

Report on BIO 308 - Early Life History of Fish 2015

This was the second time running this course, and an opportunity to implement some of the improvements noted in the 2014 report. Student numbers were initially higher (8), but several students dropped during the first two weeks. We think this is in response to the requirement for laboratory time and the emphasis on numeric skills. Clashes with group work in BIO 300 were also indicated. Five students registered for the course, but again the ideal number would be 10-15. We reordered the presentation of topics to group lectures, student led discussions, and laboratory exercises around the major hypotheses in larval fish ecology. This made a closer connection between the theoretical and practical aspects together in a single course, enabling students to understand major research advances in larval fish ecology together with learning the skills necessary for experimental work with fish larvae.

We were able this year to include a trip to sample larvae at sea, and to work on the samples collected. We ran a shorter experiment, using wrasse larvae as a fil-in for herring, which were not available in the right time-window. These learning outcomes were the focus of the various class activities: lectures, student-led seminars, and practical work to collect data from an ongoing experiment with herring larvae.

We also changed the lecture format, with students responsible for giving some of the lectures. This was not completely successful in the beginning, because we had not communicated sufficiently what our expectations were. We had intended these to be lectures covering the assigned topics, based on (text)book chapters or review articles. The first few sessions did not conform to this model, and we have resolved to present the requirements for this activity more clearly next year. We continued with the student-led seminars, based on each student selecting a research paper and leading a seminar based on this paper.

The papers from the lectures and the seminars constituted the penum for the course; there is no textbook available for this topic so several books were listed as suggested background reading. We also included a chapter from a basic fish biology textbook, as an introduction to fish larvae. This was made available to students from the beginning for those who did not have basic knowledge of the early life history of fish.

The laboratory activities were broken up into smaller exercises, and a shorter rearing experiment. The laboratory activities were designed to have students learn and master the skills of collecting data from larval rearing experiments: sampling larvae, photographing and weighing them, extracting otoliths. The students learned basic steps in image analysis, data handling and interpretation - all using material that they produced during the course activities. Students were assigned to participate in the daily routine of larval rearing, so that they learned how to handle live prey and feeding, how to monitor tanks for environmental conditions and prey densities, and how to maintain a laboratory population of marine fish larvae. This required extra hours -approximately 2h per week - for each student, in order to perform the maintenance tasks. The scheduled laboratory activities were held in two 4-hour blocks in weeks where seminars were not scheduled. Participation was required but there was more of an issue with time planning this year, as students had more conflicts with other courses.

Students wrote individual reports on one of the exercises, and combined their efforts for a larger report on the rearing experiment. Each student was responsible for a different section of the report, including the data needed for that section. They often needed to collaborate and hand off data from one section to another.

Overall the course seemed successful in achieving the original aims. Several issues arose during the course and these were especially challenging:

- 1) the small class size meant that each student bore a heavier workload than expected. For the practical work, we had anticipated that the students would work in pairs and benefit from each other's support. Although we started out with more students, we ended up with only 5, and this put a lot of pressure on them.
- 2) the students who remained in the class were good at quantitative skills, but still rather unprepared in basic scientific tools; in particular quantitative thinking, and they were inexperienced in keeping a laboratory journal or writing laboratory reports.
- 3) the students were also less experienced in "learning by doing" – by which we mean that they were accustomed to saving all the material to study at a later date when preparing for a final examination. For a so-called "skoleexam" this may be a good strategy, but since we are helping students to achieve life-time skills at learning, they should be shifting to more continuous work in each course, to keep up with the material. We expected this from the previous year (2014) and tried to encourage them to begin their work earlier.

The small class size was not a challenge for developing a good discussion during the seminars, because these students were quite outgoing and enthusiastic. Two out of the five had trouble communicating orally in English, but despite this, they were active in discussion and in class.

