



Aalto University

Aalto University

School of Science Information sheet AY 2019-2020

Aalto University welcomes exchange students to our multidisciplinary community where science and art meet technology and business. Our mission is to shape the future, and we provide excellent education for future visionaries and experts.

Important links

[Aalto University Webpage](#)

[School of Science Webpage](#)

[Webpage for incoming Exchange Students](#)

[Webpage for all incoming international students](#)

Academic matters

About

With our internationally acclaimed, high-level research, we change the world for the better. The research at the School of Science focuses on advanced energy solutions, condensed matter and materials physics, creation and transformation of technology based business, data science and artificial intelligence, health technology, neuroscience, and software engineering. We create and transform technology-based businesses, energy sciences (including nuclear engineering), and neuroscience and technology.

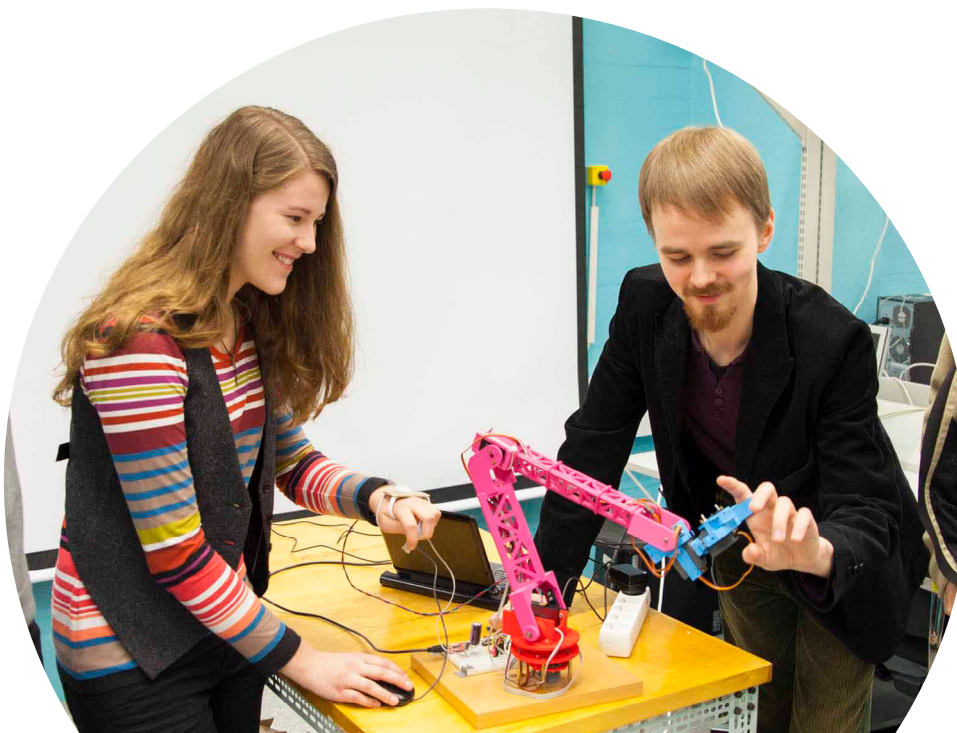
What can you study

School of Science

- Computer Science
- Industrial Engineering and Management
- Engineering Physics
- Mathematics and Operations Research
- Biomedical Engineering and Neuroscience

[Please click HERE for studies for exchange students](#)

[Please click HERE for courses in English at the School of Science](#)



Academic matters

Selecting courses

At least 2/3 of the courses should be selected from one of the five study fields at the School of Science. The remaining 1/3 can be other courses, such as courses from other Schools of technology in Aalto University, language courses, interdisciplinary courses and university wide studies. Besides interdisciplinary courses and university wide studies, exchange students are not allowed to take courses from the School of Arts, Design and Architecture or the School of Business.

There are some changes in the course selection every year, the study programmes are updated during the summer. Students must be prepared to make changes in their study plans upon arrival.

Courses form different levels

Regardless of study level, exchange students can choose both Bachelor and Master level courses, provided that the prerequisites are met. The majority of courses offered in English are on the Master level.

Aalto University strongly recommends at least two to three years of Bachelor's studies before arrival.

