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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