Degree Requirements for CS Major

Required Lower Level Coursework Upper Level Concentration LEP Benchmarks Degree Requirements Academic Planning Forms

Much of the knowledge at the early stage of the degree program is cumulative. To ensure incoming first-year and transfer students start with the appropriate courses, the department offers exemption exams for CMSC131, CMSC132, CMSC216, and CMSC250. Students who have had CS courses prior to starting at Maryland are encouraged to take our exemption exams (http://undergrad.cs.umd.edu/node/24).

Required Lower Level Coursework

All students, regardless of specialization, are required to take the following lower level coursework:

Math Requirements	Computer Science Requirements

- MATH141 (4) Calculus II
- STAT4XX (3) This course must have a prerequisite of MATH141; *Cannot be crosslisted with CMSC*
- MATH/STATXXX (3/4) This course must have a prerequisite of MATH141; *Cannot be cross-listed with CMSC*

* Data Science, Machine Learning, and Quantum Information students must take a MATH Linear Algebra course (e.g. MATH240, MATH341 [must complete MATH340 first], or MATH461)

(2) Object-Oriented Programming I Beyond Fundamentals

- CMSC132 (4) Object-Oriented Programming II*
- CMSC216 (4) Introduction to Computer Systems*
- CMSC250 (4) Discrete Structures*
- CMSC330 (3) Organization of Programming Languages
- CMSC351 (3) Algorithms

* An exemption exam (http://undergrad.cs.umd.edu/node/24) is available for this course.

Upper Level Concentration

All students, regardless of specialization, must complete 12 credit hours of 300 - 400 level courses in one discipline **outside** of Computer Science with a cumulative GPA of 1.7 or higher in this coursework. No course that is in, or crosslisted as, CMSC may be counted in this requirement (e.g., AMSC460). Only 1 independent study or experiential learning course may be used. Students who are pursuing a minor or a double major/dual degree may use those credits in this area with the exception of a few majors/disciplines (e.g., Information Science). Please consult with your advisor to ensure the courses you plan to take to ensure they will satisfy this requirement. For a detailed breakdown of accepted Upper-Level Concentration courses please click **here (https://undergrad.cs.umd.edu/upper-level-concentration).**

Limited Enrollment Program (LEP) Benchmarks*

* These benchmarks apply to new freshman (matriculated Fall 2019 and later), new transfer students, and internal transfers changing majors within the University *

45-Credit Benchmark Requirements

- Completion of CMSC 131 with a minimum grade of C-
- Completion of CMSC 132 with a minimum grade of C-
- Completion of MATH 140 with a minimum grade of C-
- A minimum grade point average of 2.0 in all courses taken at the University of Maryland and all other institutions

75-Credit Benchmark Requirements

- Completion of CMSC 330 with a minimum grade of C-
- Completion of CMSC 351 with a minimum grade of C-
- Completion of a STAT4XX course (prerequisite: MATH141) with a minimum grade of C- **or** MATH/AMSC/STAT course (prerequisite: MATH141) with a minimum grade of C-
- A minimum grade point average of 2.0 in all courses taken at the University of Maryland and all other institutions

Please contact your advisor if you have concerns about meeting your benchmarks.

Degree Requirements

Students within the Computer Science major may choose to pursue our General Track or one of four specializations offered. Students are not required to pursue a specialization but may find one best fits their interests. Students interested in declaring a specialization should speak with their assigned academic advisor.

Students, regardless of specialization, are required to fulfill their computer science upper level course requirements from at least 3 areas. Courses that fall within each area are listed in the General Track degree requirements. The five areas are: Area 1: Systems, Area 2: Information Processing, Area 3: Software Engineering and Programming Languages, Area 4: Theory, Area 5: Numerical Analysis.

information on STICs and see your assigned advisor for information on how STICs can fit into your specialization.

General Track

Students pursuing the general track are able to take courses building upon their broad interests in computer science from Systems to Numerical Analysis.

Learn More (/general-track-degree-requirements)

Cybersecurity

The Cybersecurity Specialization allows students to have the necessary background to address myriad cybersecurity issues relevant to government, industry, and academic careers.

Learn More (/cybersecurity-degree-requirements)

Data Science

Data Science is an emerging field encapsulating interdisciplinary activities, used to create data-centric products, applications or programs that address specific scientific, socio-political, or business questions.

Learn More (/data-science-degree-requirements)

Quantum Information

The Quantum Information specialization allows students to capitalize on the recent advances toward the experimental realization of quantum computers together with significant ongoing work on the theory of quantum computing.

Learn More (/quantum-information-degree-requirements)

Machine Learning

from data and experience.

Learn More (/machine-learning-degree-requirements)

Academic Planning Forms: Fall 2024 and later

Below are degree planning documents that are commonly used by students in the Computer Science department. If you have any questions, please e-mail csadvising-ugrad@umd.edu (mailto:csadvising-ugrad@umd.edu).

- General, Cybersecurity, Data Science, Machine Learning, Quantum Information Planning Forms [Google Sheet (https://docs.google.com/spreadsheets/d/1tJ4_K0Utbb1RzHjuRQRNBf2B-aoqrzEA16YGg3opxhI/edit?usp=sharing) | PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/08/4-year-plan-blank-template%20%283%29.pdf)]
- CMSC BS/MS Academic Plan [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/02/2401%20BS%20MS%20Program%20Academic%20Plan.pdf)]
- CMSC Distributive Areas and Electives [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Distributive%20Areas%20and%20Ele Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Distributive%20Areas%20and%20Ele

Academic Planning Forms: Spring 2024 and earlier

Below are degree planning documents in the PDF/Excel format that were commonly used by students in the Computer Science department. Please note that the forms are only for current CS students. Please use the academic planning document on the Google Sheet above if you will start the CS Major in the Fall 2024 semester or later.

- CMSC General Track Academic Planning Form [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20General%20Track.pdf) | Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20General%20Track.xlsx)]

| Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Cybersecurity%20Specialization.xlsx)

- CMSC Data Science Academic Planning Form [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Data%20Science%20Specialization.p | Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Data%20Science%20Specialization.xl
- CMSC Machine Learning Academic Planning Form [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Machine%20Learning%20Specializati | Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Machine%20Learning%20Specializati
- CMSC Quantum Information Planning Form [PDF (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Quantum%20Computing%20Speciali | Excel (/sites/undergrad.cs.umd.edu/files/images/uploads/2024/04/2401%20Computer%20Science%20Quantum%20Computing%20Speciali

Contact Our Office

CS Undergraduate Office (https://undergrad.cs.umd.edu)
Brendan Iribe Center for Computer Science and Engineering
University of Maryland
8125 Paint Branch Drive
College Park, MD 20742
(Phone) (301) 405-2672 (tel:3014052672)

Part of the

Department of Computer Science (https://www.cs.umd.edu)
Brendan Iribe Center for Computer Science and Engineering

UNIVERSITY OF MARYLAND (HTTPS://UMD.EDU)

College Park, MD 20742

(Phone) (301) 405-2662 (tel:3014052662)

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