Experiential Learning in Biology

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Overview

- Topics for Considerations
  - Instructor's point of view
    - Motivation
    - Application
  - Student's point of view
    - Motivation
    - Application
- Case study
  - Circadian Rhythms: Class debate
  - Principles and Practices of Biological Research (Cornerstone project)

Conclusion

- Effective pedagogical methods could be explored from examining instructor's motivation in teaching.
- Motivating students is the best way of achieving learning objectives.
- Flipped model class can complement the existing undergraduate Biology curriculum.
- Providing a room for students to fail in class improves the quality of learning.

Instructor's point of view

- Motivation
  - Content delivery vs. Critical thinking development
  - Teaching goals vs. Learning goals
  - Role of the instructor in class
- Application
  - Reading slides vs. Inviting questions from students
  - Asking good questions
  - Student-driven class
  - Whatever works stay
    - Clicker vs. Sign up sheet

Student's point of view

- Motivation
  - Getting good grades vs. Learning
  - Learning information vs. Learning perspectives
  - Intrinsic motivation vs. Extrinsic motivation
- Application
  - Assessment of student learning
  - Peer/self evaluation
  - Evaluating the learning process not the product
  - Making the learning process personal

Circadian Rhythms

- Adopting cross-discipline pedagogical approaches: Class Debate
- Utilizing online media

Principles and Practices of Biological Research (Cornerstone Project)

- Required course for the second year biology majors.
- Learning on
  - how to ask a good question
  - formulating multiple hypotheses
  - designing experiments to test the hypothesis
  - generating experimental data
  - making figures/tables
  - communicating the result to the public
    - Biology Day: May 7th
    - Journal of Biological Sciences at Rutgers Camden

Principles and Practices of Biological Research (Cornerstone Project)

- Challenges:
  - Asking a good research question
    - What is the most exciting soccer game?
  - Coming up with a hypothesis and an experimental design that can be performed in one semester (half of the semester)
    - Integrating with PPQB course
    - Publication on a rolling basis

PPBR SAKAI site

Journal of Biological Science at Rutgers Camden (JBS)

- http://jbs.camden.rutgers.edu/

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Questions?

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