Our students were more capable this year than in 2014, and that showed in their ability to do the basic work. However, they were still weak in thinking about data analysis, and it is evident that the experience gained in this course is important for them. The course was aimed at semester 1 masters, those who will be doing experimental work or field work for their thesis. We planned the activities to integrate with and to complement the building of skills and capabilities in BIO 300. We hoped that our emphasis on keeping a lab journal (part of the course evaluation), collecting and working with data, critical reading and interpretation of data – these would all reinforce what was going on in that course. We hoped, in particular, that students would take advantage of the statistics training with R that runs concurrently during BIO 300. We did not achieve the expected synergism that we wanted to, and we felt the students were under a lot of pressure to meet the work load in the different courses, rather than being able to benefit from course synergies. This is one of several reasons that we have decided to move the course to winter semester, so that it will next be offered in spring 2017.

To improve the course next year, we plan to continue with improvements in laboratory activities, and push the students to begin to collect and process data earlier. We will also formulate a clearer description of the student lectures so that they understand better what their purpose is, and how to prepare them. We will continue to advertise more widely to attract more students with a wider motivation.

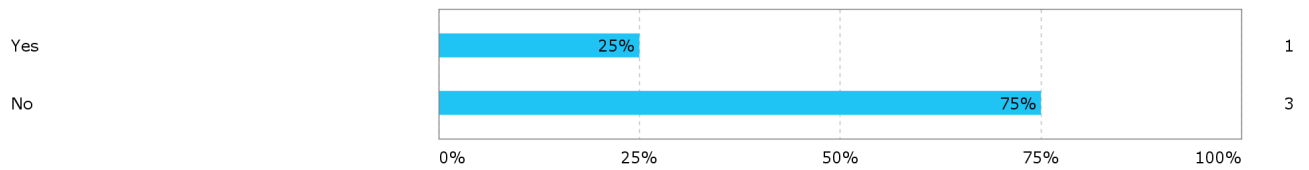
Bergen, 4. Feb. 2016,

Arild Folkvord & Audrey Geffen

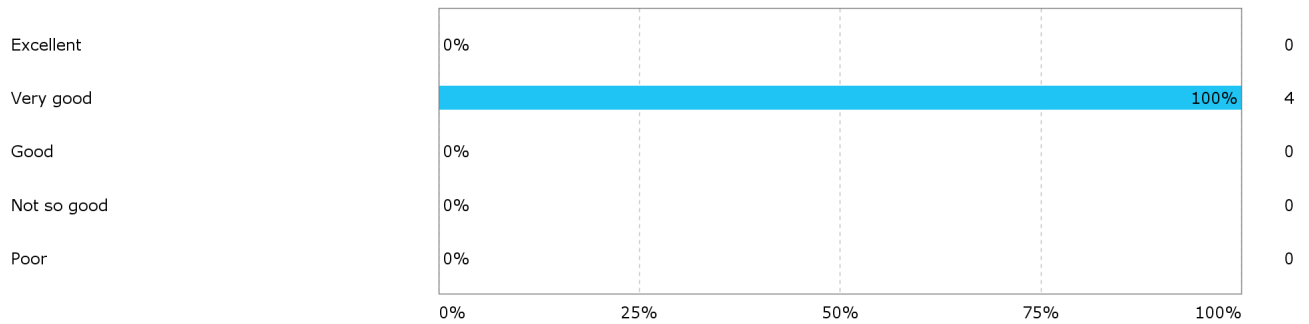
Attachment: Report from student evaluation of BIO308 (5 students)

Student evaluation of BIO308 Autumn 2015

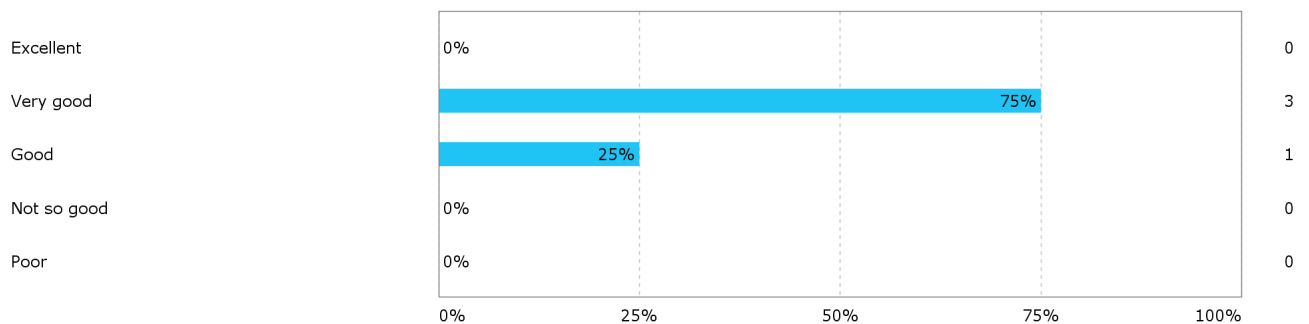
1. Do you feel that you were sufficiently prepared for this course?



