

Course analysis for BB200x "**Degree Project in Biotechnology, Second Cycle, 30.0 credits**", spring 2017

Background

This course was started in 2016 by Maria Humble, and it was run for a small number of students (five) during spring 2016. In late 2016 Peter Savolainen and Qi Zhou jointly took over the roles as course responsible and examiner.

Analysis spring 2017

The course was run in spring 2017 for 18 students. Seventeen of these students completed the course, with the grade "pass", in June 2017, according to the course time schedule. One student still needs to make small adjustments to the thesis before passing the course.

Below is a summary of the course evaluation given to the students, showing all their answers and comments. Some especially common or important comments are highlighted with yellow. At each section, under a red heading "**Our comments:**" we give our own comments and conclusions, and at the end of the course evaluation is a section headed "**Our final comments and conclusions, and further plans:**". These comments constitute our course analysis.

Course evaluation BB200X

The goal of this evaluation is to get information from you in order to improve the course in the future. Since the course is new, your opinion is especially important for us!

Please note that we want to hear your opinion primarily about the course format, not about the actual project and supervision. At the end of this form there is an open question where you can relate your opinions also about the project and supervision.

It is OK to skip questions if you can't/don't want to answer!

Our comments:

We present below all the comments offered by the students in their course evaluations.

We have received 15 evaluation forms out of 18 students giving a response rate of 83.3%.

1. To what extent do you think you have achieved the stated course goals?

Very large	Large	Fair	Small	Very small
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	5	1		

Comments:

I feel that I have reached all course goals.

The project management was difficult because it is stated SO harshly black and white in the course goal and meeting up to that standard in research is SO difficult because nothing behaves as they do in theory and there is a high level of uncertainty.

Our comments:

The students generally think they reached the course goals to a high degree, 7/15 (53.8%) to a very high degree. Only one student seems less satisfied, having reached the goals only to a fair degree. Thus, the course has been generally successful and there is only one minor indication of problems.

Notably, this correlates very well with the evaluations from the supervisors, which are generally very positive, as well as the opinion of us examiners who find the theses to be of generally very good quality.

2. How many working hours per week have you spent on the course and your project?

<35	35-37	38-42	43-45	>45
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		4	5	5

Comments:

Full time work (40 h)

On average, the working load per week was probably a couple of hours above 40 hours.

In average. More in certain periods.

With the restricted time frame, it was sometimes difficult to keep up with the writing work (project plan, thesis) during working hours since the experimental work had to be prioritized.

Our comments:

All students have spent more than 40 h per week. This is also reflected by the excellent outcome of the final master thesis reports of the students. One student mentioned the difficulty in keeping up with writing. It is therefore important that students allocate enough time to write the project plan and the thesis from the start of the project. We will further emphasize this issue in the description of the project plan and/or at the start-up meeting.

3. To what extent do you feel that you understood how the course was organized and what you were expected to do.

Very large	Large	Fair	Small	Very small
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	6	5		

Comments:

It was difficult to find information about the limitations about each part of the course, e.g. format for report and format for project plan.

The organization of the course was mostly understandable, especially after the start-up meeting. There were some things that were unclear about for example the project plan and exactly what was required. However, when asking, it was much clearer.

Instructions were often unclear and gave much room for interpretation.

I think the layout of the course was clearly presented in the kick-off meeting. I understood well what was expected of me throughout the 20-week course. However, for certain tasks that I had not done before such as making a work-break down structure or performing a risk assessment, it would have been nice if the course had a definite literature that we could refer to. A text book or literature slides in English would have helped a lot.

Our comments:

Out of 14 students, 9 think that they understood the course information to a large/very large degree, and 5 only to a "fair" degree. Thus, there may be some problem with the information about the course organization to the students.

However, during the course we have recognized that a few parts of the course PM and the Supplement are a bit unclear. We have therefore already made several changes in the course PM which we think will make things clearer, especially those concerning the project plan and the thesis (which were indicated as problematic in three of the student evaluations).

The project plan may be particularly problematic since several students have not had any former courses teaching this, which is probably why they feel a need for more information. Please see below a discussion about this problem.

4. What do you think about the general format of the course, with start-up meeting, half time meeting and oral presentation/opposition? Was this a good format? Could it have been performed in a better way?

Comments:

In general this was a good layout.

An additional meeting with the supervisor and examiner in week 15-18 would further help to make sure that all learning outcomes will be fulfilled.

I like it overall, sometimes it could get somewhat unclear. A short and simple guide on project work would be nice. Some tips on how to get started with a project like this would be nice. Also, even though I know you cannot do anything about it, more than 20 weeks would have been great. The opposition could very well have been harder. Someone from KTH should be there to ask hard questions.

This structure works as the student get to check on his/her work and present the final progress at the presentation. Maybe having the opposition earlier would have been preferred for the student to make any adjustments from this received feedback.