Academic calendar

Autumn Term

August - December, periods I and II. Teaching and exams 9 Sept – 3 Jan 2020. (For exchange students it should be possible to complete studies/exams by Christmas.) Mandatory orientation for new exchange students is 2 Sept – 6 Sept 2019.

Spring term

January - July, periods III, IV and V. Teaching and exams 7 Jan – 29 May 2020. Mandatory orientation for new exchange students is 2 Jan – 3 Jan 2020.

Grading and Credits

The grading scale is 1-5 (1 is the lowest passing grade and 5 the highest) or pass/fail

The scope and workload of courses is given in ECTS (= European Credit Transfer System) credits. One credit corresponds to 27 hours of work, including lectures and other forms of instruction, exercises, seminars and independent work at home and in the library. The scope of a course can be 1-15 credits depending on its content.

A full study load is 30 ECTS per semester, which corresponds to about 800 hours of studying. There are no set limits on how many courses students can take. However, Aalto University expects exchange students to study full time and pass courses with good grades.

Transcript of Records

Students can order a [digitally signed](#) transcript of records. Signed and stamped paper version can be sent to the student on request.



Applying

Nomination

The home university nominates students for Aalto University with the name, exchange semester, email address, and study field of the student to exchanges-sci@

Application deadline

April 30: Deadline for applications for the next autumn term or academic year.
October 15: Deadline for applications only for the spring term.
Please verify the dates online.

The online application will open one month before the deadline. Late or incomplete applications will not be processed.

How to apply

Nominated students receive application instructions and a link to the online application by email. Attachments are uploaded to the online application, no hard copies are required.

[More detailed application information on webpages](#) (please read the schools specific application information under Schools of Technology: School of Chemical Engineering, School of Engineering, School of Electrical Engineering, School of

Language requirements

If the language of instruction at home university is English, no language certificate is needed.

If the language of instruction at home university is other than English, exchange students need either an official language test certificate or a certificate from an English language teacher/professor stating that the student has sufficient language skills to study in English in his/her subject area.

Application results

The application results will be ready within one and a half month after the application deadline.



Practical matters

Accommodation

[Information on housing](#)

The university does not own any student housing but cooperates with housing providers. Students apply for housing themselves according to the instructions given by Aalto.

The housing situation in Helsinki metropolitan area is difficult, especially in the autumn. Aalto University cannot guarantee student accommodation for all exchange students.

Student Union ([AYY](#)) membership is compulsory for students living AYY apartments and highly recommended for all, as it gives access to benefits, discounts and activities.

Visa / Residence Permit

Students coming outside of EU/EEA countries need a visa or a residence permit. To apply, please visit the [web pages of the Finnish Immigration services \(MIGRI\)](#).

Insurance

Students from non EU/EEA countries are required to have valid health insurance for obtaining a residence permit for studies lasting more than 3 months. A good insurance is recommended for all exchange students. [MIGRI offers some recommendations on its pages](#).

Contact information

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School of Science Student Services
Otaniemi campus
Aalto University
02150 Espoo, Finland

For enquiries and nominations, please
contact: exchanges-sci@aalto.fi

Welcome to Aalto University!



Aalto University School of Science (SCI)

Courses given in English

- The extent of the courses is given in ECTS = European Credit Transfer System) credits. One credit corresponds to 26,7 hours of work. A full study load is approximately 1600 hours per academic year, which equals to 60 ECTS.
- Periods I and II refer to teaching periods of the autumn term, and periods III and IV and V refer to the teaching periods of the spring term. Periods I-IV last six weeks and one evaluation week. Period I starts in the beginning of September, and Period V ends in the end of May.
- For some courses, the teacher checks the prerequisites. For all others, students are responsible for checking themselves that the prerequisites are fulfilled.
- Nearly all MSc courses (code "-E") are taught in English, some BSc courses (codes "-A" and "-C") are taught in English.
- Each course has an open-access Moodle workspace in <http://mycourses.aalto.fi>
- Degree programme curricula can be found in <http://into.aalto.fi>.
- There are some changes in the course selection every year. Check the latest information from the course catalogue <http://courses.aalto.fi> or <http://oodi.aalto.fi>.

