

MSCSS Concentrations

Students are eligible to have one concentration listed on their final transcript. Students must complete **20 credits total** from the respective concentration's list of courses.

Bioinformatics

- TCSS 555 Machine Learning (5)
- TCSS 588 Bioinformatics (5)
- TCSS 592 Research Seminar in Bioinformatics (1-3, max. 5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)

Data Science

- TCSS 551 Big Data Analytics (5)
- TCSS 554 Information Retrieval and Web Search (5)
- TCSS 555 Machine Learning (5)
- TCSS 556 Advanced Topics in Machine Learning (5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 593 Research Seminar in Data Science (1-3, max. 5)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)

Distributed Systems

- TCSS 531 Cloud and Virtualization Systems Engineering (5)
- TCSS 559 Services Computing (5)
- TCSS 562 Software Engineering for Cloud Computing (5)
- TCSS 570 Introduction to Parallel Computing (5)
- TCSS 571 Wireless and Mobile Networking (5)
- TCSS 573 Internet of Things (5)
- TCSS 576 Wireless and System Security (5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)

Geographic Information Systems

- TCSS 565 Spatial Databases with Applications in Geographical Information Systems (5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 594 Research Seminar in Geographic Information Systems (1-3, max. 5)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)

Cybersecurity

- TCSS 576 Wireless and System Security (5)
- TCSS 581 Cryptology (5)
- TCSS 582 Cryptographic Protocols (5)
- TCSS 583 Post-Quantum Cryptosystems (5)
- TCSS 584 Testing VLSI Circuits and Hardware Security (5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 595 Research Seminar in Cybersecurity (1-3, max. 5)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)

Cyber-Physical Systems

- TCSS 569 Introduction to Cyber-Physical Systems
- TCSS 573 Internet of Things (5)
- TCSS 574 Cyber Electromagnetics (5)
- TCSS 575 Control of Cyber-Physical Systems (5)
- TCSS 590 Special Topics in Computing and Software Systems (1-5, max. 30)
- TCSS 597 Research Seminar in Cyber Physical Systems (1-3, max. 5)
- TCSS 600 Independent Study or Research (*-)
- TCSS 700 Master's Thesis (*-)
- TCSS 702 Design Project in Computing and Software Systems (1-10, max. 10)