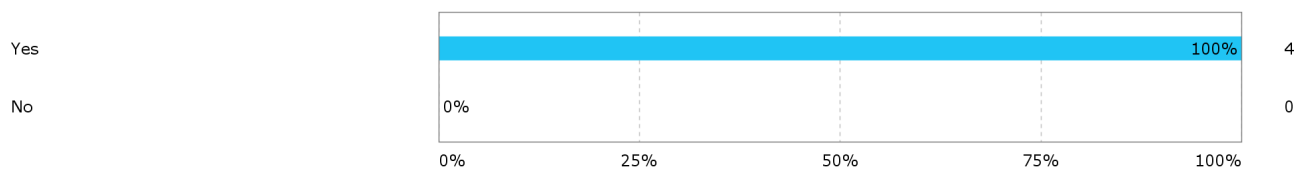
2. How do you rate the lecture content?



3. How do you rate the lecture presentations?



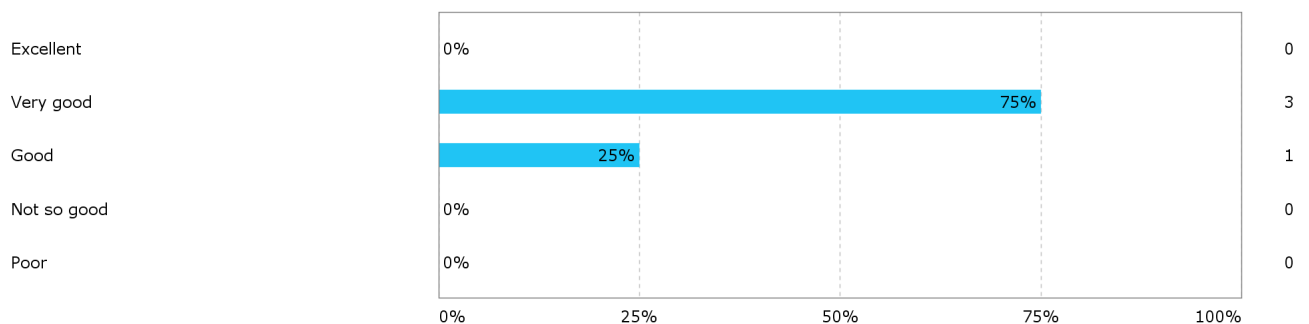
4. Was the course material clearly communicated?



Any comments to this section?

- Need more details on lectures
- Some of the powerpoint had unclear graphs

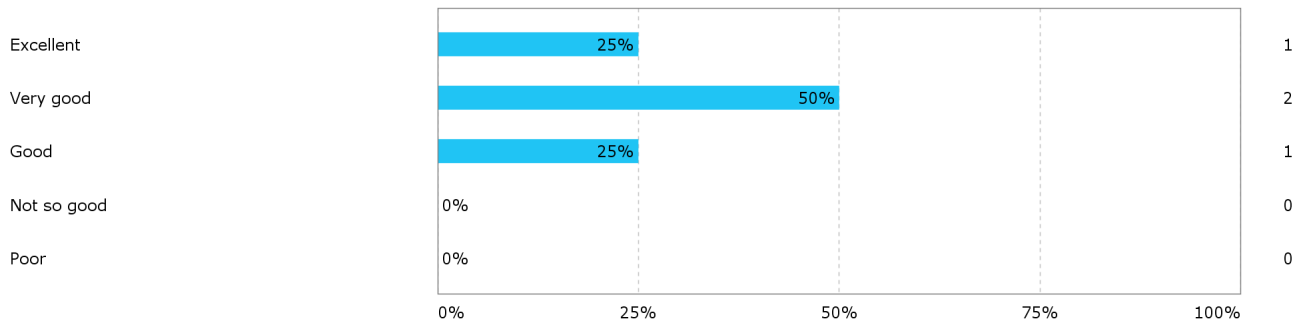
5. How do you rate the seminar activities?



