Writing Learning Objectives

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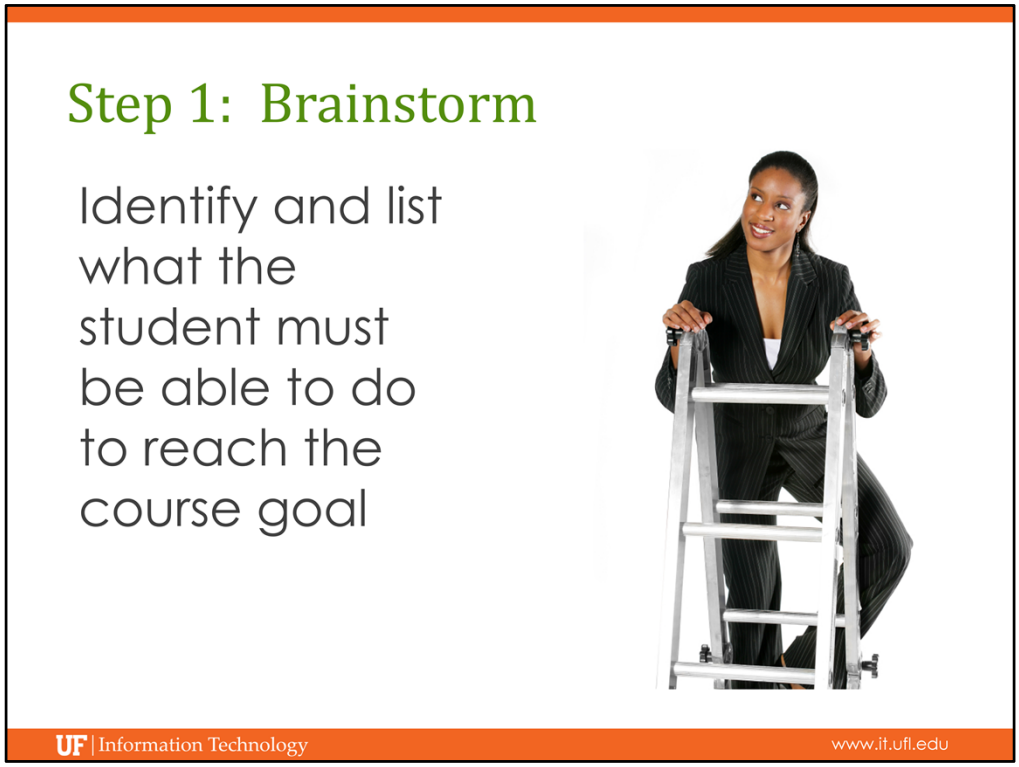
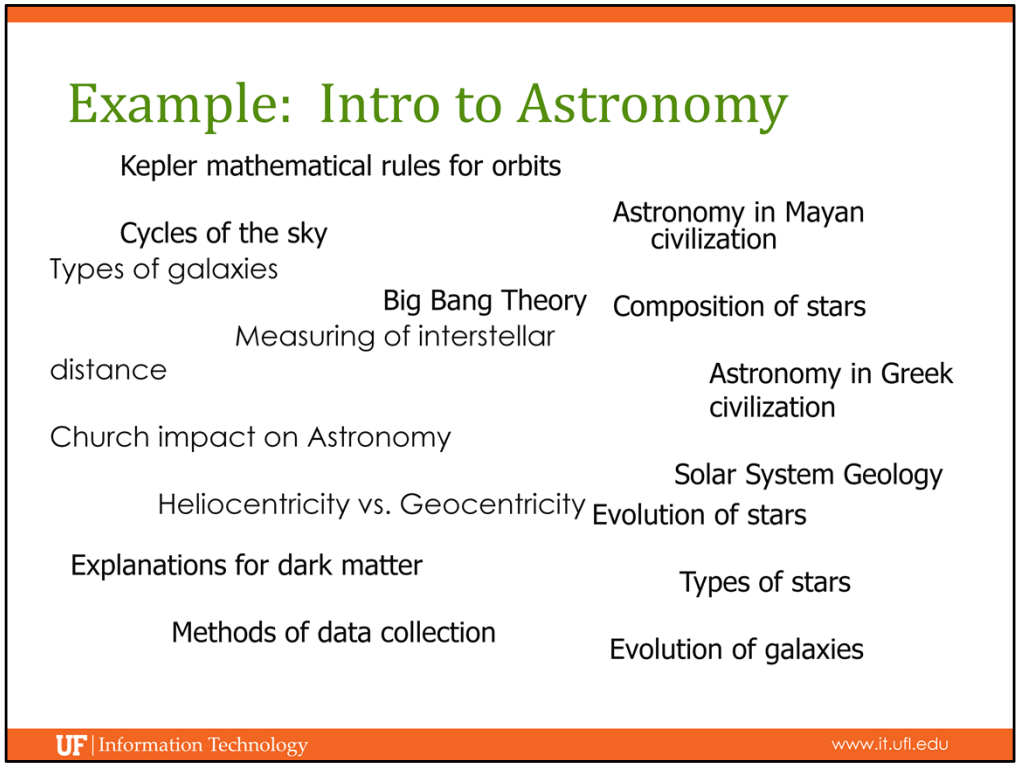
In this presentation, we'll continue our discussion of Learning Objectives by going into detail on how to write your learning objectives.



