

Master of Science in Computer Science (M.S.)

The Master of Science in Computer Science will provide individuals with the opportunity to acquire an excellent graduate level education in Computer Science that prepares them to work in a variety of computer related fields, including education, industry, research, business, and government.

The Master of Science in Computer Science is a 30 credit-hour program with an optional thesis track. All students must complete 12-credits of core courses.

Tracks

The program includes two tracks. Each has different course and graduation exit requirements which are outlined in the chart.

- **Thesis Track:** Students in the thesis track must take 12 additional credits of elective or core courses and the 6-credit thesis sequence or 9 additional credits of elective or core courses and the 9-credit thesis sequence.
- **Non-Thesis Track:** Students choosing the non-thesis track must take 18 additional credits of elective or core courses, 6 credits of which must be classified as project intensive.

Rowan University undergraduates majoring in the Bachelor of Science in Computer Science program can apply to the Combined Advanced Degree program allowing them to earn both the Bachelor of Science and Master of Science degrees in five years.

Program Requirements

Core Courses

12 s.h.

(s.b.: semester hours/credit hours)

Choose four (4) from the following:

<u>Course #</u>	<u>Course Title</u>	<u>S.H.</u>
CS 04530	Advanced Database Systems: Theory & Programming	3
CS 04548	Programming Languages: Theory, Implementation & Application	3
CS 04560	Design & Implementation of Operating Systems	3
CS 04564	Compiler Design Theory	3
CS 04570	Advanced Object Oriented Design	3
CS 06510	Computer Networks	3
CS 06520	Topics in Computer Architecture	3
CS 07522	Advanced Theory of Computing	3
CS 07523	Advanced Software Engineering	3
CS 07540	Advanced Design & Analysis of Algorithms	3
CS 07550	Concepts in Artificial Intelligence	3
CS 07551	Advanced Cyber Security: Principles & Applications	3
CS 07552	Cryptographic Algorithms	3
CS 07556	Machine Learning	3

Elective Courses

9-18 s.h.

Choose from the following and see note*

<u>Course #</u>	<u>Course Title</u>	<u>S.H.</u>
CS 01541	Bioinformatics - Advanced Computational Aspects	3
CS 04505	Advanced Web Programming	3
CS 04563	Concurrent Programming – Theory and Practice	3
CS 04565	System Programming	3
CS 04571	Advanced Topics in Mobile Programming	3
CS 06505	Wireless Networks & Systems	3
CS 06512	Network Security	3
CS 06515	Embedded Systems Programming	3
CS 07524	Agile Software Engineering	3
CS 07545	Advanced Robotics	3
CS 07555	Natural Language Processing	3
CS 07560	Computer Graphics	3
CS 07565	Computer Vision	3
CS 07570	Information Visualization	3
CS 07575	Advanced TCP/IP & Internet Protocols & Technologies	3
CS 07580	Computer Animation	3
CS 07590	Game Design & Development	3
CS 07595	Advanced Topics in Computer Science	3

***Note:** Students can choose a maximum of 6 credits of approved graduate electives from graduate programs in the field of Electrical and Computer Engineering, Mathematics, Management Information Systems, Data Analytics, or Bioinformatics.

Only 3 credits from the graduate program in Management Information Systems could be counted towards electives for a graduate degree in Computer Science. Before signing up for these classes please discuss and confirm all choices with your academic advisor.

Required Thesis Track Courses

6-9 s.h.

Choose from the following and see note* above.

Course #	Course Title	S.H.
CS 07530	Computer Science Thesis I	3
CS 07531	Computer Science Thesis II	3
CS 07532	Computer Science Thesis III <i>optional</i>	3

Total Required Credits for the Program

30 s.h.

Foundation Courses

None

Graduation/Exit, Benchmark, and/or Thesis Requirements

If thesis track is chosen, students must successfully complete and defend Master's Thesis.

Minimum Required Grades and Cumulative GPA

The Master of Science in Computer Science is a Category 3 program.

For details regarding satisfactory academic progress and graduation requirements, please visit www.rowanu.com/policies.

Program Coordinator/Advisor Contact Information

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Master of Science in Data Analytics (M.S.)

The Master of Science in Data Analytics at Rowan University is designed for individuals with a Bachelor's degree in a STEM related field who are looking to expand their knowledge and opportunities in Data Science. The program has a strong background in Data Mining, Modeling, Statistical and Machine learning, but also includes potential concentrations in Health Data Analytics or Business Data Analytics for students with those interests. If no concentration is chosen, there is a variety of electives so that students can increase their knowledge of Computer Science, Statistics, or Visual Analytics. The program is based on industry needs, as well as guidelines of the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) and of the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). Students will be prepared to use algorithms, statistics, and technology to make informed decisions from massive amounts of data, to manage streamed data or data stored in massive data warehouses, and to visually analyze and present information. Courses are designed to provide expertise in the data sciences and train students to solve problems with complex sets of structured and unstructured data commonly found in any industry.

Program Requirements

The Master of Science in Data Analytics program consists of 10 courses and a total of 30 graduate semester hours (s.h.). Students may enroll in this program part-time or full-time.

Coursework

The following courses make up the Master of Science in Data Analytics program.

- **Required Courses:** 12 semester hours (s.h.)
- **Concentration and Elective Courses:** 18 semester hours (s.h.)

Required Courses

12 s.h.

(s.h.: semester hours/credit hours)

Course #	Course Title	S.H.
DA 02510	Visual Analytics	3
CS 02520	Data Warehousing	3
CS 02505	Data Mining I	3
STAT 02515	Applied Multivariate Data Analysis	3

Health Data Analytics Leading Concentration Courses

18 s.h.

Course #	Course Title	S.H.
CS 03505	Data Quality and Web/Text Mining	3
DA 03510	Patient Data Understanding	3
DA 03520	Healthcare Management	3