It was a good format, although maybe in the future, the half-time meetings should be without the supervisor.

I think that almost everything with the course was really good. It was nice to have a clear plan and set dates for everything. The start-up meeting was nice, to get to hear about all projects. The half-time meeting was good to have a check-up. The presentations and oppositions had a nice layout as well. I cannot think of any other way that would be better.

The format is **good**, but information-wise (se Q3) it was often lacking.

I think it was **a good way** of giving a follow up to the students and the projects performance, I wouldn't suggest any change

I think **the start-up meeting was a bit exaggerate** because all the information was in the course PM and nothing new was brought up. It was nice to see all the other project but for two researchers in my group to travel there, be there for two hours and then go back to SciLife felt like a waste of time, since no new information was gained. If the meeting is going to be there which I think is a nice idea it has to be more fruitful to be motivated.

In my opinion this format **is good**, because with these two meetings we could understand what we are expected to do and if we are going to the right direction.

Good

I think it was **a good format of the course**. The half-time meeting was a good check-up if everything worked okay with the project.

I **really liked this format**, I think the planning phase ended up helping me reach my goals in the end. I like the fact that the opposition is between students, as that way we get good practice in voicing our opinions and giving constructive criticism. I was glad to see that the students took it seriously **and came up with thoughtful questions**.

I think that **the format was very clear**. It was perhaps a little strange that the project plan was made during the experimental phase and not before, but I guess there is not enough time in the beginning to focus on the project plan alone.

Our comments:

Students generally think the course format is good and clear and seem to like it. Several students indicated the positive impact of the course structure on their master thesis project in their comments shown above. Most of the students suggested keeping the course format without any change.

There are a few things we should consider in the future:

1. Start-up meeting: we shall include more practical details apart from the information already given in the course PM and PM supplement. We should perhaps include a short introduction (guidelines and tips) on how to start a master project.
2. Half-time meeting without supervisors was suggested by one student: This is not practical since we need the input from the supervisors, and there should be a discussion between the student, supervisor and examiner. However, we will emphasize more clearly (at the start-up meeting and PM) that we as examiners are there to help the students and are available for confidential discussions about any issues.
3. Extra meeting in week 15-18 was suggested by one student: This would imply excessive workload, but we can again emphasize that we are available for help if the student contacts us.

5. Do you have any comments about the project plan?

Comments:

The project plan seemed a bit out of proportion considering the time frame of the project. There were a lot of things that were included, and since the project management course is voluntary an extensive project plan requires a lot of additional learning for the individuals that have not participated in the course, which steals time and focus from the project.

I would think it should be required to include some of the information from the project plan also in the oral presentation, like for example how this project affects the society, economy etc.

The project plan assignment was useful for understanding better and planning the project before starting it. It helped me reflect on what mistakes could be avoided from the beginning

It was helpful to write down what you needed to do and to categorise what the most important part of the project was. This was the only important part of the project plan that I could identify, it helps you wrap your head around what needs to be done.

No.

Since we had only had two lectures about project planning three years prior to the course, it felt like we did not have enough (or any) prior experience of this type of project planning documentation which made the task very difficult.

There were some things that were a bit unclear that I had to ask about to understand exactly what was desired. However, *it is good to know how to perform project plans and for example Gantt schedules which is very useful for the future, so it was good to do it.*

How it was supposed to be executed was very unclear. In the end everyone just did it in their own way, so there was little consistency in the task.

It was *hard for those who aren't familiar with their construction* but either way doable and helpful to plan deliveries and timelines.

I think that *it's really good that we need to provide a project plan* but it is supposed to help us finish and complete the project and *in this format, you just waste time* doing it without it being helpful. It is supposed to be a tool and all forms of project plans does not work for all projects therefore I think this should be more flexible on what is needed to be provided in the plan so it actually works as a tool and don't become an extra burden that takes time from the work.

The project plan was a bit complicated, at least for me, *because I did not have any business course in the university*, so the second part of the project was hard to fill in properly.

I think *the project plan was waste of time*. I *did not take the course Project Management*, and the files that were uploaded in Canvas did not cover all points included in the project plan and found it hard to know what to include in the project plan. I had rather put extra time on the project than on the project plan.

It was hard to make in the beginning but I think as the project progressed, *it was nice to have all the remaining tasks laid out*. Although there was a lot of tasks in my plan that I did not manage to do. The Moscow analysis and Gantt schedule were the most useful to me.

I think the *project plan was quite useful* in the sense that it made us look into the project from other perspectives, aside from the experimental aspect. For example, it made us think about the safety, environmental and ethical aspects of the project. However, I do think that *it was time-consuming* since a lot of the parts were new tasks for me and therefore a lot of reading and formulating had to be done. Throughout the course of the thesis, I think writing the project plan was probably one of the most stressful moments since a lot was required from it and yet you also want to focus on your experiments.

