announcements are shown to students of that section upon login and can optionally be sent to those students with an email address. Announcements are always available to students under <i>Announcements</i> in the student navigation bar. |
| Message Recipients          | enabled author(s) who receive the email messages for that section. There must be at least 1 message recipient per section. On section creation the current author is set as the message recipient.                                                        |

### Creating a New Course and Section

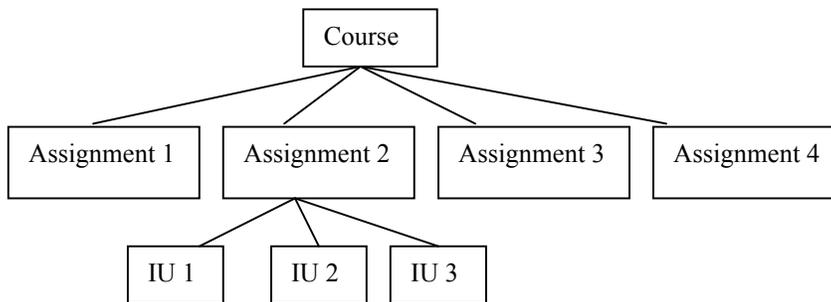
- 1) Choose **Instructor View** from the pull-down menu under the OWL logo to return to the instructor tools.
- 2) Click on the **Course List** link in the navigation bar.
- 3) You are now on the **All Courses List** page.
- 4) Press the **New Course** link in the command bar at the top of the page.
- 5) You are now on the **Course Wizard: Create New Course and Section** page.
- 6) For the Course Name enter: *World Geography - your initials*
- 7) For Section # enter: 1
- 8) For Instructor enter: *your name*.
- 9) Time enter: *now*.
- 10) For Location enter: *here*.
- 11) For Announcements enter: *Here is the first World Geography announcement.*
- 12) Press **Save New Course and Section**

- 13) You are now on the **Course Home** page.
- 14) Click on the **Assignment Setup** link in the navigation bar.
- 15) You are now on the **Assignment Setup: Assignment Setup** page.

## Assignments

You construct assignments for your students from objects currently in the system. Assignments can be IU based or non-IU based (see below). Assignments that contain IUs, in turn contain the content and questions from the IUs. For IU based assignments, the **Assignment Type** (see below) determines how the questions in the IU will be presented to the student. The types, Question and QuestionPool, are the most commonly used. See Appendix 1 for a comparison of these two types.

For additional information, see: **Help | Course Authoring | Course Curriculum (Modules) | Developing a Module**



| Assignment Types – IU Based Assignments |                                                                                                                  |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|
| QuestionPool                            | subset of questions from IUs are presented and mastery criteria set for each IU                                  |
| Question                                | all questions from IUs are presented                                                                             |
| Exam                                    | like question mode but with only 1 attempt and no scores, answers, or feedback given to students during the exam |
| Training                                | QuestionPool mode question presentation with additional training constraints                                     |

| Assignment Types – Non IU Based Assignments |                                                                |
|---------------------------------------------|----------------------------------------------------------------|
| External                                    | for 2 <sup>nd</sup> party modules                              |
| Survey                                      | an assignment containing only non-graded questions             |
| Tutor                                       | a hand-crafted assignment designed to tutor a specific concept |

## Assignment Settings

The assignment type, along with some other assignment settings, is fixed across *all the sections* of a course. Some section specific assignment settings (see below), on the other hand, may vary from section to section. All settings have default values that are used when *new* sections are created. For example, World Geography 100, Section 1 may vary from World Geography 100, Section 2. Even though they have the same assignments, the sections can have different due dates for assignments, and/or one instructor may wish to limit students to only three attempts at a question, while another instructor may decide not to set a limit at all.

| General Assignment Settings |                                                    |
|-----------------------------|----------------------------------------------------|
| Name                        | must be unique within the course                   |
| Description                 | description of the assignment for instructors only |
| Assignment Type             | IU and Non-IU based types below                    |

|                             |                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time Permitted              | the amount of time a student has to work on an assignment (can be unlimited)                                                                                             |
| Allow Question Resubmission | for Question type assignments only, determines if a student can answer the same question again (no new parameters)                                                       |
| Partial Credit              | for Question and Exam modes only, determines if partial credit is given for short answer questions with multiple input boxes and for multiple, multiple choice questions |
| Scoring Type                | determines how the score for the assignment will be calculated                                                                                                           |
| Assignment Notes            | instructor and student notes for the assignment                                                                                                                          |

| Section Specific Assignment Settings |                                                                                                       |
|--------------------------------------|-------------------------------------------------------------------------------------------------------|
| Start Date                           | date at which a student can first view the assignment. Authors may view at any time.                  |
| Due Date                             | date at which scores from subsequent attempts of the assignment are not recorded                      |
| Number of Attempts Allowed           | number of times the question or IU (depending on assignment type) may be attempted (can be unlimited) |
| Display Feedback                     | determines if and when the feedback is shown when student checks an answer                            |
| Display Answer                       | determines if and when the correct answer is shown when student checks an answer                      |
| Requirement Status                   | indicates if the assignment is required, optional, or extra credit                                    |