School of Science (SCI)

Code	Name	ECTS	Term	Level	School
Department of Applied Physics					
PHYS-C6370	Fundamentals of New Energy Sources	5	autumn	Bachelor and Master	SCI
PHYS-E0414	Advanced Quantum Mechanics	5	autumn	Bachelor	SCI
PHYS-E0415	Statistical Mechanics	5	autumn	Master	SCI
PHYS-E0419	Dynamics of particles, fluids and solids	5	autumn	Master	SCI
PHYS-E0425	Innovation and entrepreneurial approach to materials and techno	8	autumn	Master	SCI
PHYS-E0435	Optical Physics	5	autumn	Master	SCI
PHYS-E0460	Introduction to Reactor Physics	5	autumn	Master	SCI
PHYS-E0461	Introduction to plasma physics for fusion and space applications	5	autumn	Master	SCI
PHYS-E0546	Density-Functional Theory (V)	5	autumn	Master	SCI
PHYS-E0565	Programming course on Monte Carlo particle transport simulator	5	autumn	Master	SCI
PHYS-E0417	Experimental Methods in Physics	5	autumn	Master only	SCI
PHYS-E0424	Nanophysics	5	autumn	Master only	SCI
PHYS-A0130	Electromagnetism (TFM)	5	spring	Bachelor	SCI
PHYS-A0140	Structure of Matter (TFM)	5	spring	Bachelor	SCI
PHYS-E0411	Advanced Physics Laboratory	5	spring	Master	SCI
PHYS-E0421	Solid-State Physics	5	spring	Master	SCI
PHYS-E0422	Soft Condensed Matter Physics	5	spring	Master	SCI
PHYS-E0437	Laser Physics	5	spring	Master	SCI
PHYS-E0463	Fusion Energy Technology	5	spring	Master	SCI
PHYS-E0525	Microscopy of Nanomaterials	5	spring	Master	SCI
PHYS-E0526	Microscopy of Nanomaterials, laboratory course	5	spring	Master	SCI
PHYS-E0551	Low Temperature Physics V	5-6	spring	Master	SCI
PHYS-E0562	Nuclear Engineering, advanced course	5	spring	Master	SCI
PHYS-E0566	Advanced course in plasma physics with computational emphasis	5	spring	Master	SCI
PHYS-E6570	Solar Energy Engineering	5	spring	Master	SCI
PHYS-C1380	Multi-disciplinary energy perspectives	5	spring	Master and advanced BA	SCI
PHYS-E0412	Computational Physics	5	spring	Master only	SCI
PHYS-E0416	Quantum Physics	5	spring	Master only	SCI
PHYS-E0418	Advanced Statistical Physics	5	spring	Master only	SCI



