

BIO 208 Environmental Impact of Aquaculture - spring semester 2015

Course leader: Audrey Geffen Teaching assistant: Mathias Stølen Ugelvik

Course description

The content and objectives of the course are described as:

"The course is based on lectures, seminars and assignments and will describe the environmental impact of aquaculture on a global scale. While most of the course will concentrate on the impact of intensive cold water aquaculture, the environmental impact of aquaculture in developing countries will also be covered. The course will cover a wide spectrum of environmental issues resulting from expanding global aquaculture. These will include the competition for natural resources and the impact of direct organic pollution. The impact of aquaculture in developing countries will be covered, in particular concerning the loss of coastal zone habitats. The course will deal in depth with the impact of intensive aquaculture on wild fish populations, including the transfer of disease and parasites (sea lice), the impact of escaped fish, and the threats and benefits of GM fish. The environmental impact of industrial fishing and fishmeal production will also be covered. Finally, the course will touch on the introduction of new feeds and reduced-waste technologies, and the benefits of re-circulating production systems."

The learning outcomes are:

"...to give the students an understanding of the impact of aquaculture on a global scale."

The text in these sections needs to be updated before the next academic year to reflect changes in content so as to improve the integration with BIO 382 Aquatic Food Production. In particular, most of the fishmeal production and development of new feeds was moved into that course, and we need to evaluate whether we have the optimal overlap in content. The learning outcomes need to be expanded to explicitly inform students of the emphasis on critical thinking, oral and written debate, and student participation in the learning.

Spring 2015 experience

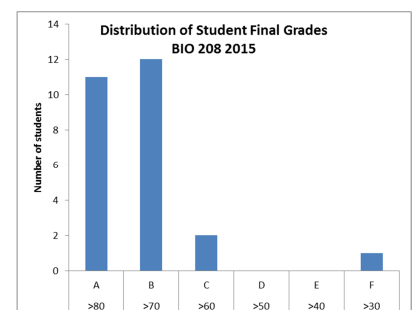
This is a popular course for exchange students, with a final total of 27 students taking the examination. As in previous years, there was a wide mixture of backgrounds, which can be problematic, but gives a more rewarding experience for learning and teaching. Students were at the Bachelor and Masters levels, and came from Norway, Australia, Japan, Hong Kong, France, Germany, Holland, Sweden, Portugal, Malaysia, Lithuania, and Greece. Although most were studying biology and aquaculture, there were also students from geology and environmental science, and one from economics/logistics.

An initial Socratic exercise in the class indicated that a strong group of students did not appreciate digital tools (smart phone surveys, etc) or social media, especially Facebook. MiSide was the preferred method for communication and students were good at keeping updated. We did form a Facebook group, but it was not very active.

The course structure was not altered very much from 2014; each week one class meeting was devoted to lectures and one class meeting was devoted to student-led discussion. There were four guest lectures, and one of these also included a discussion session. The pensum was composed of scientific articles and essays, as well as the material sourced by students for their discussion sessions.

Students were divided into six groups (4-5 students each), each group responsible for leading two discussions during the semester. In addition to sourcing the reading material, they also summarized it for the class, led the discussion with prepared questions, and wrote individual essays on a selected issue within the topic. There were two parallel discussion sessions, each with three of the student groups – ca. 15 students in each. The groups stayed constant throughout the semester, but the teaching staff rotated.

The student grades were based on the student-led discussions (50%), on two written essays (25%) and on the final written take-home exam (25%). Final grades were distributed mostly in the A's and B's and reflect the attention and work hours put in by most of the students



Addressing issues from 2014

Several comments in the student surveys from 2014 were addressed and improvements were noted:

- 1) The room assigned for the course was changed and this helped
- 2) The class was divided in two to encourage more comfortable discussion.
- 3) The addition of a teaching assistant made an enormous difference to the learning experience, especially one with a real interest in the topic, and considerable teaching experience. This made it possible to have smaller discussion groups, and also to return feedback on the written work more quickly.
- 4) The length of the final take-home exam was reduced to better reflect the weight allocated in the marking (25%)
- 5) More opportunity was given to practice writing during the whole semester and more feedback on the writing was provided
- 6) The evaluation criteria was made more explicit; with clear instructions for how the written work was marked, what weight was given to the different evaluation modes (participation in and preparation and leading of discussion topics, including a group report – 50%, exam – 25%, essays – 25%).