## Creating a New Question Mode Assignment

The course you have just created is empty – it doesn't contain any assignments yet! First, we'll add a Question type assignment, and later we'll add a QuestionPool type assignment. Both of these assignments will contain the same IUs, the ones you just authored. Let's create the easier assignment first:

For additional information, see: [Help | Course Authoring | Course Curriculum \(Modules\) | Developing a Module | Question and Exam Mode](#)

- 1) From the **Assignment Setup: Assignment Setup** page, choose the **New Assignment** link near the top of the page.
- 2) You are now on the **New Assignment, Select Type** page.
- 3) Under the heading **Select the Type for the New Assignment**, click on the **Question** link.
- 4) You are now on the **New Assignment** page.
- 5) For the Assignment enter: Geographical sites - Question.
- 6) For the Description enter: static & parameterized geography questions.
- 7) Leave all the other values as they are.
- 8) Press **Save New Assignment**
- 9) You are now on the **Assignment Management** page.
  - We have now set the general and section specific assignment settings for this course's section as well as the defaults.

## Adding IUs to the Question Assignment

Right now the assignment that you just created is empty. (It has no questions in it.) You must assign particular IUs to the assignment in order to give it some content. We'll now use the two IUs you've created to fill it out.

- 1) Choose **Link IU** under the **Assignment Content** header.
- 2) You are now on the **Add New IU Link** page.

- 3) Under **Search Instructional Unit Entries**, for the name enter: `questions` .
  - Both your IUs were named “`__ __` questions”. This search will find all IUs with the word ‘questions’ in the name.
- 4) Press **Search**
- 5) Under **Select the Instructional Units to Add to the Assignment**, click in the box in the **Select IU** column next to the IU, Static Earth Questions – *(with your initials)*.
- 6) Click in the box in the **Select IU** column next to the IU, Parameterized Earth Questions – *(with your initials)*.
- 7) Click the **Add IUs** button.
- 8) You are back on the **Assignment Management** page.
  - Notice that at the bottom of the page under the heading Instructional Units, the two IUs that you just link are listed along with their content and questions.

## IU Settings for QuestionPool Type Assignments

In Question type assignments, all of the questions in the IU are presented to the student, and there is no concept of mastery. In QuestionPool type assignments, a subset of the questions in the IU can be presented to the student, and the idea of mastery is introduced. Thus in this mode, you need to set two IU presentations attributes: Questions to Present and IU Mastery.

| IU Settings for QuestionPool Type Assignments |                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Questions to Present                          | The <i>Number of Questions to Present</i> value determines how many questions from the IU are shown to the student. Questions are picked randomly from the IU. If the number of questions to present is less than or equal to the number of questions in the IU, no question is repeated. Each time the IU is selected a new set of random questions is chosen. |
| IU Mastery                                    | number of questions that must be completed correctly <i>in one attempt at the IU</i> to master the IU                                                                                                                                                                                                                                                           |

For additional information, see: **Help | Course Authoring | Course Curriculum (Modules) | IU Presentation Attributes**

Let’s create a new assignment just as you did before, but this time in QuestionPool mode. Now you’ll have to give values for the IU settings when you link in your IUs.

### Creating a New QuestionPool Type Assignment

- 1) Press the **Assignment Setup** link in the navigation bar.
- 2) You are now on the **Assignment Setup: Assignment List** page.
- 3) Choose the **New Assignment** link in the command bar at the top of the page.
- 4) You are now on the **New Assignment, Select Type** page.
- 5) Under **Select the Type for the New Assignment**, press the **QuestionPool** link.
- 6) You are now on the **New Assignment** page.
- 7) For the Assignment Name enter: `Geographical Sites - QuestionPool`
  - This distinguishes the assignment from “Geographical Sites – Question”.

- 8) For the Description enter: same as other, but in QuestionPool mode
- 9) Leave all the other values as they are.
- 10) Press **Save New Assignment**
- 11) You are back on the **Assignment Management** page.

### Adding IUs to the Assignment

Link your two IUs as you did before, and notice that OWL prompts you for IU settings.