The first step will be to brainstorm. Consider your course goal—or one of your course goals if you have several. Make a list of all of the things that students will need to be able to do in order to achieve that goal.



Using our Astronomy course as an example, here are some of the things a student might need to know in order to reach the Astronomy goal which is to "Understand how the Universe and all its contents began, have developed, and will end—and to appreciate our place in the cosmos."

Step 2: Categorize

Must Know	Should Know	Nice to Know
•Cycles of the sky •Big Bang Theory •Solar System Geology •Composition of stars •Evolution of stars •Types of stars •Evolution of galaxies •Types of galaxies •Measuring of interstellar distance •Heliocentricity vs. Geocentricity •Church impact on Astronomy	•Astronomy in Mayan civilization •Astronomy in Greek civilization •Kepler mathematical rules for orbits	•Explanations for dark matter •Methods of data collection

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Once you have written down everything you can think of that will support the goal, then divide those items into categories: Must know—which is basic required knowledge. Should know items are supplemental but not absolutely required to reach the goal. And finally, nice to know. Those are more advanced items that might not fall within the scope of our introductory astronomy course.

Step 3: Order

- Module 1: History of Astronomy
  - The student will ____ Astronomy in Mayan civilization
  - The student will ____ Astronomy in Greek civilization
  - The student will ____ Church impact on Astronomy
  - The student will ____ Heliocentricity vs.Geocentricity
- Module 2: The Universe
  - The student will ____ Big Bang Theory
  - The student will ____ Measuring of interstellar distance
  - The student will ____ Solar System Geology
- Module 3: The Stars
  - The student will ____ Cycles of the sky
  - The student will ____ Evolution of stars
  - The student will ____ Types of stars
  - The student will ____ Composition of stars
- Module 4: The Galaxies
  - The student will ____ Evolution of galaxies
  - The student will ____ Types of galaxies
- Module 5: The Planets
  - The student will ____ Kepler mathematical rules for orbits

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Now list your items in the order they should be covered in the course. You may find it easier to focus on one module, chapter or unit of the course at a time.

Step 4: Assign a **measurable** *performance*

- Stars
  - The student will **read about** the types of stars
  - The student will **watch a video on** the composition of a star
  - The student will **understand** the cycles of the sky
  - The student will **know** the current theories on the evolution of stars

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Here is an example from our astronomy course. In the section of the course that covers stars, we'll have the students read about stars. This sounds like a good objective, the only problem is, we can't measure whether or not students have done it. The objectives need to be measureable.

Step 4: Assign a **measurable** *performance*

- Stars
  - The student will **analyze** the types of stars
  - The student will **watch a video on** the composition of a star
  - The student will **understand** the cycles of the sky
  - The student will **know** the current theories on the evolution of stars

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You can see that it is better to choose a performance that you can *measure.* You can certainly have students write a short analysis of the different types of stars.

The next objective requires the students to watch a video on the composition of a star. Again, there is no way to ensure that a student has actually *watched* a video. Even with technology, the best you could do was ensure that a student had *played* the video. They could certainly do something else while the video was playing.

Step 4: Assign a **measurable** *performance*

- Stars
  - The student will **analyze** the types of stars
  - The student will **describe** the composition of a star
  - The student will **understand** the cycles of the sky
  - The student will **know** the current theories on the evolution of stars

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A better fit would be for students to *describe* the composition of a star.

Our next objective requires students to *understand* the cycles of the sky. Understand is a tricky one, of course, we want students to understand the course material. But again, how can you tell that a student understands?

