

**Bio 1010**  
**General Principles &**  
**Concepts in Biology**

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# Bio 1010

- For non-science majors
- 3-5 sections per semester, with ~400 students per section
- Our challenge

How can we improve the students' understanding of:

a) the nature & process of science, and

b) the relevance of course content to students' everyday lives?

# Our redesign

- A series of on-line modules that:
  - illustrate the application of course content
  - emphasize active learning
  - demonstrate how science works
- Each module contains a mixture of readings, videos, activities, quizzes, and discussions.
- Modules are embedded in Blackboard course management site.

# Examples of module topics

Alcohol metabolism

Sun-tanning

Correlation vs causation

Herbal remedies

Evolution of human mate choice criteria

GMOs

Climate change

Nature of science

Biotechnology

# Each module has 5 tiers:

1. What do you know?
2. Build your knowledge
3. Engage with the science
4. Apply your knowledge
5. Tiger Link

Flexibility is built in.

(example)

# Cost Savings

- Instructor time: we pool the modules, freeing instructors to spend time on developing other courses.
- Infrastructure wear-and-tear: modules replace some class sessions

# Assessment of pilot

## 1. Performance on exam questions

- 10 old exam questions pertaining to module content were re-used.
- class performance improved on 8 of the 10 questions.

## 2. Attitudes towards science

- 23 items on survey
- given at beginning and end of semester
- significant improvement shown in 14 items in pilot section (7 in traditional section)



# Lessons learned

- module development takes time
- integrating modules into course may require major changes to course structure
- students perform best when given frequent short deadlines
- get IRB approval early

## **Please break up into groups and discuss:**

- the particular problem(s) you want to address in your course
- the approaches you're considering
- any concerns or questions