CASE STUDY:
The Frustrated Student

I am a sophomore majoring in physics. I was thinking I might go to graduate school to do research and become a professor, or maybe apply for an industrial internship. I usually get As in my courses, only a few B's so far in college. I totally breezed through high school, it was so easy.

This semester, I enrolled in Modern Physics. I approach this class like most others: I attend lecture (have only missed two), read the textbook (usually before class), and turn in the homework if it's going to be graded. Prof. Lopez is great; he's really well organized and follows the book closely. The homework has been helpful for learning the terms and information.

The first midterm exam in this course was NOT what I expected. None of the questions were multiple choice. We had to write out short (and sometimes LONG) answers. I barely finished it in the 2-hour exam period. Plus, three of the questions tested us on things we had never learned and skipped stuff we had covered in class. For example, we learned about delta functions, and it wasn't even on the test. But there was this question asking us which observations from the photoelectric effect are inconsistent with a particle theory of light. How am I supposed to know about that? I got a 55 on that test. What a crock! Forget physics, it's not for me.

Adapted from Handelsman, et al.

Learning Goals & Objective Cheat Sheet

Terminology

- **Learning goal:** Broad description of what students will understand and learn : often COURSE LEVEL (usually 5-10 per course)
- **Learning objective:** Specific, action-oriented description of what students will be able to do: often CLASS LEVEL (usually 2-5 per topic)

Different kinds of learning goals/objectives

- **Content:**
  - Memorizing, explaining, analyzing, integrating
- **Skills:**
  - Demonstrate complex problem solving skills
- **Beliefs and Affect:**
  - Thinking like a scientist, using scientific approaches
  - Appreciating/valuing/reflecting on science
- **Metacognition:**
  - Learning to learn, becoming an expert learner

Checklist for Learning Objectives

- Is goal expressed in terms of what the student will achieve or be able to do?
- Is the goal well-defined? Is it clear how you would measure achievement?
- Do chosen verbs have a clear meaning?
- Is terminology familiar/common? If not, is the terminology itself a goal?
- Does the goal align with course-scale goals?
- Do your goals cover a range of types of knowledge?
- Is it relevant and useful to students?