Undervisningsportfolio

Efterår 2021	Algebra 1
Efterår 2021	Matematik for Økonomistuderende
Forår 2021	Videregående Lineær Algebra
Efterår 2020	Algebra 1
Forår 2020	von Neumann algebras
Forår 2019	Calculus
Forår 2017	Algebraic Topology
Forår 2016	Linear Algebra for HA (dansk)
Forår 2016	Linear Algebra for HA (engelsk)
Efterår 2015	Sandsynlighedsteori
Efterår 2015	Matematik for Økonomistuderende
Forår 2013	Graph C*-algebras

Formal educational training

At University of Glasgow I actively participated in a peer observation programme, where we observed others teaching, and had our teaching observed by other faculty members. We provided each other with feedback, and discussed and reflected on how to improve our own and each others teaching.

As a PhD student at University of Copenhagen, I attended the course Introduction to University Pedagogy. This was a four day course, focused on formulating clear and precise learning goals, as well as methods for student activation. The course included presentations by all participants -- who were in general not mathematicians -- with successive feedback, allowing us to properly reflect on our presentation.

Administrative tasks relating to education

I have a lectured a total of 6 courses. While doing this I was also in charge of the administrative tasks related to the courses. These courses have been of varying sizes with between 8 and 100 students.

As a PhD student, I was the administrator of the Linear Algebra course taught in autumn 2012 and autumn 2013. Each course was followed by approximately 400 students, had 2 lectures, 20 class room teachers, 20 teaching assistants for helping the students with exercises, and 10 teaching assistants for helping the students with exercises using maple. The administrative tasks included managing the course webpage, room booking, exam organisation, arranging meetings, and support for all teachers.

At University of Southern Denmark, I was partially in charge of a high school outreach programme in collaboration with the Biology department.

As a PhD student at University of Copenhagen, I supervised a 15 ECTS Master's project. That included all administrative tasks involved, finding an external examiner, as well as all the paper work involved.

Experience of study programmes, supervision and examinations

I am cosupervising a PhD student Joel Zimmerman at University of Wollongong together with Prof. Aidan Sims.

While a postdoc in Glasgow, I supervised a student Mikkel Munkholm, who was visiting Glasgow on a prestigious Andersen's travel scholarship, together with Prof. Stuart White. We met with the student once a week for an hour to discuss his progress, and the directions to focus his work. The student would usually present for us what he had discovered in the past week. The student also regularly came by my office for help, advise, or general inputs. I would usually spend 2-3 hours a week on the supervision.

As a PhD student at University of Copenhagen, I supervised a 15 ECTS Master's project. The student and I would usually meet once a week for an hour to discuss the project, and near the deadline we would meet two or three times a week. The student would explain to me what he had done, and I would help him understand the finer details.
When the project was done, I met with an external examiner to discuss the grade for the project.

I created the written exams for four of the courses I have lectured: Algebraic Topology (Southampton), Linear Algebra for Business Economics students (Danish and English, Southern Denmark), Mathematics for Economics students (Southern Denmark).

I have marked the written exams for six different exams: Algebraic Topology (Southampton), Linear algebra (Southampton), Linear Algebra for Business Economics students (Danish and English, Southern Denmark), Mathematics for Economics students (Southern Denmark), Linear Algebra (Copenhagen).

The exam for Linear Algebra in Copenhagen also included meeting with an external examiner to discuss the grades.

I have held an oral exam in Probability Theory (Southern Denmark). This also included an additional oral reexamination.

In 15 out of the 19 courses I did tutorials for, I would also be marking written assignments.

Methods, materials and tools

I will most often do my lectures and tutorials on a black board or white board, sometimes with the aid of a projector for illustrations, animations, or to demonstrate computations. I always begin my lectures by recalling the main points from the previous lecture. Mathematics is understood through examples, so I always include as many examples in my lectures as possible.

