II2202 Research Methodology and Scientific Writing (II2202 Forskningsmetodik och vetenskapligt skrivande)

Examination: PRO1 7.5 credits

There were two instances of this course:

Period 1 (P1)   https://canvas.kth.se/courses/34871
Periods 1-2 (P1&P2)   https://canvas.kth.se/courses/34870

P1: 111 students

Student details

1	AVBROTT	Withdrew
5	REGISTRERAD	Registered
106	AVKLARAD	Completed

Performance

12	A
31	B
28	C
22	D
13	E
9	F
5	Fx
111	Total

94.6% of total students completed

95.5% of students who did not drop the course completed the course

Note that the number of students withdrawing only includes students who did not do an early withdrawal. Also note that there were 114 registered students and 3 admitted but not registered in the Canvas course.

Faculty involved with the course

Examiner: Gerald Q. Maguire Jr.

Teachers: Emil Björnson, Masoumeh Ebrahimi, Gerald Q. Maguire Jr., Jens Zander, and Anders Västberg (only for the course evaluation)

- Emil Björnson had 24 students primarily from the TCOMM program
- Masoumeh Ebrahimi 45 students primarily from the TEBSM program
- Gerald Q. Maguire Jr. had 24 and Jens Zander had 22 students from TCOMM and other programs

Students from other programs were mixed with the other students (trying to form groups with two students who had common subject interests for their project).

P1&P2: 95 students

Student details

0	AVBROTT	Withdrew
2	REGISTRERAD	Registered
95	AVKLARAD	Completed

Performance

21	A
46	B
20	C
8	D
0	E
0	F
0	Fx
95	Total

97.9% of total students completed

97.9% of students who did not drop the course completed the course

Note that the number of students withdrawing only includes students who did not do an early withdrawal. Also note that there were 97 registered students and 12 admitted but not registered in the Canvas course.

Faculty involved with the course

Examiner: Gerald Q. Maguire Jr.

Teachers: Magnus Boman, Henrik Boström, Masoumeh Ebrahimi, Jan Ingemar Markendahl, Mustafa Özger, and Anders Västberg (only for the course evaluation)

- Mustafa Özger had the students from AUSM/AUSY yr 1
- Magnus Boman had the students from DASC/DASE yr 1 and AUSM/AUSY yr 2
- Henrik Boström had the students from DASC/DASE yr 2
- Jan Ingemar Markendahl had the students from HCID/HCIN
- Masoumeh Ebrahimi had the students from INSY/INSM

Students from other programs were mixed with the other students (trying to form groups with two students who had common subject interests for their project).

Course structure and formative + summative assessments

Both courses share the same structure, with one running in P1 at half-speed and the other running over P1&P2 at one-quarter speed.

The course contains a series of assignments with formative feedback, and these are in the order suggested in the P1&P2 course):

- Power tools and how to use them (with quiz)
- Project planning (with quiz)
- Ethical Research (with quiz)
- Professionalism and Ethics for ICT students (with quiz)
- Ethical Research: Human Subjects and Computer Issues (with quiz)
- Writing and Oral Presentations (with quiz)
- Boosting your research profile: Step 1 having a unique identifier
- Avoiding Plagiarism (with quiz)
- Sustainable Development/Hållbar Utveckling (with quiz)
- Presentation of your proposed research: Ethics & Sustainability
- Quality Assurance (with quiz)
- Quantitative Methods and Tools (with quiz)
- Research plan: First draft of your research plan, presentation, and peer reviewing
- Presenting your Data (with quiz)
- Quantitative exercise
- Privacy, Discoverability, Openness, and Publicity (with quiz)
- Qualitative exercise - with peer review
- Writing the Methods, Results, and Discussion sections (with quiz)
- Writing an abstract with keywords (with quiz)
- Written and oral opposition (with quiz)
- Final report: First draft and Presentation with peer review of draft report and presentation

Note that each of the assignments marked "(with quiz)" has associated with it one or more videos with captions and transcript, lecture notes, and a quiz on the presented material.

The summative assessment for the project grade is based on: project plan, method description, scientific report, and opposition report. These are assessed in the assignments:

- Project proposal + Research plan (see above)
- Written opposition: before final seminar - with peer review
- Final Seminar -- note that this includes an oral opposition by those who wrote the written opposition for this project group
- Final report

The assignment "Presentation of your proposed research: Ethics & Sustainability" is present to ensure that the students really do think about both the ethical aspects and the sustainable development aspects of the research that they plan to do.

