What I learned from CWSEI-EOS

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Outline

➲ EOSC 372: aka the big class, formally transformed
  ● About the course and the transformation
  ● What worked (clickers, assignments/quizzes, bulletin board)
  ● What didn't work (peerwise)

➲ EOSC 477: small class
  ● How the CSWEI process on one class is impacting how I think about this very different class
**EOSC 372 Introductory Oceanography: Circulation and Plankton**

- Originally, two one term classes that taught Physical, Chemical, Geochemical and Biological Oceanography sequentially.
- Transformed into two one term classes that teach 1) snapshot of oceanography through to phytoplankton 2) longer term processes in the ocean (climate)
- Core introduction to oceanography but most of the class is taking it as an elective. 240 students: 3 instructors, 4 TA's
Course Structure

» 45% Physics
» 30% Biology
» 25% Chemistry

Course is divided into topics with each topic about 1 lecture worth

Most topics single instructor but only one module is
Clickers

Why I like clickers:

✦ Breaks up monotony of lecture
✦ Lets me know if the students “get-it”
✦ Allows active participation of even the shy-est student
✦ Lets the students know if they “get-it”
✦ Brings active thinking into the classroom
Clickers : Important Do's

➲ 20% grace policy
➲ Allow students to not count their clicker marks if it doesn't help their mark: means that students that really don't want to come to class, don't.
Assignment after each Class

- A short, usually follow-up, assignment tested using a VISTA quiz
- Average 1 hr effort
- Learning Goals clearly stated

- Quiz opens after class and closes the morning before the next class
- Students bring assignments to class
- Self-quiz available after that time
- Most assignment solutions posted
Assignment after each Class

Why I like the assignments:

- Encourage the students to keep up with the class material... you need to understand the physics to apply it to the biology
- Well crafted assignments help the students integrate the material in the lecture and apply it
- Active learning, practise doing our multiple choice questions
- Allows more time in class for discussion and clickers
Assignments – Important Do's

➲ Stick to your guns... students do not like these. The broccoli analogy helps
➲ Use the assignments in the lecture, refer to them, clicker question follow ups – the more important you treat them, the easier it is to get the students to buy in
➲ So far, directly taking up the assignments hasn't worked particularly well.
Student questions:

- We allow students to send email questions to a list that goes to all instructors and the TA's and from this generate FAQ's.
- Last year we also opened a VISTA bulletin board. This was for the students by the students – we generally did not participate. The quality of the responses to some of the questions was amazing.
Peerwise

- We tried this in 2009
- Quality of the questions the students generated was poor – even the best questions were worse than instructors worst questions
- Meant that student time spent answering these questions was not helpful
- Felt we would need to spend in-class time on teaching how to write mc questions
- Felt we had enough in the course without peerwise
EOSC 477: Geophysical Fluid Dynamics

- 14 students
- Final year, integration course
- Generally highly motivated students
- Problem-solving based
- Other than learning goals, nothing directly translates from the big class
**EOSC 477: Changes**

- But what has changed is that now:
  - I think and talk about how I teach all the time – how can I help the students learn?
  - I know how to try new things in my class and have the students give it chance

- Hurdle for this class: how to solve problems
- This year: group midterm/exam
- Year after next: group tutorials
Summary

➲ Try new things! (but make it clearly a win for the students and tell them why you think its good for them)
➲ Use co-taught classes as a way to learn from your peers
➲ Engaging in the process is more important than any given pedagogical technique.