As a lecturer in Algebraic Topology at University of Southampton, I did my office hours in a common area for the students. As a result, I would almost constantly be engaged with the students during office hours. I consider this a massive success, and I believe that many of the students who would approach me in the common area would had not been comfortable going to my office for help. I intend on implementing this in the future, whenever the size of the class allows for it.

Educational development and applied research into teaching at university, including educational awards

While a postdoc in Glasgow, I participated in a peer observation programme, in which we observed each others teaching, and provided feedback in order to improve our teaching.

Reflections on your own teaching practice and future development including student evaluations

I often reflect upon my teaching, and always try to improve it. When lecturing, I will hand out an unofficial evaluation sheet after a few lectures, giving the students the opportunity to provide early feedback. I take this student feedback very seriously, and will do what I can to accommodate whatever suggestions they may have. Whenever an official course evaluation is conducted, I will also do what I can to live up to the students suggestions. For instance, after being told that I would sometimes write too fast, I always try to pace myself at the black board.

I regularly engage in discussions and conversations with other teachers about teaching, and often try to modify my teaching to best tailor the students. I am currently taking part of a peer observation programme for further reflection and improvement. I plan on continuing to participate in programmes for teaching learning as to further develop my teaching skills.

Teaching statement

Teaching mathematics is something I find both challenging and rewarding. One of my greatest strengths is to convey mathematics to an audience in a lively and engaging way. As a first year student I had excellent teachers who sparked my interest in mathematics, and I hope to do that for my students.

I put a lot of time and effort into preparing my teaching, and try to make my genuine enthusiasm transparent. If the material is particularly dry, I will try to spice it up with some fun historical facts, some interesting examples, or by a comedic input. This is often recognised by the students in their course evaluations, which are usually very positive. A common feedback I will get from students -- which I am always very proud of -- is that my passion towards the subject is not only obvious, but also highly contagious.

Mathematics is understood through examples. I always motivate the theory I am teaching with several examples, often tailored to the background of the students. For instance, when I was teaching linear algebra to Economics students, I would spend a significant amount of time discussing Leontief input--output systems. The fact that Leontief won the Nobel prize in Economics for this work highly motivated the students, and gave them the sense that the theory was more than manipulation of rows and columns. %Similarly, when teaching algebraic topology I would demonstrate Brouwer's fixed point theorem by stirring my coffee.

Student interaction is crucial, whether it is interaction between teacher and students, or if it is amongst the students themselves. I always encourage students to ask questions and provide me with feedback. When teaching a class of Economics students, followed by almost a hundred students, I would get a multitude of questions during every lecture. I am very pleased to be able to foster a teaching environment where this is possible.

I gladly teach any mathematics course regardless of level or topic, and I already have significant experience in doing so. I have lectured calculus and linear algebra for first year Economics students, algebraic topology for third year students, as well as a course on graph C*-algebras for advanced master's students, and was very comfortable with all of these. I also happily take on any teaching challenge, even if the material is new to me. I did this when lecturing advanced probability theory, a challenge which I very much enjoyed.

I believe that it is important for the students to receive sufficient feedback and help through personal interaction, for instance through office hours. When teaching algebraic topology I would have my office hours in a common area for the mathematics students. I found this remarkably successful. Every week for my office hour I would have multiple students -- and not always the same ones -- asking for help or general feedback. I strongly believe that several of these students would had found it intimidating to go to my actual office. I plan on incorporate this model for office hours in the future, at least when I am teaching classes of a relative small magnitude.

An alternative teaching experience for me has come through mentoring. I supervised a Master's project when I was still a PhD student, and I am currently mentoring an early career research student, who is visiting Glasgow on a prestigious Andersen's travel scholarship. I meet with the student once a week to discuss his progress, and I often answer questions whenever these come up. This aspect of supervision is a true joy, and I hope to supervise more students in the near future.

In conclusion, I believe mathematics is taught through examples and student interaction. I posses a genuine passion for teaching, and find it joyful to supervise students.