Summary of course evaluation

As of 2023-03-03 no information regarding the LEQ has been received by the examiner from Anders Västberg (who was to conduct the LEQ).

Analysis

NA

Changes since the previous year's course

Mustafa Özger was a new teacher in the course. The examiner helped this new instructors to come up to speed in this course.

Note: As noted last year, Jon-Erik Dahlin's videos on sustainable development were **not** available via the KTH Play infrastructure – so they could not be captioned by G. Q. Maguire Jr., but 2 of the 3 have automatic captions generated by YouTube. This situation remained true this year.

Strengths and weaknesses of the course

The course seems to be very effective in helping the students when it comes to their 2nd cycle degree projects, as is evident from these students' progress in their degree project versus students who have **not** had this course. My impression is that those students who did not have not II2202, consume a large amount of supervisors' time during their degree project. To compensate for this, a number of these supervisors are doing group supervision of their students, so that the students can do peer reviews of each other's drafts. However, this would seem to be completely inappropriate for students doing their degree projects in industry – for these students, all of their drafts should be confidential until the draft goes to the opponent for the written opposition. One of the key differences is that the students who have taken II2202 actually know how to formulate a research proposal and plan their research.

As noted previously, a strength of this course, was that due to the videos and on-line material it was easy to have a 100% on-line course during Fall 2022. As noted previously, the use of Zoom meant that students did not have problems getting to and from the Kista campus. Additionally, the individual teachers can each schedule their advising sessions and decide whether they want to use Zoom or not. For much of Fall 2022, advising of students was a mix of traditional face-to-face and Zoom sessions.

As noted previously, another strength of the course is that the majority of the teachers are working with students in their section that they work with in other courses in the student's particular program; hence, they are (a) generally competent in the area, (b) they are aware of what the students are studying, (c) they are aware of the competing demands on the students' time, and (d) they can schedule their advising sessions with the students in their section to avoid conflicts with other courses the students are taking.

Having automatically graded quizzes for the 15 quizzes seems to be an effective means of providing formative feedback to students. The revised quiz questions seems to work out well. One student who was very early in doing the quizzes helpfully pointed out some problems with some questions and answers these were immediately corrected.

As noted previously, one weakness of the course concerns staffing, as it is not always possible to have teachers who are knowledgeable enough in the area to provide good guidance to the students in their

section. This continued to be a problem this year for the HCID students, although Jan Ingemar Markendahl worked very hard with the students in this area - both this year and in previous years.

As noted previously, an administrative weakness for the course is that splitting the students into sections based upon their program and specialization and assigning a teacher for this section – requires special permissions in Canvas. This has meant that Gerald Q. Maguire Jr. has handled this task since he introduced this approach a number of years ago.

An administrative weakness of the course is that since the projects are done in groups of two students, there are problems with:

- Students who arrive late for the course – this is primarily a problem for the EIT students as some have compulsory summer schools that ran late.
- There are also the usual problems of group dynamics, but in general, it has been possible to address the problems that have arisen. In the P1P2 course this year one group had problems and despite efforts by the instructor working with this group, one of the members of the group did not act on the early offers and only raised the problem at the end of the course.

The following pages list and briefly describe the ~12 hours of videos available in the course.

Title	responsible person	Duration (HH:MM:SS)	Duration in seconds
Ethics			
Professionalism and Ethics for ICT students (with quiz)	Gerald Q. Maguire Jr. (GQMJr)	33:26	2006
Ethical Research (with quiz)	GQMJr	33:26	2006
Ethical Research: Human Subjects and Computer Issues (with quiz)	GQMJr	23:02	1382
ORCID			
ORCID at KTH	Niklas Olsson	4:07	247
Evaluate introduction of new technology: A case study from the development of the ORCID application at KTH	Niklas Olsson	2:50	170
Sustainable Development/Hållbar Utveckling (with quiz)			
Sustainable Development: Introduction	Jon-Erik Dahlin	15:09	909
Sustainable Development: Definitions and perspectives	Jon-Erik Dahlin	20:43	1243
Sustainable Development: Economic, Ecologic, and social sustainability	Jon-Erik Dahlin	18:43	1123
Green Networks	Markus Hidell (captions GQMJr)	17:39	1059
Avoiding Plagiarism (with quiz)	Carl-Mikael Zetterling (Bellman)	24:32	1472
Project planning (with quiz)	GQMJr	22:39	1359
Quality Assurance (with quiz)	Magnus Boman (captions GQMJr)	1:18:22	4702
Boosting your research profile: Step 1 having a unique identifier	GQMJr		