PHYS-E0423	Surface Physics	5	spring	Master only	SCI
PHYS-E0483	Advances in New Energy Technologies	5	spring	Master and advanced BA	SCI
PHYS-E0541	Special Course in Physics V	3-10	Varies	Master	SCI
PHYS-E0542	Special Course in Theoretical Physics V	3-10	Varies	Master	SCI
PHYS-E0545	Special Course in Computational Physics V	1-10	Varies	Master	SCI
PHYS-E0582	Special Course in Advanced Energy Technologies 2 V	1-10	Varies	Master	SCI
PHYS-E0580	Special Course in Advanced Energy Technologies V	1-10	Varies	Master	SCI
PHYS-E0441	Physics Special Assignment V	10	Varies	Master only	SCI
Department of Computer Science					
CS-A1110	Programming 1	5	autumn	Bachelor	SCI
CS-C3100	Computer Graphics	5	autumn	Bachelor and Master	SCI
CS-C3120	Human-Computer Interaction	5	autumn	Bachelor and Master	SCI
CS-C3130	Information Security	5	autumn	Bachelor and Master	SCI
CS-C3160	Data Science	5	autumn	Bachelor and Master	SCI
CS-E3210	Machine Learning: Basic Principles	5	autumn	Bachelor and Master	SCI
CS-E4590	Competitive Programming	2	autumn	Bachelor and Master	SCI
CS-E5795	Computational Methods in Stochastics	5	autumn	Bachelor and Master	SCI
CS-C3140	Operating Systems	5	autumn	Master	SCI
CS-C3180	Software Design and Modelling	5	autumn	Master	SCI
CS-E4100	Mobile Cloud Computing	5	autumn	Master	SCI
CS-E4110	Concurrent Programming	5	autumn	Master	SCI
CS-E4140	Applications and Services in Internet	5	autumn	Master	SCI
CS-E4300	Network Security	5	autumn	Master	SCI
CS-E4320	Cryptography and Data Security	5	autumn	Master	SCI
CS-E4400	Design of WWW Services	5	autumn	Master	SCI
CS-E4450	Explorative Information Visualization	5	autumn	Master	SCI
CS-E4510	Distributed Algorithms	5	autumn	Master	SCI
CS-E4600	Algorithmic Methods of Data Mining	5	autumn	Master	SCI
CS-E4620	Introduction to Analytics and Data Science	2	autumn	Master	SCI
CS-E4640	Big Data Platforms	5	autumn	Master	SCI
CS-E4900	User-Centered Methods for Product and Service Design	5	autumn	Master	SCI
CS-E5130	Digital Business Management	4	autumn	Master	SCI
CS-E5220	User Interface Construction	5	autumn	Master	SCI
CS-E5290	Digital Service Design	6	autumn	Master	SCI
CS-E5300	Enterprise Systems Architecture	5	autumn	Master	SCI
CS-E5310	ICT Enabled Service Business and Innovation	5	autumn	Master	SCI
CS-E5330	IT Governance	5	autumn	Master	SCI
CS-E5500	Acoustical Measurements	5	autumn	Master	SCI
CS-E5610	Social Media	4	autumn	Master	SCI
CS-E5710	Bayesian Data Analysis	5	autumn	Master	SCI
CS-E5740	Complex Networks	5	autumn	Master	SCI
CS-E5865	Computational Genomics	5	autumn	Master	SCI
CS-E5875	High-Throughput Bioinformatics	5	autumn	Master	SCI

CS-E3190	Principles of Algorithmic Techniques	5	autumn	Master and advanced BA	SCI
CS-E4460	WWW Applications	5	autumn	Master, Doctoral	SCI
CS-E4850	Computer Vision	5	autumn	Master, Doctoral	SCI
CS-E4960	Software Testing and Quality Assurance	5	autumn	Master only	SCI
CS-E5005	Research Methods in Software and Service Engineering	5	autumn	Master only	SCI
CS-E5120	Introduction to Digital Business and Venturing	3	autumn	Bachelor and Master	SCI
CS-C3150	Software Engineering	5	autumn, spring	Bachelor and Master	SCI
CS-E4330	Special Course in Information Security	2-10	autumn, spring	Master	SCI
CS-E4920	Portfolio in Software and Service Engineering (V)	1-5	autumn, spring	Master	SCI
CS-C1000	Introduction to Artificial Intelligence	3	spring	Bachelor	SCI
CS-E4800	Artificial Intelligence	5	spring	Bachelor and Master	SCI
CS-E4200	Emergent User interfaces	5	spring	Master	SCI
CS-E4310	Mobile Systems Security	5	spring	Master	SCI
CS-E4410	Semantic Web	5	spring	Master	SCI
CS-E4500	Advanced Course in Algorithms	5	spring	Master	SCI
CS-E4530	Computational Complexity Theory	5	spring	Master	SCI
CS-E4555	Combinatorics	5	spring	Master	SCI
CS-E4580	Programming Parallel Computers	5	spring	Master	SCI
CS-E4820	Machine Learning: Advanced Probabilistic Methods	5	spring	Master	SCI
CS-E4840	Information Visualization	5	spring	Master	SCI
CS-E4890	Deep Learning	5	spring	Master	SCI
CS-E4930	Software Processes and Projects	5	spring	Master	SCI
CS-E4940	Requirements Engineering	5	spring	Master	SCI
CS-E5140	Global Business in the Digital Age	4	spring	Master	SCI
CS-E5200	Design Project	10	spring	Master	SCI
CS-E5210	Usability evaluation	5	spring	Master	SCI
CS-E5340	Introduction to Industrial Internet	5	spring	Master	SCI
CS-E5360	Systems of Systems	5	spring	Master	SCI
CS-E5370	Law in Digital Society	5-6	spring	Master	SCI
CS-E5520	Advanced Computer Graphics	5	spring	Master	SCI
CS-E5600	Aesthetics	3	spring	Master	SCI
CS-E5700	Hands-on Network Analysis	5	spring	Master	SCI
CS-E5745	Mathematical Methods for Network Science	5	spring	Master	SCI
CS-E5885	Modeling Biological Networks	5	spring	Master	SCI
CS-E4830	Kernel Methods in Machine Learning	5	spring	Master, Doctoral	SCI
CS-E5530	Virtual Acoustics	5	spring	Master, Doctoral	SCI
CS-E5755	Nonlinear Dynamics and Chaos	5	spring	Master, Doctoral	SCI
CS-E5890	Statistical Genetics and Personalised Medicine	5	spring	Master, Doctoral	SCI
CS-E4950	Software Architectures	5	spring	Master only	SCI
CS-C3150	Software Engineering	5	autumn and spring	Bachelor and Master	SCI
CS-E4330	Special Course in Information Security	2-10	autumn and	Master	SCI

