Course analysis

Higher Seminar in Industrial Biotechnology I-V

Course name: Higher Seminar in Industrial Biotechnology I-V	Cycle: 3
Course code: FCB3001, FCB3002, FCB3003, FCB3004, FCB3005	ECTS credits: 3,0
Term: VT23+HT23	Study period: P1-P4
Course coordinator: Christina Divne	Examiner: Christina Divne
Degree of examination: 100%	Answer frequency: 21% (3 of 14 participants answered from all courses)

1. About the course series

The course series including courses FCB3001-FCB3004 was established spring 2019 and replaced the previous course series FBB3330-FBB3360 that had been running 2014-2019. An additional course in the series, FCB3005, was established in 2021.

The seminar course series for doctoral student "Higher Seminar in Industrial Biotechnology" (course codes FCB3001, FCB3002, FCB3003, FCB3004, FCB3005 for years 1-5 respectively, 3.0 ECTS each) focuses on critical analysis of published research within the broader field of biotechnology as well as in more specialized fields of research. Whenever possible, the students also present and critically analyze each other's manuscripts, which can be at any stage of completion.

The five courses cover the full extent of the third-cycle education. The courses are examined as a single module through by 80 percent active attendance. As part of the attendance criterion, three mandatory tasks are required: presence, presentation of own manuscript or article, critical review and discussion on manuscripts/articles presented by other students.

When doctoral students work with their own manuscripts, the manuscripts can be at any stage from preliminary draft to revision stage with existing review comments. For students that have not yet authored a manuscript draft, published articles in varying fields of biotechnology (with focus on the students' research areas, i.e., bioprocess technology, metabolic engineering, enzyme engineering, and structural biology) are discussed.

Each course (3.0 ECTS) spans one year with two sessions per month, and the students can start at any time during year. Typically, each student presents at two sessions per year, but all students take part in active in-depth review and analysis.

2. Pedagogical approach

The presenting student emails the reading material (manuscript or article) to all students one week before the course session. All other students prepare a careful review and critical analysis before the course session.

During the course session, the presenter summarizes the contents of the manuscript/article in the form of an oral presentation supported by lecture slides. Discussions regarding all aspects of the manuscript/article (layout/disposition, language, data presentation, data analysis, conclusion etc.) take place during and after the presentation. All students are encouraged to ask questions, reflect, and discuss.

The learning outcomes are coupled to several of the Higher Education Ordinance's examination objectives for doctoral and licentiate degree, more specifically:

- ILO1: Links to Higher Education Ordinance's degree objectives A1 and A2 for doctoral degree, and A1 for licentiate degree.
- ILO2: Links to Higher Education Ordinance's degree objectives B1, B2, B4, B5 and B6 for doctoral degree, and B1 and C3 for licentiate degree.
- ILO3: Links to Higher Education Ordinance's degree objectives B3 and B4 for doctoral degree, and to B2 for licentiate degree.
- ILO4: Links to Higher Education Ordinance's degree objectives C1, C2 for both degrees, including KTH's local sustainability goal.

3. Student throughput and group composition

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As of December 2023, the seminar series enrolled a total of 14 doctoral students distributed over the five courses (but all students study together).

Number of new students enrolled 2023:	Number of students finishing 2023:
FCB3001: 8	FCB3001: 3
FCB3002: 2	FCB3002: 2
FCB3003: 1	FCB3003: 0
FCB3004: 0	FCB3004: 1
FCB3005: 1	FCB3005: 0

4. Changes made before this course offering

As suggested in last year's course evaluation, the schedule 2023 made space for thematic discussions. One thematic discussion was held on 22 Sep 2023.

5. Summary of the course evaluation

Answer frequency: 3 students answered the questionnaire which was anonymous (21%).

The questions 1-11 were scored 1-5 where 1=strongly disagree; 3= neither agree or disagree; 5=strongly agree.

Question	Scores	Average score
1. The course helped me to learn about new topics within the field of Biotechnology to get a broader perspective.	5, 4, 5	4.7
2. The course helped me to obtain specialized knowledge in me own research area.	5, 2, 5	4.0
3. I had the possibility to practice presenting research results (own and others) during the course.	5, 5, 5	5.0
4. I spent time thinking about how to present research in a pedagogical way when preparing presentations.	3, 4, 3	3.3
5. I had the possibility to practice critical analysis and evaluation.	5, 5, 5	5.0
6. I had the possibility to learn about academic writing and academic authorship, and the publishing process.	5, 5, 5	5.0
7. I had the possibility to discuss ethical issues related to scientific writing and publishing research results.	3, 5, 5	4.3
8. I had the possibility to discuss and learn about sustainability through discussions and own reflection.	3, 2, 5	3.3
9. I felt comfortable discussing in an open, inclusive and non-judgmental environment.	5, 5, 5	5.0
10. I consider the course useful for my studies and research project.	5, 2, 5	4.0
11. I consider the course useful for reaching the examination goals for my intended degree.	5, 5, 5	5.0
12. What was the best aspect of the course ?	▪ Discussion and exchanging the ideas, atmosphere, hybrid format, discussion rounds. ▪ The fact that it is an open, non-judgemental discussion helps everyone to feel free and discuss his/her research. ▪ And since we are working in different research areas, we learn a lot from others, and we get updates of what is going on in other fields. ▪ The course is well structured.	
13. What can be improved in the course ?	▪ More discussion rounds. ▪ It would be nice to have an overview of how far you have completed the course, for example how many more meetings you have to attend to finish a course.	
14. Any other comments ?	▪ None. ▪ The professor is a good moderator for this course, her comments during presentations are very constructive. This is something I like!	

Course analysis

Positive aspects:

Averages for three respondents where: + agree, 0 neither agree or disagree, – disagree

+2	
	3. I had the possibility to practice presenting research results (own and others) during the course.
	5. I had the possibility to practice critical analysis and evaluation.
	6. I had the possibility to learn about academic writing and academic authorship, and the publishing process.
	9. I felt comfortable discussing in an open, inclusive, and non-judgmental environment.
	11. I consider the course useful for reaching the examination goals for my intended degree.
+1.7	
	1. The course helped me to learn about new topics within the field of Biotechnology to get a broader perspective.
+1.3	
	7. I had the possibility to discuss ethical issues related to scientific writing and publishing research results.
+1.0	
	2. The course helped me to obtain specialized knowledge in me own research area.
	10. I consider the course useful for my studies and research project.
+0.3	
	4. I spent time thinking about how to present research in a pedagogical way when preparing presentations.
	8. I had the possibility to discuss and learn about sustainability through discussions and own reflection.
0.0	

Based on the answers from only three students, the course fulfils several important learning outcomes that relates directly to the degree goals for doctoral degree. The students appreciate discussions in a non-judgemental environment and to learn about others' research.

Aspects that can be improved:

The students who answered did not raise any specific points to be improved but ointed out that it would be good to be able to see how far you have come in the course. This can be easily done by posting a table in canvas where the attendances are listed with numbers representing how many attendances each student has. Typically, 16 out of 19 attendances are required to complete a course.

They also rated the pedagogical and sustainability aspects lower, and even they are still rated on the positive side it would be good to take measures to lift/emphasize more these topics in the course.

After managing the seminar course series for 9 years, Christina Divne hands over the mentor and examiner role to Zeynep Cetecioglu Gurol, starting from 1 January 2024.