The marking information given for the written work (essays of 1000-1500 words) was:

How BIO 208 Essays are graded:

Total possible 100 points:

20 points- Introduction – clear statement of the topic, how it relates to the course (or you) and which aspects you want to focus on. Clear statement of the intended approach to explore the topic and what will be emphasized. What do you expect to find?

50 points- Main text – paragraphs with clearly described relevant topics, well referenced. The facts must be correct and cited. Develop your opinion and back it up with facts

20 points Conclusions – clear statement of what the previous text has brought to light *including what has not been investigated* (either by you or by the literature). State whether your initial impression of the topic (from Introduction) has been supported or undermined by the research. State what you think seems to be the next step in looking at this topic.

10 points References – all properly cited and in the same consistent format (eg Harvard style or similar). All references are mentioned in the text and all text references are found in the list. Remember to give the accessed date for internet resources.

Papers cited in a review article use the review article as the reference.

To reinforce this, the first discussion session was led by the teaching staff, presenting three selected essays (sourced from the internet and from Nature) on aquaculture as a demonstration of what to do and what not to do.

Evaluation of 2015

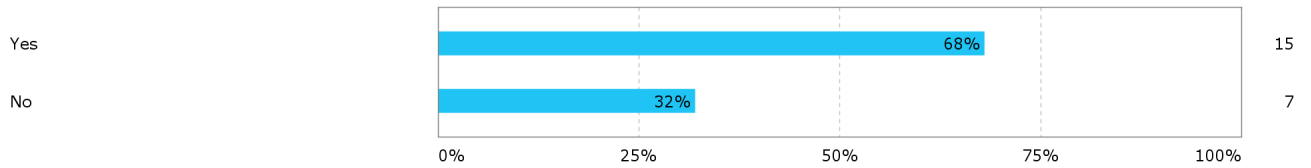
Overall the course is evolving in a positive way and the level of accomplishment and satisfaction on the part of the students is encouraging. The guest lecturers have reported that they have enjoyed participating and look forward to doing so again next year. We will continue to modify the content to incorporate new advances in the field, and changes in the other courses offered at BIO. It was a big improvement to share the teaching this year, and it would be a good idea to increase the teaching team further, as well as inviting the guest lecturers into the planning group.

The most critical comments made by the students in their evaluation were again directly to the discussion sessions. Many students do not like to take responsibility for their own learning and thus ask for more lectures. Fortunately, many more students were enthusiastic about the freedom to follow their interests and explore the topics. Most students commented that they felt a real sense of accomplishment, and appreciated how much they had learned. The most important criticism revolved around the use of groups and the evaluation of group work. In some cases it was clear that not all group members were participating fully, and the others were concerned that the marking would not pick that up. In reality, although the group presentations (oral and written) were marked for the whole group, the participation and individual essays were marked for individuals. The intention was to compensate for group dynamics and for personalities (shy vs extrovert). The suggestion was made that group members should evaluate each other, and that may be something to utilize at some point. A form used in BIO305 (not offered anymore) could be adapted:

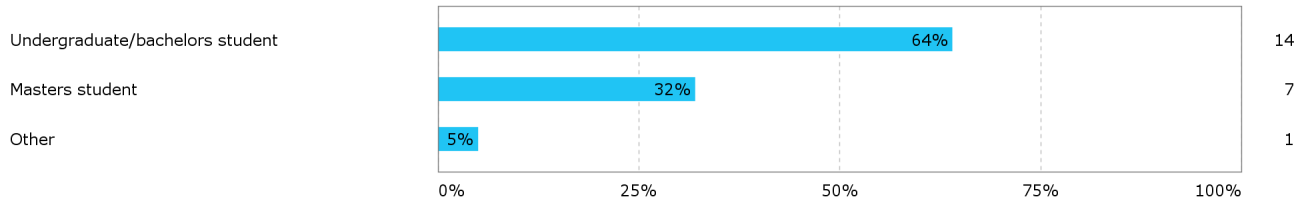
Student survey results

A very high proportion of responses came back from the student survey (23 of 27); probably since they were given time at the final class meeting to fill it out.

This course is an important component of my studies



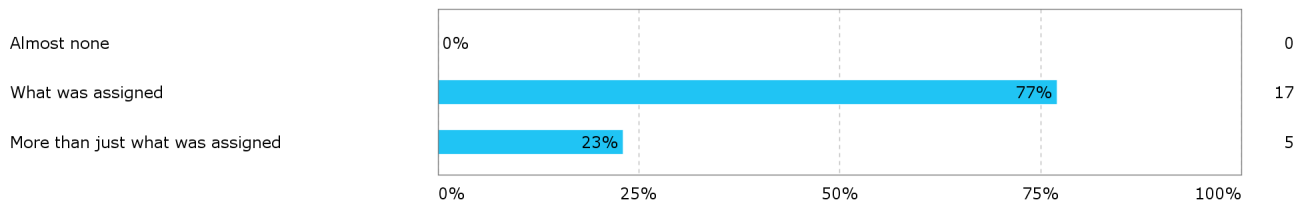
I am an:



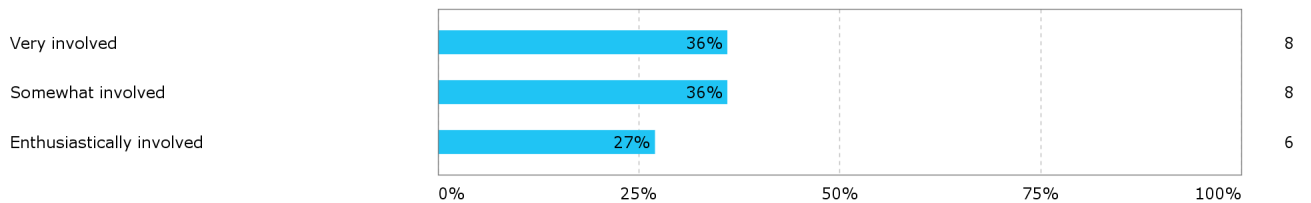
I am an: - Other

- i finished my bachelor and will start my master next year

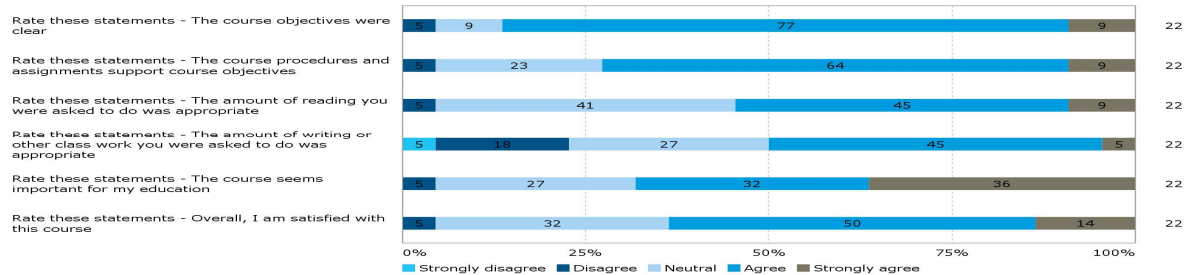
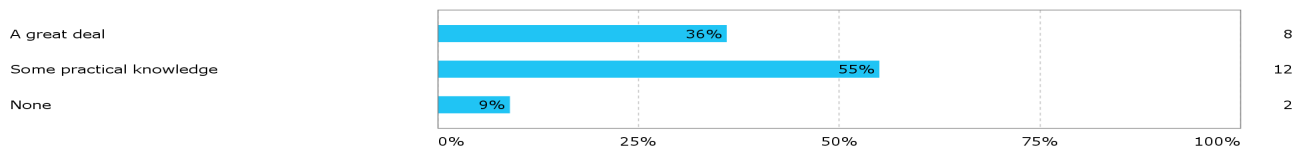
Rate the amount of work you did