Step 4: Assign a **measurable** *performance*

- Stars
  - The student will **analyze** the types of stars
  - The student will **describe** the composition of a star
  - The student will **identify** the cycles of the sky
  - The student will **know** the current theories on the evolution of stars

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Let's really think about what it is that we want students to be able to do with the cycles of the sky. Perhaps we want the student to be able to *identify* them.

And finally, we want the student to *know* the current theories on the evolution of stars. Know is a lot like understand. It is difficult to determine.

Step 4: Assign a **measurable** *performance*

- Stars
  - The student will **analyze** the types of stars
  - The student will **describe** the composition of a star
  - The student will **identify** the cycles of the sky
  - The student will **debate** the current theories on the evolution of stars

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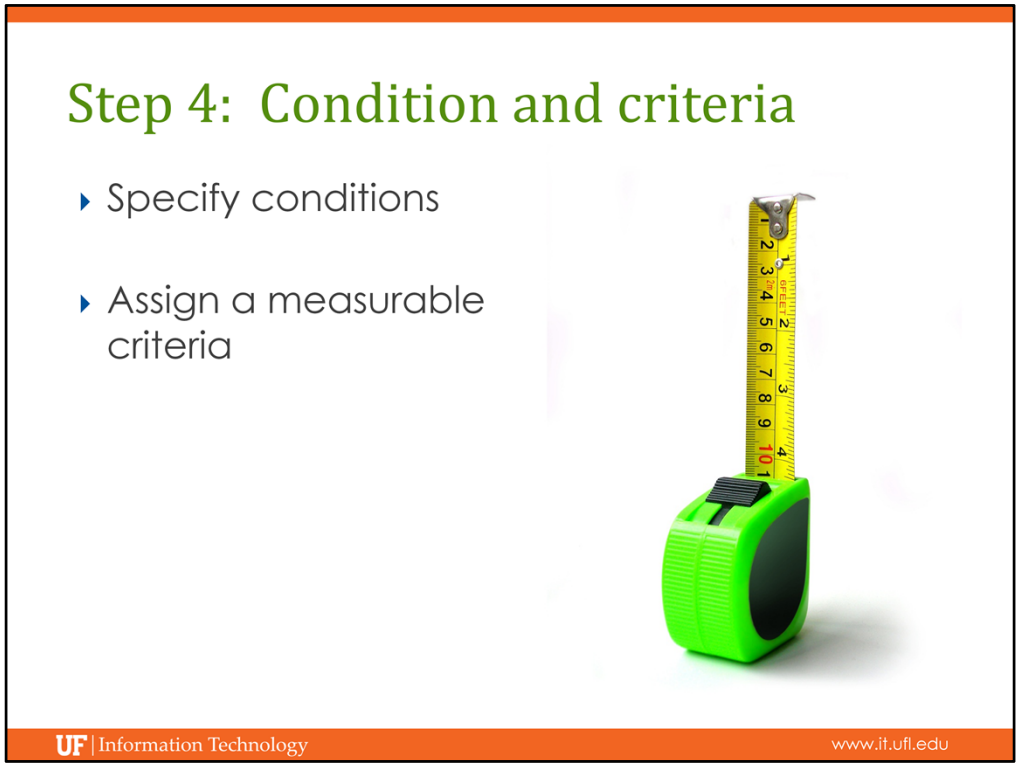
Perhaps the students will *debate* the current theories on the evolution of stars. They'll certainly need to know what the current theories are in order to debate them.



Now we need to specify the *conditions* under which the student must perform the task. And we need to give the task performance a *measurable criteria*.

Example

- **When given a star chart**, the student will identify the cycles of the sky.
- **When given 10 photographs**, the student will identify 8 types of stars with **80% accuracy**.

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So using our astronomy example, we don't expect students to identify the cycles of the sky out of the blue. We'll give them a star chart. We'll also provide specific photographs to use to identify 8 types of stars.

And we want students to be able to do both of these things with complete accuracy. On most objectives, you want the students to achieve 100% of the task. But if that level of achievement is not necessary, spell it out.

This may not seem important now, but being clear about the conditions will save your students a lot of frustration and it will save you a lot of e-mails from students who are unclear about how to successfully complete the assignment.

Summary

- Student centered
- One task
- Observable performance
- Condition
- Criteria

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Check to be sure that your objective:

Is student centered.
Only specifies one task.
Specifies an observable performance.
Gives the conditions under which the student must perform the task.
Indicates how the performance will be assessed.

In the next presentation, I'll provide some tips and resources that can help you to create your learning objectives.

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