

Course analysis for course ML2307

Theory of Science and Research Methodology in Sustainable Production Development

0. **When the course was completed:** October 16th, 2023

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Guest lectures

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Exam elements (with points):

INL1 (P/F, 1hp): Popular presentation

PRO1 (A-F, 3hp): Research Proposal writing

SEM1 (A-F, 2hp): Research Proposal presentation

1. **Description of the course evaluation process**

The students have three specific forms to give their opinions

1. In the introduction of the course, the students provide input about their expectations in the course.

2. During the supervision sessions, two occasions are scheduled in the course.

3. During the Final course evaluation.

Gender equality and diversity guide the team formation for the INL1 group assignment.

Teachers, mindful of gender and cultural differences, have curated student groups for this assignment.

For the other two group assignments, students are encouraged to form their own groups.

This approach aims to provide flexibility and ease in selecting research proposal topics, ensuring alignment with areas of interest for potential thesis projects.

In the recruitment of teachers and guest lecturers, JML is prioritized. Presently, there is a male majority among teachers, but the course responsible and the examiner are females.

While the encouragement to increase the number of female teachers exists, it is not a primary focus for course development. This decision is based on the already significant cultural diversity within the backgrounds of researchers and teachers involved in this course.

2. **Account of meetings held with students**

- Meeting organized by the Master program responsible with student representatives before the course's start date. In this meeting, the staff involved had the opportunity to reflect on areas of improvement for the program and courses; for this particular course,

the teachers incorporated what was possible for the upcoming sessions in the running course e.g. increased direct supervision session for research proposal, re-distribute the time between research proposal and popular presentation.

- Course final presentation session, where students could share reflections.
- Continuous improvement was possible through open communication in CANVAS- course discussion section, email, and allocated tutoring meetings; the students could share their concerns and opinions (about the course and project) directly to the course responsible and teacher(s) supervising the group projects.

3. Course layout

The course consists of different sessions to prepare students to independently be able to carry out a degree project at the second cycle level based on the relevant scientific methodology. The students are trained to apply concepts, methods, and critical arguments through diverse activities based on discussion, analysis of current scientific literature, and preparation of a theoretical framework for their Master thesis that can be further developed within the scope of the degree project.

The course is assessed by the following:

INL1 (P/F, 1hp): Popular presentation. The students analyse a research paper and are expected to present their findings through a short video.

PRO1 (A-F, 3hp): Research Proposal writing. The students develop a research proposal; the deliverable is a 10-page report. The objective of the assignment is to learn and understand how a master thesis topic selection and report writing can be approached. The students also perform a peer review of a research proposal from another student group.

SEM1 (A-F, 2hp): Research Proposal presentation. The students present their research proposal orally.

Specific improvement from the previous year:

- Adjustment of Assignment Timelines: The timeline for INL1 was shortened, while the timelines for PRO1 and SEM1 were extended.
- Goal-Oriented Supervision Sessions: During supervision sessions, students were tasked with sharing specific sections of their PRO1 with both the class and their supervisor(s).
- Researchers' Session Focus: The researchers' session centered on elucidating the methods employed in their research, delving into how they derived specific results, moving beyond general topics.

4. The students' work effort time in relation to points

The time spent reported by the students seems to differ from 12-14 to 24-26 hrs. a week.

Expected workload in total is 160 hrs. for a 6-credit course, which gives an average of 20 hrs. per week. Similar to previous years, we observe that the deviance in hrs. per student seems to rely on different reasons: 1) skills in assignments, e.g. INL1, video editing, and 2) the amount of time the students devote to the non-mandatory readings in the course and to develop their research proposal. Some students find developing a theoretical framework and defining research questions more challenging. In addition, this year some student groups already initiated outstanding structured literature reviews.

5. The students' results

The students' results are consistent with those of previous years, with all evaluated students successfully passing the course. Two students could not be graded as they had been suspended due to disciplinary matters in a previous course.

50% of the total number of students obtained grade A or B. The remaining half of the students obtained a C in the course. The final research proposal has a higher impact on the final grade.

6. Answers to open questions

- The students enjoyed the popular science INL1 assignment but wish for more guidance on how the knowledge gained from it can be leveraged in the future.
- The students found encouraging to have the freedom to work on topics of their own interest and be able to iterate in developing their proposals, even if that means making major adjustments to their topics.
- The students found it interesting to learn about software to use in research.

7. Summary of the students' opinions

- The impressions of the students are mostly positive, we observed more discussion and engagement compared to last year.
- The students shared during the presentations that they enjoyed the assignments and found them helpful for the future.
- The students suggest having a hands-on coding session with mock-up interviews, to be able to try coding with the guidance of the teacher in class.

8. Impression

This year, the teachers noted an improvement in the research proposals compared to the previous year. The quality across all submitted works has increased, and this improvement is attributed to the redistributed time, requiring students to commence work on PRO1 earlier, and the goal-oriented supervision. Looking ahead, teachers express a desire to enhance hands-on coding work for the upcoming year.

9. Analysis

The course comprises mainly international students, and we observe no significant difference in their perception or performance. Gender and cultural backgrounds do not appear to play a significant role in their academic achievements. Notably, there has been an increase in gender diversity within the groups formed for PRO1/SEM1.

A notable strength of the course lies in the expertise of our teachers, each bringing practical experience that complements the course topics. This enables students to benefit from real-world research examples.

However, an area for improvement is the incorporation of more practical work in the classroom. Currently, students' practical insights depend largely on the individual teaching styles of instructors. Enhancing standardization in this aspect could further enhance the course experience.

10. Priority course development

In the short term:

- Revise the qualitative research methods session to incorporate a practical coding segment. This can be linked to the early Interview session, establishing a coherent thread. This way, students will develop an interview and utilize the gathered material/transcripts during the coding session.
- The changes from the previous year will be retained, as they have proven to be effective in enhancing the course.

Long term:

- We will maintain the long-term idea of reassessing the PRO1 assignment to explore alternative approaches to research design. Additionally, we will actively encourage an increase in the number of female teachers.

11. Other information

We will gather input from both teachers in the thesis project course and staff during program-level meetings to identify any relevant weaknesses to our course, that students exhibit during their thesis projects. This information will guide us in aligning assignments and activities in the course to continuously enhance the quality of research proposals and ultimately the preparedness for degree projects.