

Report on BIO 308 - Early Life History of Fish 2014

This course was run for the first time, starting in August 2014. Five students registered for the course, but the ideal number would be 10-15. It evolved as a combining of two previous larval fish courses - BIO 338 and BIO 305. The intention was to combine 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. 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. There were 20 lectures, which covered topics from development to physical factors to recruitment mechanisms, and which were based heavily on relevant research papers. Each student was also responsible for selecting a research paper and leading a seminar based on this paper. Since 12 seminars were planned, each student had two seminars to lead. The papers from the lectures and the seminars constituted the pensum for the course; there is no textbook available for this topic so several books were listed as suggested background reading. Laboratory activities were designed around an ongoing experiment to produce hybrids of Baltic and Atlantic herring and test their growth responses to different salinities. 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. 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.

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. With only 5 students, this did not work.
- 2) the students were not well prepared in basic scientific tools; in particular they were weak in quantitative skills and quantitative thinking, and they were inexperienced in keeping a laboratory journal or writing laboratory reports.
- 3) the students were inexperienced 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.

The small class size was also a challenge for developing a good discussion during the seminars, and impaired the whole class dynamic. Our target for class size is 10-12, maximum 15 students, which we believe, based on experience in the previous courses, will generate the most energetic and constructive atmosphere. The low student numbers are mostly the result of timing: BIO 305 was last taught in spring

2014, and BIO 338 in autumn 2013 – therefore there were fewer potential students for this first time.

It must be stated that our greatest challenge in this year has been the level of preparedness in the students. It was clear from the student discussions in the last weeks of class that they had difficulties especially with quantitative skills, and felt that our expectations of them were too high. The course is 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 need to take steps to discuss with BIO 300 leaders how to improve the reinforcement of learning activities.

To improve the course next year, we plan to revise the laboratory activities to ensure that students begin to collect and process data earlier. We plan to develop a more specific course pensum to allow for more freedom in introducing new topics in the lectures and seminars. We will also advertise more widely to attract more students with a wider motivation.

Being held in the autumn semester, we also suffered from collision with other field courses, and as always, the interruption due to other lab and field course activities in other courses make the planning and follow up of the course challenging and sub-optimal.

On the positive side, the merging of the two previous courses and collaboration between teaching staff has provided new opportunities for constructive discussion of the course content and style, and we expect the scope of improvement for next year's course to be more easily achievable.

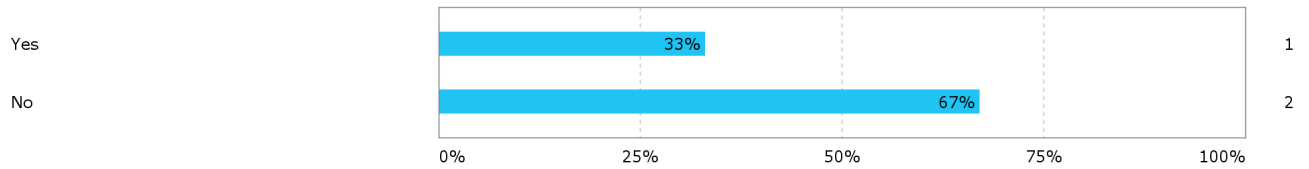
Bergen, 15. Jan. 2015,

Arild Folkvord & Audrey Geffen

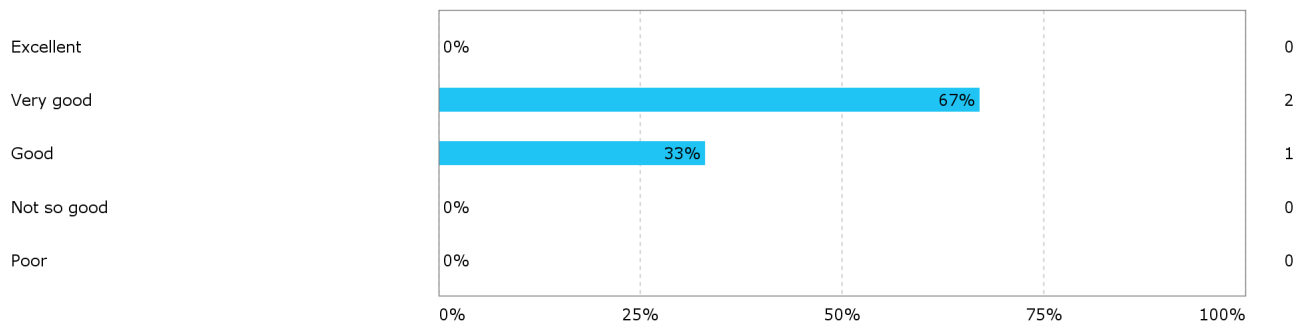
Attachment: Report from student evaluation of BIO308

