

## **BIO210, Evolutionary Biology, Winter – Spring 2014** (“emneevaluering”)

The 10 ECU course in evolutionary biology builds on basic knowledge acquired from introductory biology courses. Most students are third-year biology students, but both younger (2<sup>nd</sup> year) and older (MSc, PhD) students take the course. This is an elective course, but it is required for MSc students in the “BEØ” (Biodiversity, Evolution and Ecology) Masters degree program. The course is held in English, as there are always foreign students attending. The course has been a fairly traditional textbook-based lecture course, with a few scheduled plenum discussions. Recent attempts to increase active learning have included asking more questions during lectures, and the introduction in 2014 of two laboratory simulations. For many years, the textbook used has been *Evolutionary Analysis* by Scott Freeman and Jon Herron, currently in the fourth edition. A fifth edition will be available for the 2015 course. In addition, a few popular science articles were used, in 2014. A total of 29 students completed the course.

### **Course activities**

The 2014 course was run by Mikko Heino, but administered by Lawrence Kirkendall. MH held 11 double-lectures. Guest lecturers included LK (3 lectures), Andreas Hejnol (2 lectures), and Lise Øvreås. Lawrence Kirkendall also held an orientation before the course and a question and answer session just before the final exam. The midterm and final were organized and graded by both LK and MH. For the first time, we used commercial laboratory simulations (virtual labs); we used two modules from SimBio. The students answered questions based on their simulation experiments, and selected pages in their lab workbooks were graded by LK and MH. MH also did an in-class simulation of crossing over using ballpoint pens (the body being one gene, the cap being a second gene) and the students ran simulations of crossing over he devised using ‘R’.

### **Course requirements**

Students must turn in two workbooks, from the virtual labs, and take the midterm and the final exam. The labs count 20%, and each exam 40%, of the final grade. The midterm is multiple choice with a few short answer questions; the final exam is oral, with two questions taken from the midterm and two new questions on the material from the last 1/3 of the course.

## **Comments on the oral exam, suggestions for improvement**

Students did unexpectedly poorly this year, on the oral exam, irregardless of how well they did on the midterm. We expected them to demonstrate understanding as well as recall of facts, but many did not seem to understand what they were talking about.

It is possible that the oral exam itself was a problem, even though we have been using this evaluation form for many years for this course. Here are a few things we could try, to improve it:

### *Preparation session (I plan to try this in 2015)*

Each student brings a question based on an assigned range of topics. The students pair up. Student 1 questions S2, who has 7 min to answer. Brief discussion between the students about the question, about the answer. Switch roles. Repeat, with other pairings. Group discussion of questions and answers: what is a good question? What is a good answer?

### *Change oral exam somewhat.*

Each student can suggest one question, or pick one topic, ahead of time (submitted to us). We then exam that student on this question as well as those we pose. (*will think about this*)

## **Following up on previous evaluations**

The course was not evaluated in 2013.

## **Student evaluation of the course**

During the last course meeting, Kirkendall held an impromptu discussion on the two simulations which were used during the course, and on the strengths and weaknesses of lecturing (this was improvised because the scheduled guest lecturer did not show up). He then asked the students to evaluate the course, by addressing the following questions:

- 1) what worked well, in the course?
- 2) what did not work well, in the course?
- 3) what could we do to improve the course?
- 4) any other comments?

(There was no explicit question about the textbook because we will be using a new edition next year.)

16 responses were received, and are summarized briefly below. (*My comments are in italics, in parentheses.*)

1) What worked well?

Quizzes and questions raised during the lectures (*several comments*)

Good Powerpoint presentations (*several comments*)

“Penne oppgave” (I am not sure what was meant by this!)

Lectures were very good (*several comments, but see point 2*)

Relaxed atmosphere in class, lecturers spoke directly to the students (not over their heads).

SimBio simulations

Good to have lectures from invited experts (*several comments*)

Good midterm “fortsett med det”

Use of simple examples to illustrate difficult concepts

Lectures are difficult, so it helps to read the book ahead of time.

Good extra reading (*articles*).

2) What did not work well?

Difficult to know what level of detail to study, in the textbook.

(*This is always tricky, but I will try to help the students with this as we go along.*)

Many lectures were at a too basic level. (*Always difficult to please students of all abilities, but most comments seemed to reflect satisfaction with the level.*)

Some early (*Mikko's*) lectures were difficult to follow

Too little or unclear information about the virtual labs; hard to know what would be important for grading (*many students said something like this*)

Virtual labs took a lot of time compared with what one gets out of them and compared with how much they count for the final grade.

Powerpoints should have more words on them, difficult to review using them... (*many? some?*) lacked key points

There were typos in the midterm.

Topics in the in-class discussions could be a bit difficult, which resulted in the discussions not working very well. (*Several students made comments similar to this. Similarly, their were comments about questions raised by the lecturer during lectures not working very well, “blyge studenter”*)

“teach a little less complicated evolutionary equations”

Hard to pick out what was important and what not, in the book chapters (*several other comments like this*)

3) What could we do to improve the course?

Exchanging names (*of students*), mingling

More use of Socratic (*I am using it regularly this year*)

Better information about the virtual labs (*many comments; I will try to improve this*); better information about what one should know before starting the labs (*Note: the labs are supposed to be pretty much self-contained, and teach the concepts as you go along.*)

More information on exams (*not sure what this means*)

Provide previous exams. (*In each lecture, I will be using 1 or 2 questions which have been used in previous exams. I will not be providing entire exams, however.*)

Begin course earlier (*we are doing that, in 2015*)

“Sometimes do survey among students about which part they are interested, and lecture more on that.” (*I am thinking about this*)

Lectures don't cover all of the topics in the chapters, so it would be nice to have better information on what to prioritize in studying. (*Will try to help students with this.*)

Better feedback on what was correct and what was wrong on the graded reports from the labs. (*not sure we have the resources for this, but will keep it in mind*)

Take the students out of the classroom more times, as with going to see Mikko's experiments (*guppy research*) (*I am trying to do this in 2015*)

4) Any other comments? (most are given here)

“Veldig nøgd med kurs og føler at eg har lært mykje!”

“Veldig kjekt med gjesteforelesere som var spesialister innenfor eit felt.”

“Faget er et av de bedre jeg har hatt som ‘valgfag’ og det er veldig tydelig hva som er pensum, for en gangs skyld.” (*not sure what this means*)

Mikko “seems not to have much didactics”, the other lecturers were “quite dynamic and exciting”

“...god struktur på kurset, og engasjerte forelesere som gir motivasjon til å jobbe med feltet.”