

Notes from the Life Sciences Carl Wieman Science Education Initiative

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Transforming two third year ecology courses

In September of 2008 Diane Srivastava took on the task of organizing the redesign of BIOL302 (*Community and Ecosystem Biology*) and BIOL303 (*Population Biology*) into two new courses: BIOL304 (*Fundamentals of Ecology*) and BIOL306 (*Advanced Ecology*). Based on some earlier organizational work by STLF Harald Yurk and others, Diane formed a course design committee (Gary Bradfield, Jake Goheen, Jon Shurin, Roy Turkington, and Mark Vellend), all of whom will be teaching the new courses. The committee first developed and submitted syllabi for the two new courses, allowing the new courses to start in September of 2009 and January of 2010. The new (BIOL304) will have two sections in the fall term (team taught by 2 instructors) and one section in the winter term, and BIOL306 that will have two sections in the winter term (team taught by 3 instructors).

Beginning in September 2008 Diane (DS), Harald (HY), and other design committee members developed the following work plan, which will be used to request continued CWSEI support.

September 2008 – April 2009

1. Build consensus between instructors as to course-level learning goals (achieved).
2. Develop outlines of field laboratories for each course (completed).
3. Develop topic-level learning objectives for BIOL 304 and 306 (in progress; finalize by April).
4. Select textbook that reflects learning goals (completed - HY gathered feedback from students on proposed textbooks).
5. Assess student's success in meeting select learning objectives in BIOL302 class (Develop assessment: DS and HY: assessment run by HY: results pending)
6. Develop lab assessments consistent with the new learning objectives (HY assist in design).
7. Interview students of current ecology course on their experiences (motivation, study habits, and features of course structure, e.g. tutorials (HY interview and analysis).
8. Investigate in-class tools for active learning (e.g. clickers) ongoing – STLF will assist.

May – July 2009

9. Develop, try and test some learning activities with the new field lab structure (STLF, student lab testers hired with TLEF grant).
10. Conduct interviews of student experience with field labs; assess student learning with pre-post tests (STLF, with the help of undergraduate students. DS, Wayne Goodey).

September - December 2009

11. Survey students at the beginning of BIOL304 (motivation, study habits, and features of course structure, e.g. tutorials (STLF interview and analysis).
12. Implement learning activities, e.g. clicker questions, in-class & online quizzes, peer engagement tools (STLF and Instructors: Jake Goheen [JG] and Roy Turkington [RT])
13. Assess whether students meet learning objectives before and after each topic. Coordinate assessment with questions in midterm and final (JG, RT and STLF).
14. Student and instructor survey after midterm and before final on experience with course structure and design features, e.g. clickers, peer-instruction, etc. (STLF)

January - April 2010

15. Repeat 12-16 in Biol 306 in 2010.

April - May 2010

16. Assess and report on what worked and what did not after one year of transformation (Summer 2010 – Instructors and STLF)

This work plan is based on a guideline paper for course transformations developed by the CWSEI and could be used by other discipline areas within the Biology Program. Progress has been made with the work plan due to the commitment of the faculty members of the course design committee.

In addition to this exciting project we have been busy with surveys. With the help from the instructors of Biology 121: Wayne Goodey, Rosie Redfield, Michael Hawkes, and Celeste Leander, Harald Yurk continued to conduct the Conceptual Inventory of Natural Selection survey (CINS) with a large cohort of students. Also, Jeannette Whitton kindly provided class and tutorial time to conduct the CINS and another test instrument with students in BIOL336 and Gary Bradfield, Eric Taylor, Colin Brauner, and Darren Irwin allowed us to run the CINS in their 4th year classes. The results from the roughly 1500 assessments will be in the coming newsletters. We thank all of the instructors who provided class time for this project. We also thank the 14 instructors of 4th year courses, who allowed some of their class time to run an extensive survey on student experiences with the Biology program. Results from that survey will also be made available in coming weeks. Hopefully some will already be ready by the time of the

CWSEI Year End Event on April 29th

CWSEI will be holding a day long event Wednesday April 29. All events will be in The Ike Barber Learning Centre (IBLC). In the morning there will be talks about projects that have been going on. At lunch there will be a poster session with presentations from STLFs and faculty and in the afternoon there will be 3 (at least) workshops. Look for more details in emails.

9:00-11:00 am: (IBLC 182)

- * Overview of CWSEI and what the different departments are doing
- * Talks on specific projects in departments

12:00-1:30 pm: (IBLC 261)

- * Poster session & lunch. Posters on projects in departments

1:30-3:00: (IBLC 260/261)

- * Workshop on using clickers effectively.
- * Workshop on invention activities.
- * Discussion/workshop on cognitive load in lectures

By the way: CWSEI website has useful resources for instructors. The link to the CWSEI resources page is: <http://www.cwsei.ubc.ca/resources/>

We're around.

If you're interested in talking to us about your course(s), or teaching /learning, or have a potential project, feel free to contact anyone of your LS-CWSEI team: Jared Taylor <jtaylor@zoology.ubc.ca>, Harald Yurk <yurk@zoology.ubc.ca>, Gulnur Birol <Birol@science.ubc.ca>, George Spiegelman <spie@interchange.ubc.ca>.