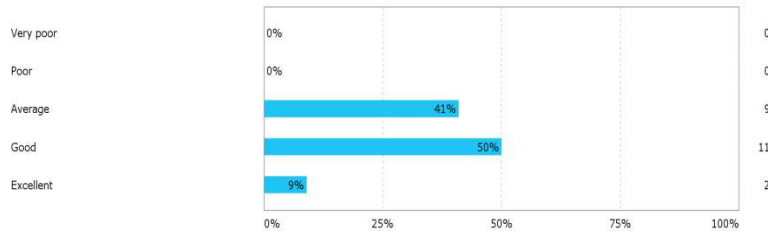
Rate the level of your involvement in the activities of this course.



How much practical knowledge have you gained from this course?



What overall rating would you give the course?

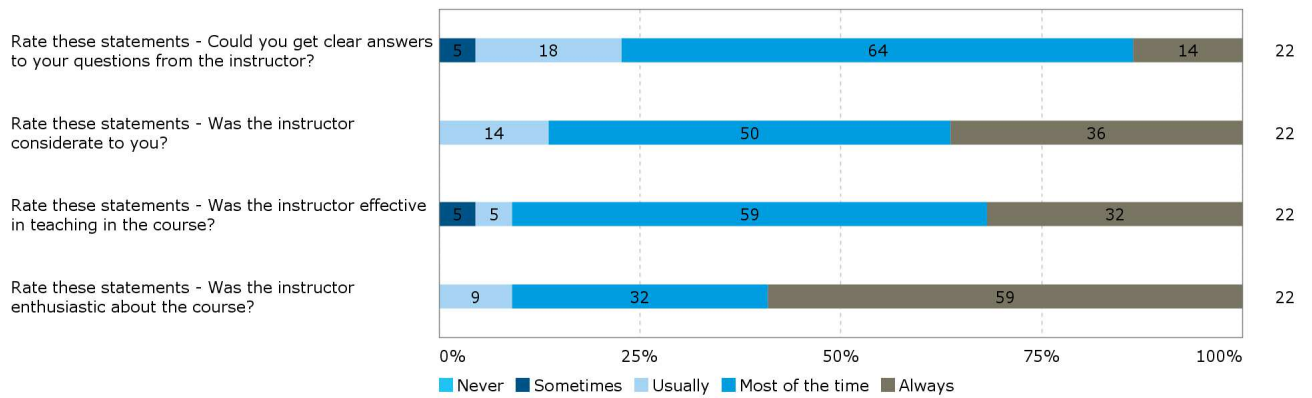


What do you think was the best thing about this course?