CS-E4920	Portfolio in Software and Service Engineering (V)	1-5	autumn and	Master	SCI
CS-E5460	Project in Embedded Systems	5-10	autumn and	Master	SCI
CS-C3170	Web Software Development	5	Academic year	Bachelor and Master	SCI
CS-E4002	Special Course in Computer Science	1-10	Varies	Master	SCI
CS-E4070	Special Course in Machine Learning and Data Science	1-10	Varies	Master	SCI
CS-E5002	Special Course in Software and Service Engineering	1-10	Varies	Master	SCI
CS-E5380	Special Assignment on Enterprise Information Systems	3-10	Varies	Master	SCI
CS-E5770	Special Course in Complex Systems	1-10	Varies	Master	SCI
CS-E5780	Special Assignment in Complex Systems	5-10	Varies	Master	SCI
CS-E4003	Special Assignment in Computer Science	1-10		Master	SCI
Department of Industrial Engineering and Management					
TU-A1300	Introduction to Industrial Engineering and Management	5	autumn	Bachelor	SCI
TU-C2010	Introduction to Strategic Management	5	autumn	Bachelor	SCI
TU-C9270	Introduction to Networks	5	autumn	Bachelor	SCI
TU-E1010	Advanced Strategic Management	5	autumn	Master	SCI
TU-E1131	Financial Modeling in Strategy and Venturing	5	autumn	Master	SCI
TU-E2000	Aalto Introduction to Services	3-6	autumn	Master	SCI
TU-E2020	Advanced Operations Management	3-5	autumn	Master	SCI
TU-E2030	Advanced Project-based Management	3-5	autumn	Master	SCI
TU-E2040	Management of External Resources	3-5	autumn	Master	SCI
TU-E3020	Knowledge Management in Practice	5	autumn	Master	SCI
TU-E3031	Collaboration in Teams and Networks	5	autumn	Master	SCI
TU-E3040	Human Potential	5	autumn	Master	SCI
TU-E4040	Opportunity Prototyping	3	autumn	Master	SCI
TU-E4060	Design & Innovation in Context	6	autumn	Master	SCI
TU-E4080	Managing Innovative Sales	3	autumn	Master	SCI
TU-E4090	Managing Innovative Sales, exercises	3	autumn	Master	SCI
TU-E4120	Aalto Fellows II	5	autumn	Master	SCI
TU-E6010	Philosophy	3	autumn	Master	SCI
TU-E6110	Management of Networked Business Processes	3-5	autumn	Master	SCI
TU-E2210	Financial Engineering I	3-6	autumn	Master, Doctoral	SCI
TU-E1090	Research Assignment in Strategy and Venturing	5	autumn and spring	Master	SCI
TU-E3091	Research Assignment in Organization Design and Leadership	5	autumn and spring	Master	SCI
TU-E4130	Refresher on Business Research	1	autumn and spring	Master	SCI
TU-E6140	Business Game	3	autumn and spring	Master	SCI
TU-E4011	High Growth Entrepreneurship with varying content	1-20	autumn and spring	Master, Doctoral	SCI
TU-E4100	Startup Experience	9	autumn and spring	Master, Doctoral	SCI
TU-C3021	Managing knowledge and knowledge-intensive organizations	5	spring	Bachelor	SCI
TU-C3030	Basics in Research and Development (R&D) Management	3-5	spring	Bachelor	SCI
TU-E1021	Strategies for Growth and Renewal	5	spring	Master	SCI
TU-E1120	Strategic Management of Technology and Innovation	5	spring	Master	SCI
TU-E1140	Contracting in Strategy and Venturing	2	spring	Master	SCI
TU-E2012	Service Operations Management	5	spring	Master	SCI
TU-E2110	Innovation in Operations and Services	3-5	spring	Master	SCI
TU-E2120	Project Business	3-5	spring	Master	SCI
TU-E2130	Operations Management for New Ventures	3-5	spring	Master	SCI