Student evaluation of BIO308 Autumn 2014

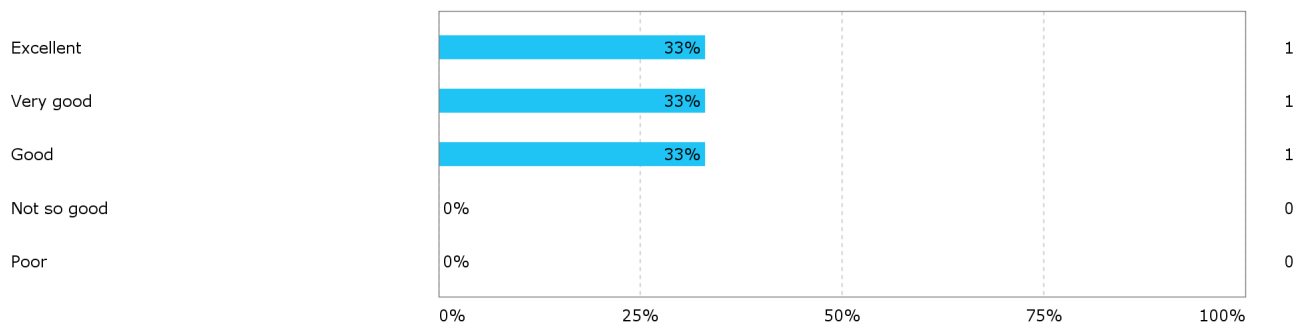
1. Do you feel that you were sufficiently prepared for this course?



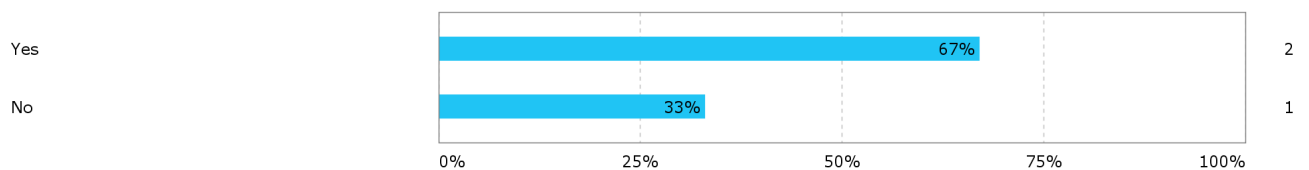
2. How do you rate the lecture content?



3. How do you rate the lecture presentations?



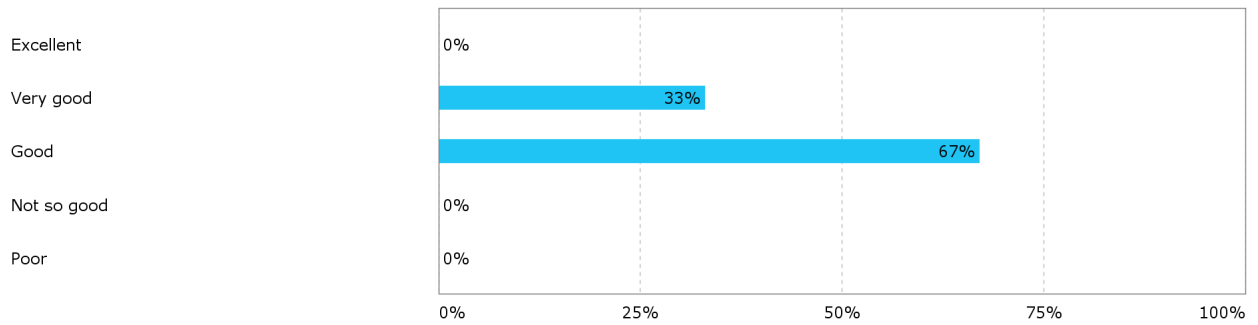
4. Was the course material clearly communicated?



Any comments to this section?

- Sometimes a bit abstract, but no problem as the lectures were more like a conversation, with two way dialog.