Our comments:

The project plan is the only major source of problem and dissatisfaction for the students. Approximately half of the students think it was a good tool (but some still think it is a bit too time consuming) while the other half were largely negative.

One major problem is that several of the students have not previously been taught how to make a project plan. This problem will be partly solved in near future (next year?) when all KTH students have a course in this. However, there will always be students with a Bachelor's degree from other universities where such a course is not offered. We will discuss this problem with the PA. However, one thing we can do is to offer an example of what a good project plan looks like, in addition to the files with general instructions already offered.

6. What were the strengths of the course?

Comments:

It provides the opportunity to apply the theoretical knowledge gained from the programme in a practical context. The course also allowed for a lot of individual work, which is good.

A clear timeline and learning outcomes.

It gives you real lab experience. You can get a grip on if you like it or not. It forces you to search for information by yourself, and to read a large amount of articles. I enjoyed it

The organization.

It was nice to have a set schedule and frame for everything that was supposed to be done. I also felt like the communication between student, supervisors and examiner was good.

A common course program with more regulation. Fixed time-frames.

It forces the students to carry out a project under a planned programme with reachable goals and timelines, it allows the student to learn both in a project form and in a research point of view.

It's REALLY nice that you have an extra set of resources if the project or the supervisor isn't working out and that the time is fixed.

Oral presentation

The time limit and outline

To make up a time-plan and to have a clear dead-line.

The applicable use of project planning and the strict time frame of the project.

The course was well-structured and I also felt that it was clear whom I had to talk to if I had any doubts or questions. I also appreciated the peer-review session at the end of the course, I think the evaluation was objective and lots of good feedback was obtained from it.

Our comments:

Here is a summary of the strengths of the course recognized by the students. The comments are ordered by the number of votes.

1. Organization, timeline (clear and strict schedule), clear learning outcomes
 2. Oral presentation and peer-review session
 3. Application of project plan
 4. Communication between student, supervisors and examiner
 5. Lab experience
 6. Individual work
7. What were the weaknesses of the course?

Comments:

The poor information before course start regarding dates and requirements for the project to be approved for the course.

Too short. 20 weeks are not enough to really do anything. I would have loved some tips.

Maybe not the course itself, but the information before the course was not very clear. When we had the information lecture about the two different courses in the middle of the autumn, the old and the new one, it felt that the descriptions of the two courses was not clear. It was difficult to know exactly what was included in the two courses etc.

Disorganisation, uncertainty/lacking information

The time pressure but I don't have any suggestion against it as it is fixed by schedule

Hard to get a hold of the examinations when having questions about the tasks.

Project plan

The weakness was that sometimes lack of information was given, for instance for the project plan, to find a supervisor on your own etc.

The whole project plan.

The strict time frame can also be a weakness as it can affect the quality of the projects.

The time-schedule is very strict and it can perhaps be hard to meet deadlines if the experiments don't go so well in the lab.

Our comments:

Again, the project plan is the major source of problem and dissatisfaction for the students. Two other problems concern information: (i) The information given to students in the semester BEFORE the course seems to have been unclear according to two students. We will inform the responsible teacher in question about this. (ii) Two students complained about the information DURING the course. We have realised a few unclear points in the course PM, concerning e.g. instructions for the thesis, and have now clarified them. We will also try to clarify some other issues better at the start-up meeting. One important thing is to stress that we examiners are available for the students when they have any questions about unclear issues, or any worries.

8. Do you have any suggestions for how to improve the course?

Comments:

*Perhaps consider if the project management plan needs to be as extensive as it is today. I believe that it is possible to write **a less extensive plan** that still provides the necessary foundation for performing a successful project.*

*Book meetings with the student a few weeks before the course start to discuss the content of the proposed project to see if it is ok. Introduce an actual peer review where the student **gets the chance to make changes in the report after comments from the peer.***

***Maybe an example of the project plan** as well as a thesis report to get a better picture.*

***More detailed information about the course earlier in the autumn** would have been nice.*

*Prepare **information around tasks in advance.** Some information only appeared very shortly before deadlines.*

Maybe *attendance to final presentations should be obligatory* in an entire module and not only for the opposition.

More flexibility in the project management part.

Project plan should not be that important or the structure should be a bit different or better explained what is needed.

If the master thesis is done at a company then the main supervisor should be the one at KTH and the one at the company. Most of the time is usually spent with the supervisor at the company; therefore the role of that supervisor needs to be emphasized.

Skip the project plan.

Perhaps the *format of the project plan could be made simpler.*

Our comments:

Again, most of the comments are related to the project plan. In order to improve the clarity of the information we have made the following change in the course PM:

"The final project plan should normally be 4-6 pages. The instruction for the project plan can be found in Course PM supplement. The project plan must be approved by the main supervisor before it is submitted to Canvas by the student"

We should perhaps further discuss how to deal with the project plan in the future since we don't want the students think it is a burden.