TU-E3010	Leading as practice	5	spring	Master	SCI
TU-E3050	Designing Adaptive and Creative Organizations	5	spring	Master	SCI
TU-E3150	Safety Management in Complex Sociotechnical Systems	5	spring	Master	SCI
TU-E4031	Startup Finance	5	spring	Master	SCI
TU-E4051	Startup Leadership	5	spring	Master	SCI
TU-E4071	Startup Marketing	5	spring	Master	SCI
TU-E4110	Aalto Fellows	5	spring	Master	SCI
TU-E6120	Co-development Interventions in Business Networks	5	spring	Master	SCI
TU-E2220	Financial Engineering II	3-6	spring	Master, Doctoral	SCI
TU-E1090	Research Assignment in Strategy and Venturing	5	autumn and	Master	SCI
TU-E2090	Research Assignment in Operations and Service Management	5-7	autumn and	Master	SCI
TU-E3091	Research Assignment in Organization Design and Leadership	5	autumn and	Master	SCI
TU-E4130	Refresher on Business Research	1	autumn and	Master	SCI
TU-E6140	Business Game	3	autumn and	Master	SCI
TU-E4011	High Growth Entrepreneurship with varying content	1-20	autumn and spring	Master, Doctoral	SCI
TU-E4100	Startup Experience	9	autumn and spring	Master, Doctoral	SCI
TU-E3161	Organization Design and Leadership with varying content	1-10	Varies		SCI
Department of Mathematics and Systems Analysis					
MS-A0011	Matrix Algebra	5	autumn	Bachelor	SCI
MS-A0111	Differential and integral calculus	5	autumn	Bachelor	SCI
MS-C1343	Linear algebra	5	autumn	Bachelor	SCI
MS-C1350	Partial differential equations	5	autumn	Bachelor	SCI
MS-C1530	Curves and surfaces	5	autumn	Bachelor	SCI
MS-C2111	Stochastic Processes	5	autumn	Bachelor	SCI
MS-C2128	Prediction and Time Series Analysis	5	autumn	Bachelor	SCI
MS-E2114	Investment science	5	autumn	Master	SCI
MS-E2115	Experimental and Statistical Methods in Biological Sciences	5	autumn	Master	SCI
MS-E2121	Linear optimization	5	autumn	Master	SCI
MS-E2122	Nonlinear optimization	5	autumn	Master	SCI
MS-E2133	Systems analysis laboratory II	5	autumn	Master	SCI
MS-E1050	Graph theory	5	autumn	Master, Doctoral	SCI
MS-E1110	Number theory	5	autumn	Master, Doctoral	SCI
MS-E1142	Computational algebraic geometry	5	autumn	Master, Doctoral	SCI
MS-E1200	Lie groups and Lie algebras	5	autumn	Master, Doctoral	SCI
MS-E1280	Measure and integral	5	autumn	Master, Doctoral	SCI
MS-E1461	Hilbert spaces	5	autumn	Master, Doctoral	SCI
MS-E1603	Random graphs and network statistics	5	autumn	Master, Doctoral	SCI
MS-E1651	Numerical matrix computations	5	autumn	Master, Doctoral	SCI
MS-E1652	Computational methods for differential equations	5	autumn	Master, Doctoral	SCI
MS-E2195	Web-based courses in systems analysis (V)	1-6	autumn and spring	Master	SCI
MS-A0211	Differential and integral calculus 2	5	spring	Bachelor	SCI
MS-A0311	Differential and integral calculus 3	5	spring	Bachelor	SCI
MS-A0402	Foundations of discrete mathematics	5	spring	Bachelor	SCI