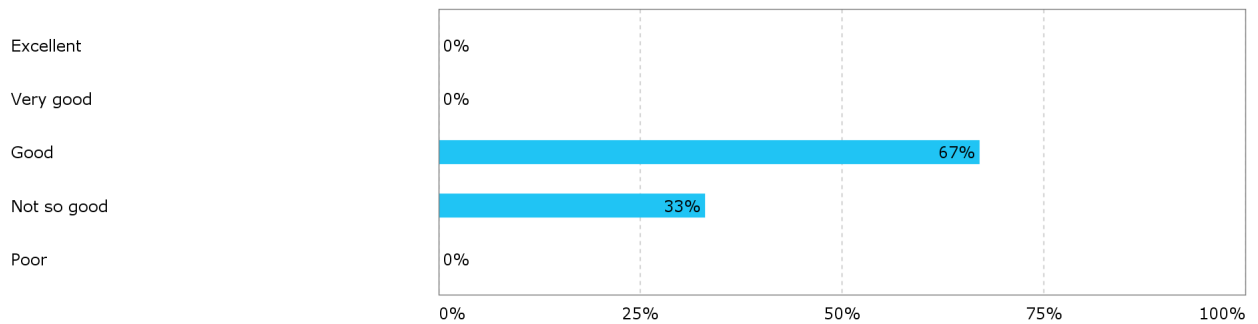
5. How do you rate the seminar activities?



6. How can we improve the classroom experience?

- Great with dialog between lecturers and students.
- it's good

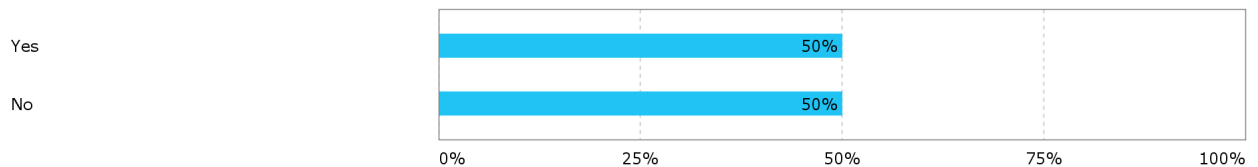
7. How do you rate the practical activities?



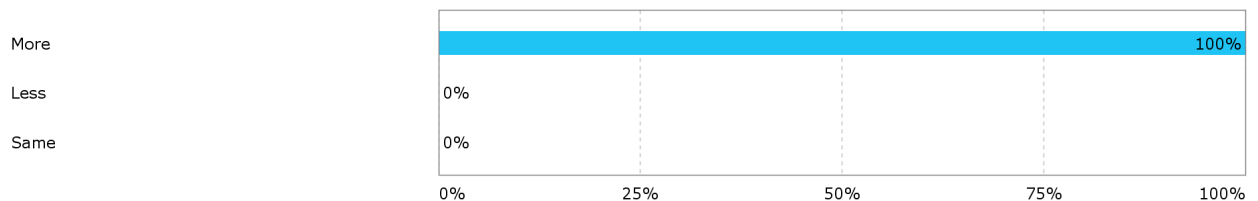
8. How should we improve the practical experience?

- To increase the routine and practical experience, it might be helpful to let students have responsibility of a whole week, instead of once a week. Some things are forgotten if only done once a week.

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?

- writing two reports and 2 seminars is too demanding.

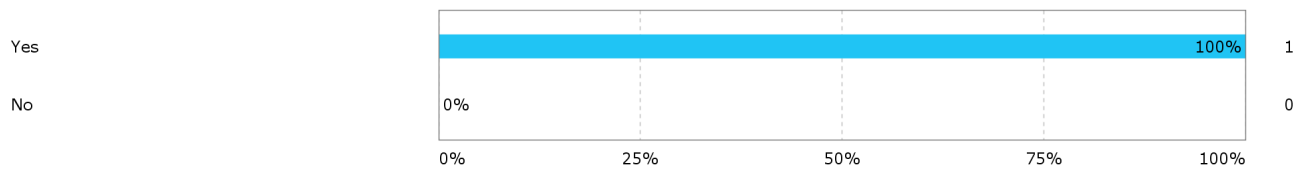
12. What was the most positive aspect of this course?

- seminars and lab work

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

- Presentation and report writing.

14. Did this course meet your expectations?



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

- It had aspects which were related to my other courses.

16. Any other comments?

Samlet status