- 1) Choose **Link IU** under the **Assignment Content** header.
- 2) You are now on the **Add New IU Link** page.
- 3) Note that your previous search criteria and search results still appear.
- 4) Under **Select the Instructional Units to Add to the Assignment**, click in the box in the **Select IU** column next to the IU, Parameterized Earth Questions – (*with your initials*).
- 5) Click in the box in the **Select IU** column next to the IU, Static Earth Questions – (*with your initials*).
- 6) Click the **Add IUs** button.
- 7) You are now on the **Add IU with Defaults** page.
- 8) For the Static Earth Questions IU, set the Number of Questions to Present to 3 and the Number Needed for Mastery to 2.
- 9) For the Parameterized Question IU, leave the Number of Questions to Present at 3 and set the Number Needed for Mastery to 1.
  - Note that these are the two IU settings. OWL knows to ask for them because it is a QuestionPool type assignment.
- 10) Press **Add IU(s) to Assignment**
- 11) You are back on the **Assignment Management** page.

### Where to Go From Here

That's it for your tour of OWL authoring. To actually run your course in OWL, you'll need to learn how to set assignment start and due dates, send announcements, get student grades and progress information, give extensions, and answer student messages. All of this and more is covered in **Getting Started with OWL – Course Management**.

Besides the things that are covered in these two **Getting Started** training manuals, there are loads of features and links that we haven't described to you. These include:

- using HTML in questions
- use of integers
- conditional feedback for all but short answer question types
- adding hints to questions
- ordering questions, content, and IUs

The best thing to do is to start exploring and experimenting in OWL. Please be aware, though, that as an author you have access to other authors' content as well as the content that you create. Be careful not to modify content that someone else has authored or that is being used in others' courses. If you ever have questions about this issue or anything else related to OWL, please choose the **Tech Support** link in the navigation bar and send a message. If you need to know more about a feature, press the **Help** link on the navigation bar and look through the **Author Manual**. Best of luck and happy authoring with OWL!

# 6 Appendices

## Appendix 1 – OWL Question and Question Pool Mode Comparison

|                                | <u>Question</u>                                                                             | <u>QuestionPool</u>                                                           |
|--------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Questions &amp; Content</b> |                                                                                             |                                                                               |
| <i>Question Presentation</i>   | presents all questions in all IUs                                                           | presents subset of questions from IU (can be all)                             |
| <i>Question Ordering</i>       | can set the question order                                                                  | questions are presented randomly                                              |
| <i>Content Only IUs</i>        | can use content only IUs                                                                    | cannot use content only IUs                                                   |
| <b>Navigation</b>              |                                                                                             |                                                                               |
| <i>Navigation Bar</i>          | shows content pages and questions in all IUs                                                | shows only the content pages and questions in the IU                          |
| <i>Ease of Use</i>             | navigation is straight-forward                                                              | navigation can be confusing - students always need to return to the Unit Menu |
| <i>Redo Wrong Answer</i>       | redo by question                                                                            | can redo an entire IU, but not a single question                              |
| <i>Limited Attempts</i>        | can limit the number of attempts for each question                                          | can limit the number of attempts at each IU                                   |
| <b>Grading</b>                 |                                                                                             |                                                                               |
| <i>Partial Credit</i>          | available for multiple-multiple choice, matching and multi-input box short answer questions | not available                                                                 |
| <i>Mastery</i>                 | no mastery scoring available                                                                | need to set number of questions that must get right to master each IU         |
| <i>Scores</i>                  | assignment score is number of correct questions or pass/fail (100%)                         | assignment score is either mastery of all IUs, or number of IUs mastered      |

## **Appendix 2 – OWL Instructor Guidelines**

### **Registration**

Students use an access code provided with their textbooks to register for OWL. Access codes can also be purchased separately. Make sure that your OWL course is set up (Course Wizard) before students try to register. The last step in the registration process involves students selecting the specific OWL course for which they need to be rostered.

### **Grading**

OWL can be made optional or can be required as part of a student's grade in a course. We've found that when made optional, its use is quite limited. If it does count towards a student's grade, we suggest that it not be worth more than 15%. Somewhere in the 5-15% range is enough incentive for students to do their OWL work to better their grade, but makes it not so important that it promotes cheating.

### **Student Handouts**

A student handout that explains how to register using the access code and how to use OWL is available on the **Getting Started with OWL** page.

### **Assignments**

Student introductory assignments are supplied with each OWL textbook database. Make sure to assign the introductory assignments as your students' first assignments and make sure to count them for credit. Their due date should be before any of your regular OWL assignments. This helps to insure that students can log in and learn to use the system *before* they are required to do any real work. At least a few days between the due date of the introductory assignments and first assignment will also help you to work out any student registration problems.