6. How can we improve the classroom experience?

- Be more clear about what you expect from us

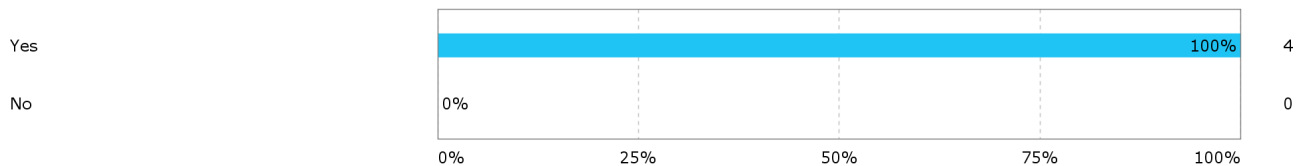
7. How do you rate the practical activities?



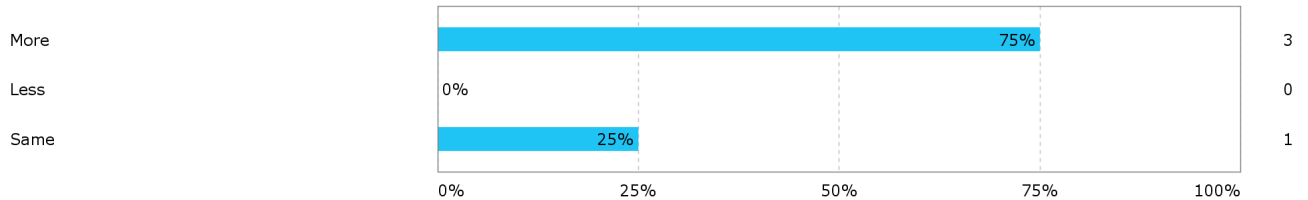
8. How should we improve the practical experience?

- More reasonable, Not only for prof. but also for students
- It was very time consuming and difficult to combine with other subjects so if there is a way to fix this that would be good

9. Were you satisfied with the balance between lectures, seminars, and practicals?



10. How did the workload in this course compare to others of 10 ECT?



11. What was the most problematic aspect of this course?

- something about the practical experiments
- The time necessary for the lab work

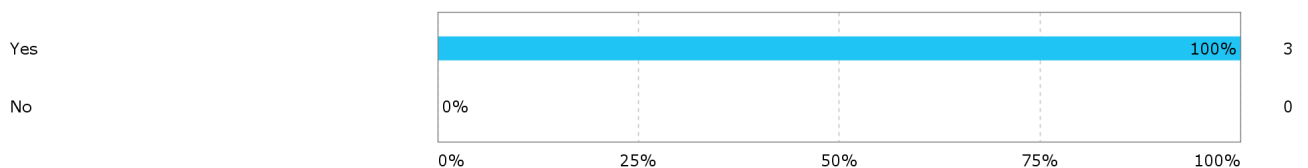
12. What was the most positive aspect of this course?

- I learnt more about important theories
- Activities
- We were a small group and learned a lot. You guys were very approachable

13. What were the most important things that you learned?

- Theories for larvae survival.
- Larvae rearing, concepts
- a general insight into the early life history. i did not have any prior knowledge on that

14. Did this course meet your expectations?



15. Please comment on how well this course integrated with other courses you took this semester

- Great.
- Fish science, in general
- Not that well

16. Any other comments?

- No
- Great subject and great guidance! Thank you for all your time and help, I've really learned a lot and enjoyed it! :)

Samlet status