MS-A0503	First course in probability and statistics	5	spring	Bachelor	SCI
MS-C1081	Abstract algebra	5	spring	Bachelor	SCI
MS-C1421	Fourier analysis	5	spring	Bachelor	SCI
MS-C1620	Statistical inference	5	spring	Bachelor	SCI
MS-C2105	Introduction to Optimization	5	spring	Bachelor	SCI
MS-E2123	Integer optimization	5	spring	Master	SCI
MS-E2134	Decision making and problem solving	5	spring	Master	SCI
MS-E2148	Dynamic optimization	5	spring	Master	SCI
MS-E2170	Simulation (V)	5	spring	Master	SCI
MS-E2177	Seminar on Case Studies in Operations Research (V)	5-7	spring	Master	SCI
MS-E1111	Galois theory	5	spring	Master, Doctoral	SCI
MS-E1281	Real analysis	5	spring	Master, Doctoral	SCI
MS-E1531	Differential geometry	5	spring	Master, Doctoral	SCI
MS-E1600	Probability theory	5	spring	Master, Doctoral	SCI
MS-E1653	Finite element method	5	spring	Master, Doctoral	SCI
MS-E1654	Computational inverse problems	5	spring	Master, Doctoral	SCI
MS-E1687	Advanced topics in cryptography V	5	spring	Master, Doctoral	SCI
MS-E2112	Multivariate statistical analysis	5	spring	Master, Doctoral	SCI
MS-E2195	Web-based courses in systems analysis (V)	1-6	autumn and spring	Master	SCI
MS-E1980	Special assignment in mathematics (V)	5-10	Academic year	Master	SCI
MS-E1059	Seminar on combinatorics (V)	1-5	Academic year	Master, Doctoral	SCI
MS-E1089	Seminar on Algebra, Number Theory, and Applications to Comm	2	Academic year	Master, Doctoral	SCI
MS-E1289	Seminar on analysis and geometry (V)	1-5	Academic year	Master, Doctoral	SCI
MS-E1609	Seminar on stochastics and statistics (V)	1-5	Academic year	Master, Doctoral	SCI
MS-E1659	Seminar on applied mathematics (V)	1-5	Academic year	Master, Doctoral	SCI
MS-E1990	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1991	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1992	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1993	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1994	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1995	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1996	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1997	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E1998	Course with Varying Content V	1-10	Varies	Master	SCI
MS-E2108	Independent research projects in systems analysis (V)	5-8	Varies	Master	SCI
MS-E2136	Special topics in decision making (V)	1-6	Varies	Master	SCI
MS-E2144	Special topics in optimization (V)	1-6	Varies	Master	SCI
MS-E2193	Independent studies in systems analysis (V)	1-9	Varies	Master	SCI
MS-E2194	Research course in systems science (V)	1-6	Varies	Master	SCI
Department of Neuroscience and Biomedical Engineering					
NBE-E4000	Principles of Biomedical Imaging	5	autumn	Master	SCI

NBE-E4010	Medical Image Analysis	5	autumn	Master	SCI
NBE-E4045	Functional Brain Imaging	5	autumn	Master	SCI
NBE-E4050	Signal Processing in Biomedical Engineering	5	autumn	Master	SCI
NBE-E4120	Cellular Electrophysiology	5	autumn	Master	SCI
NBE-E4150	DNA Nanotechnology	5	autumn	Master	SCI
NBE-E4210	Structure and operation of the human brain	5	autumn	Master	SCI
NBE-E4100	Molecular Biophysics	5	spring	Master	SCI
NBE-E4130	Information Processing in Neural Circuits	5	spring	Master	SCI
NBE-E4225	Cognitive Neuroscience	5	spring	Master	SCI
NBE-E4240	Advanced Course on Human Neuroscience	5	spring	Master	SCI
NBE-E4310	Biomedical Ultrasonics	5	spring	Master	SCI
NBE-E4020	Medical Imaging	5	spring	Master	SCI
NBE-E4140	Neurophysics	5	spring	Master	SCI
NBE-E4300	Medical Device Innovation	5	spring	Master	SCI