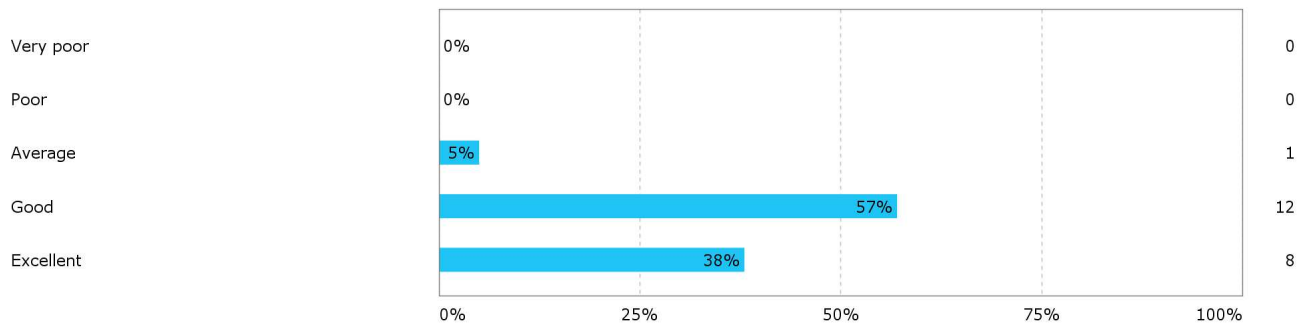
- discussions
- The fact we were able to hear about the course's main topics from the specialists working in the area.
- discussion sessions
- the best thing must be to learn about the effects of aquaculture. Talk and write english.
- Guest lectures
- Topics
- The individual involvement during discussion sessions
- learning by discussing
- Working in groups
- Temaene som vi lærte.
- Freedom of speech, active participation for some student, experience shared by guest lecturers about previous work done
- I liked the discussions classes, it was very import and it made me better at speaking in front of the class
- Group work
- Being forced to read papers and having to read up on new stuff is probably good for me
- Read Scientific article
- Lectures
- Learn to write an Essay, the discussions and the great knowledge output of the course
- writing essays
- discussions
- Learn how to write essay

What do you think was the worst thing about this course?

- Group work instead of being a useful experience, an opportunity to gain skills such as team work, ended up (at least for my group) to be an unpleasant experience. Some members of the group were delegating their own tasks to the rest of the group with silly excuses or even worse with total absence at group meetings. As a result, those people were showing up to the discussions the very last minute presenting work that others have done. Free-riding phenomenon makes really unpleasant experience one of the best parts of the course. As a suggestion I would like to recommend an group evaluation as part of the essay grade. Every member of the group evaluates the others. Therefore, everyone will be more responsible with group work.
- The "free-riders" in the groups that didn't do their fair part of the work. In addition, the essay evaluations/marks were hard to understand and when you get a bad grade and don't understand what you did wrong it is very hard to improve.
- I dont like to write essays. maybe we could have chosen between article and essay. Another bad thing is the amount of grade% in just talking. there are different type of people, some like to talk other not...
- Group report
- Diskusjonene er en god ide men når de fleste ikke er aktive blir det ikke så givande..
- The large amount of writing was slightly overwhelming. Especially the final examination.
- the short exam dealine
- Maybe too much oral discussions
- DISKUSJONENE og alt arbeidet rundt det. Jeg har aldri jobber så mye før for kun 25% av karakteren
- vague essay grading
- too many assignments
- A lot of tasks for me.
However, I think this is normal task for university students.
Worry about exam period.
- Sometimes hard to know what we're up to, but we always get info helping us some time before we have to know it.
- Too much amount of work
- Sometimes discussions because we didn't know what to talk about
- The big work load, some of the guest speaker were boring
- when nobody talk, maybe I would prefer the teacher waits less when nobody talk or ask specific person to answer as she did once during lecture, because often students are to shy to answer if they do not have to
- No idea



What overall rating would you give the instructor?



What would you recommend to improve the instructor's performance?

- Not much to say here. Instructor was very enthusiastic and continuously tried to stimulate student participation. My only suggestion would be to keep an eye open for free-riders. A good evaluation alternative would be to have group members rate each other. It would stimulate a more responsible behaviour and keep "free-riders" on their toes.
- Use more info about Asia - how aquaculture is done there
- Less writing - more directed discussions
- Nothing special
- Det var veldig bra!
- Better explanation on how gradings are
- I just confuse the syllabus.
Because, it was different between English and Norwegian page.
Also, sometimes, assignment folder open and close so late. So I was confusing which day I should submit assignment.
- I dont know
- You did a great job, thanks!
- What I said in "worst thing about the class"

Samlet status