Other valuable comments:

"attendance to final presentations should be obligatory". This has been changed in the new course PM, it now reads: "The students are required to attend the whole session (normally consisting of 4-5 presentations) that they are assigned to. The oral presentations are open to the general public."

The students generally think the peer review is very good. One student suggests that they would like to have a chance to modify their master thesis according to their peer-reviewers' comments. When they get the peer-

reviewers' comments they have already submitted their final thesis, but we may give the possibility of making changes in the final version.

In order to help the students write a project plan, we might post an example of it. For the work with the thesis, we have already clarified some details in the course PM, and for the layout of the front page we refer the students to the KTH template.

With regard to the introduction of the course in the autumn, which some students think was confusing: we should discuss with the PA how that might be improved.

9. How was the overall quality of the course?

Very good	Good	Acceptable	Fairly poor	Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5	9.5			

Comments:

Our comments:

All students think the course was good or very good. On a scale of 1-5 this gives a **mean grade of 4.32**. Thus, it seems the students are overall very happy with the course.

10. Other comments, regarding your project and supervision?

I really enjoyed doing this project and I learned a lot!

It would be nice to get some kind of indication of having passed or failed the course already at the oral presentation rather than after several weeks when the results are reported in LADOK.

I think I have learned a lot and I received help when I needed it.

Peter did an excellent job.

No.

I really liked my project, it was very interesting and I learnt a lot. It was nice to get to try a real research project. The supervision was very good, I sent my main supervisor, Anna Ohlsson, reports almost every week and got nice inputs, and I could contact my external supervisor, Lennart Balk, almost all the time. It was very nice.

Was great, nothing to complain about.

Personally, I felt my project was a good learning experience, I understood the objectives of the course, I learned both in the academic and lab work and I developed a critical thinking for problem resolution in my own project. My interaction with my supervisor was very good, I felt support for my learning outcomes and a constant motivation to keep on achieving my goals.

The project was really interesting and involving and gave me very good experience of how work in a company feels like. I had very good supervisors, my main supervisor in KTH and my external supervisor in Pharem.

I think it's good to only include supervisors that not are on parental leave. I had difficulties with my project during the first three month since I had no clear structure and no good support, which is required.

The focus of the project was a bit different for me and it took me a long time to build up proper knowledge to finish it. However, I think I managed to give a good report and I managed to work very independently throughout the project duration. I would have benefitted more from having an intermediate person to assist me, like a phd student.

I felt that I was very well supervised, which I am very glad about. I was able to learn a lot during the given time and was generally motivated throughout the whole course.

Our comments:

Almost all students are very positive regarding the project and supervision. They are well supported and supervised.

However, two students indicated that they did not have all the support they needed from their supervisors. Notably, one had a supervisor on parental leave. Obviously, this should not happen. We already describe the responsibilities of supervisors in supporting the students in the course PM. We may want to emphasize these even more, for example at the start-up meeting.

Thanks a lot for your help!

Our final comments and conclusions, and further plans:

Almost all students are generally very positive regarding both the course layout and execution, and their project and supervision. The supervisors and we as examiners are also generally very pleased with the students' achievements. Thus, the course has been generally successful.

As discussed above, we have during the course improved several minor issues, especially those with regard to the instructions in the course PM and supplement, and in the course evaluations we have been alerted about a few additional ones. We will modify the course documents accordingly. We will also clarify some issues better at the start-up meeting. One particularly important point is to make it clear to the students that they can turn to the examiners when they have any questions about unclear issues, or any worries.

The major problem discovered in the course evaluations is centred on the course plan, which several students think was too demanding. We will discuss further how to improve the course on this point.

Another problem we have identified is concerned with the two meetings (the start-up meeting and the oral presentations), which are scheduled at fixed dates, and are mandatory for the main supervisors. Two main supervisors could not attend the start-up meeting and two who did not attend the oral presentations of their students. This kind of incident is bound to happen again in future because supervisors sometimes have important meetings they cannot miss. However, it is stated that the main supervisor should be present at the oral presentation in order to be able to assess both the presentation and opposition. This implies, in principle, that if the supervisor is not present the student cannot pass the course. We have discussed how to deal with this problem, and decided that (quote from the PM): "If the main supervisor is not able to attend the oral presentation, an additional presentation should be organized by the main supervisor before the final evaluation."

Further changes/improvements we have already implemented include, for example, that "students are required to attend the whole session (normally consisting of 4-5 presentations) that they are assigned to" and that supervisors must formally approve the final version of the thesis before it is submitted to the examiners. We have also found that the forms used for application and for reporting of the final grades need to be adjusted for this course.