Writing and Oral Presentations (with quiz)	GQMJr	1:19:45	4785
Quantitative Methods and Tools (with quiz)			
Introduction to Quantitative Research Methods	Mark T. Smith (captions GQMJr)	1:30:13	5413
Quantitative tools with Excel and R	GQMJr	45:42	2742
Advanced Quantitative Tools using R	GQMJr	49:23	2963
Power tools and how to use them (with quiz)	GQMJr	47:43	2863
Privacy, Discoverability, Openness, and Publicity (with quiz)	GQMJr	47:08	2828
Presenting your Data (with quiz)	GQMJr	20:03	1203
Writing an abstract with keywords (with quiz)	GQMJr	12:42	762
Writing the Methods, Results, and Discussion sections (with quiz)			
Methods section	GQMJr	6:13	373
Result section	GQMJr	6:20	380
Discussion section	GQMJr	9:30	570
Written and oral opposition (with quiz)	GQMJr	20:13	1213
Total		12:09:32	43773

Summary of the teacher's views

This is a very demanding course in terms of requiring the teachers to have broad competence in the area of the students that they are to guide.

Proposal regarding potential changes to the course

There will be a new examiner and course responsible person (Wouter Metsola van der Wijngaart) for II2202 during Fall 2023. A collection of all of the (more than 1K) files relevant to the course (including the source material for the lectures) was provided to Wouter via OneDrive. This totaled ~77MB of files.

The current examiner and new examiner had an extensive discussion of the course on 2022-10-27. One clear problem is that Wouter is not a Canvas administrator and thus cannot manage the sections himself (perhaps he can have IT Support do this). Additionally, he plans to administer the course manually using the Canvas GUI[1].

Wouter plans to run the course pretty much as it is for the first year and then update 20% of the course material each year after that. I think this is a great proposal.

Additionally, Masoumeh Ebrahimi will develop an alternative version of the course to be integrated with the TEBSM student's Capstone course (taught in Periods 1 and 2 of their 2nd year in the 2nd cycle). As a result these students will **not** be taking the course during Period of of Fall 2023.

Due to retirements, Gerald Q. Maguire Jr. and Jens Zander will not be available as teachers for the course in Fall 2023. It is not clear what the case will be for Jan Ingemar Markendahl; in any case there is a need for a teacher for the HCIN/HCID student in the P1P2 course.

---

[1] I wish him luck in this.

Related course

II2210 is a related course that uses the Ethics and Sustainable development course modules from II2202. This course provides a good means for students who have had a research methodology course elsewhere (typically double degree students) to take II2210 and then get course equivalence for II2202 - as most of the courses the students have previously taken do not have ethics or sustainable development as part of the course's material. Note that the existence of this course has greatly reduced the work load on the examiner for II2202 in processing requests for evaluation of course equivalence. In most cases the study advisers can recognize that the student has previous a research methodology course and recommend II2210 to make up for the lack of the ethics and sustainability aspects in the earlier course.

II2210 Ethics and Sustainable Development for Engineers (II2210 Etik och hållbar utveckling för ingenjörer)

Examination: PRO1 1.5 credits

There were four instances of this course during 2022 (the course is offered in each period):

On-line course II2210 VT22 (60416): https://canvas.kth.se/courses/30563/ (starting 18 January 2022)

    18 students, 18 completed

On-line course II2210 VT22 (604151): https://canvas.kth.se/courses/30565/ (starting 21 March 2022)

    20 students, 19 completed

On-line course II2210 HT22 (50047): https://canvas.kth.se/courses/35177 (starting 29 August 2022)

    38 students, 35 completed

On-line course II2210 HT22 (50722): https://canvas.kth.se/courses/36261 (starting 31 October 2022)

    32 students, 30 completed

Over the course of the year 2022, 102 students completed this course.

As of Fall 2022, the course responsible person for II2210 was to be Markus Hidell. During Fall, the current examiner was to help him transition to being the examiner for the course in Spring 2023. However, he did not do much of anything during Fall, so the current examiner handled the course.

The current examiner has discussed with Markus Hidell the need to revise the questions, especially for the sustainability module. This would seem to be a natural activity in conjunction with the transition to Canvas' new quiz engine. One of the aims would be to replace most of the fill in the blank(s) questions with multiple choice or another form of question. These changes could be back ported to the corresponding modules in II2202. However, Markus has not done anything with respect to these questions or the course.