

COMPUTER SCIENCE (THESIS) (M.SC.) (45 CREDITS)

Offered by: Computer Science (Faculty of Science)

Degree: Master of Science

Program credit weight: 45

Program Description

The M.Sc. in Computer Science; Thesis program explores advanced topics in computer science and offers training in performing cutting-edge research.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Thesis Courses (29 credits)

29 credits selected from:

Expand allContract all

Course	Title	Credits
COMP 691	Thesis Research 1.	3
COMP 696	Thesis Research 2.	3
COMP 697	Thesis Research 3.	4
COMP 698	Thesis Research 4.	10
COMP 699	Thesis Research 5.	12

Required Courses (2 credits)

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Course	Title	Credits
COMP 602	Computer Science Seminar 1.	1
COMP 603	Computer Science Seminar 2.	1

Complementary Courses (14 credits)

14 credits of COMP (or approved) courses at the 500-, 600-, or 700-level.

Complementary courses must satisfy a Computer Science breadth requirement, with at least one course in two of the Theory, Systems, and Application areas. Areas covered by specific courses are determined by the Computer Science graduate program director.

Category A: Theory

Expand allContract all

Course	Title	Credits
COMP 523	Language-based Security.	3
COMP 525	Formal Verification.	3
COMP 527	Logic and Computation.	3
COMP 531	Advanced Theory of Computation.	3

COMP 540	Matrix Computations.	4
COMP 547	Cryptography and Data Security.	4
COMP 552	Combinatorial Optimization.	4
COMP 553	Algorithmic Game Theory.	4
COMP 554	Approximation Algorithms.	4
COMP 562	Theory of Machine Learning.	4
COMP 566	Discrete Optimization 1.	3
COMP 567	Discrete Optimization 2.	3
COMP 594	Topics in CS: Theory 1	4
COMP 595	Topics in CS: Theory 2	4
COMP 610	Information Structures 1.	4
COMP 611	Mathematical Tools for Computer Science.	4
COMP 642	Numerical Estimation Methods.	4
COMP 647	Advanced Cryptography.	4
COMP 649	Quantum Cryptography.	4
COMP 690	Probabilistic Analysis of Algorithms.	4
COMP 760	Advanced Topics Theory 1.	4
COMP 761	Advanced Topics Theory 2.	4

Category B: Systems

Expand allContract all

Course	Title	Credits
COMP 512	Distributed Systems.	4
COMP 513	Advanced Computer Systems.	4
COMP 520	Compiler Design.	4
COMP 529	Software Architecture.	4
COMP 533	Model-Driven Software Development.	3
COMP 535	Computer Networks 1.	4
COMP 555	Information Privacy.	4
COMP 596	Topics in CS: Systems and Programming 1	4
COMP 597	Topics in CS: Systems and Programming 2	4
COMP 614	Distributed Data Management.	4
COMP 621	Program Analysis and Transformations.	4
COMP 762	Advanced Topics Programming 1.	4
COMP 763	Advanced Topics Programming 2.	4
COMP 764	Advanced Topics Systems 1.	4
COMP 765	Advanced Topics Systems 2.	4

Category C: Applications

Expand allContract all

Course	Title	Credits
COMP 511	Network Science.	4
COMP 514	Applied Robotics.	4
COMP 521	Modern Computer Games.	4
COMP 545	Natural Language Understanding with Deep Learning .	4
COMP 546	Computational Perception.	4

COMP 549	Brain-Inspired Artificial Intelligence.	3
COMP 550	Natural Language Processing.	3
COMP 551	Applied Machine Learning.	4
COMP 557	Fundamentals of Computer Graphics.	4
COMP 558	Fundamentals of Computer Vision.	4
COMP 559	Fundamentals of Computer Animation.	4
COMP 561	Computational Biology Methods and Research.	4
COMP 564	Advanced Computational Biology Methods and Research.	0-3
COMP 565	Machine Learning in Genomics and Healthcare.	4
COMP 579	Reinforcement Learning.	4
COMP 585	Intelligent Software Systems .	4
COMP 588	Probabilistic Graphical Models.	4
COMP 598	Topics in CS: Applications 1	4
COMP 599	Topics in CS: Applications 2	4
COMP 618	Bioinformatics: Functional Genomics.	3
COMP 654	Graph Representation Learning.	4
COMP 680	Mining Biological Sequences.	4
COMP 766	Advanced Topics Applications 1.	4
COMP 767	Advanced Topics: Applications 2.	4