

Mentor program for masterstudenter i CS programmet

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Utdanningsseminar Fysisk Institutt, Feb 14, 2019

The Computational Science Program

1. Ten study options, involving all departments (except Pharmacy) at the Faculty of Mathematics and Natural Sciences.
2. Broad variety of thesis paths, from Stars and Computational Astrophysics, via Geosciences, Bioinformatics, Computational Life Science to Lattice quantum Chromodynamics, from the largest scales to the smallest known scales (quarks and gluons).
3. Broad variety of computational methods. Close collaboration with the [Data Science MSc program](#) is being developed.
4. Basically **all relevant** jobs in the STEM (Science, Technology, Engineering and Mathematics) fields require computational competences and skills.
5. Strategically important for UiO in order to meet the future! How do we develop computational science and data science across disciplines (not only in the STEM fields)?

Challenges and ways to meet them

Challenges.

1. How do we develop a truly cross-disciplinary program?
2. Students are scattered across all departments, difficult to create a common *computational* identity.
3. Each department has its own traditions and in many cases different rules.

4. How to recruit supervisors with a multi-disciplinary background? In particular how do we develop scientific projects (education and research) that involve Machine Learning, Data Science and other topics?
5. How do we handle student projects that involve several disciplines? And what about external and internal examiners?

Many possible approaches

We want to improve the overall quality of our educational programs.

1. Two compulsory courses in order to develop a common identity. Students select two out of three of Machine Learning and Data Analysis, High Performance Computing or Computational Mathematics
2. Common meeting grounds for the students, via weekly or biweekly seminars, gaming evenings and social gatherings with food and refreshments.
3. Biweekly seminars for all CS students (six in total),
4. Meeting all students with program chair at least once per semester in order to get input on status, procedures etc.
5. Individual mentoring if wanted/needed (10 students used this option).
6. Close contact via compulsory courses (most students, 29 out of a total of 36, followed FYS-STK4155)

Why a mentoring program?

Overarching goal to increase the quality of our education.

1. Develop as early as possible a personalized educational and research path, according to the research interests of the students and the respective study options.
2. Tailor our studies to the students' needs.
3. Develop awareness of competences and skills relevant for future job market.
4. Develop a deeper understanding of the scientific method at an early stage of the education, from various scientific approaches to ethical aspects.

Developing a Mentor plan

1. Program chair discusses with all students from a given study options at least once per semester the first year. This is done groupwise with the possibility to have one-to-one meetings. If possible, representatives from the pertinent study options could participate either at first or later meetings.
2. Program chair and study option representative help students in developing their own plans for the thesis project. Start early in the fall semester, preferentially as soon as possible.
3. In addition to the contact person for every study option, the student gets a mentor for the first year of study. The mentor can be a faculty member, a post-doc or a PhD student.

When the student has embarked on her/his Master thesis topic, the MSc thesis supervisor becomes the de facto mentor. However, program chair and study option representatives can keep being discussion partners with the students in order to keep track of their progress.