

# ADVANCE

A NOVA | MASON PARTNERSHIP

A.S. Computer Science / B.S. Computer  
Science Pathway  
**2021-2022**

## A.S. Computer Science

### ADVANCE Program Milestones

**ADVANCE Milestone Requirements:** All ADVANCE students must adhere to the following requirements. For Milestones #1-#3, failure to meet these milestones will prevent a student from matriculating to Mason and/or result in termination from ADVANCE. For Milestones #4-#6, failure to meet these milestones may delay matriculation to Mason.

- Students must complete their NOVA degree within 4 years of being admitted into ADVANCE. Students are highly encouraged to be continuously enrolled at NOVA/Mason to support progress towards degree completion.
- Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to Mason.
- Students who wish to enroll at Mason for the fall semester must apply for NOVA graduation by March 1 for spring graduation or June 1 for summer graduation. Students who wish to enroll at Mason for the spring semester must apply for NOVA graduation by October 1 for winter graduation.
- Students must begin developmental coursework in no later than the first semester in ADVANCE at NOVA.
- Students must take first college-level MTH course and ENG 111 in the semester immediately following the completion of any MDE or EDE courses (excluding summer).
- In the first 30 credits, students must:
  - Complete ENG 111 and ENG 112 with a C or better.
  - Complete the first college-level MTH course with a C or better.

**Computer Science Admission Requirements:** All transfer applicants must have earned at a least B in CSC 201 or CSC 202, AND must have earned at least a B in one of the following: MTH 263, MTH 264, or MTH 288.

NOVA DEGREE REQUIREMENT	Credits	Courses	MASON TRANSFER EQUIVALENT	MASON CORE/DEGREE EQUIVALENT
1 SDV Course	1	SDV 100 College Success Skills <b>OR</b> SDV 101 Orientation to XXX	UNIV 100	General Elective
2 ENG 111	3	ENG 111 College Composition I	ENGH 101	Written Comm
3 CSC 200 or CSC 201	4	CSC 200 Introduction to Computer Science <sup>1,2</sup>	CS XXX	General Elective
4 CST Course	3	CST 100 Principles of Public Speaking <b>OR</b> CST 110 Introduction to Communication	COMM 100 COMM 101	Oral Comm
5 MTH 167 or MTH 263	4-5	MTH 167 PreCalculus with Trigonometry <sup>2</sup>	MATH 105	General Elective
6 CSC 201 or CSC 202	4	CSC 201 Computer Science I	CS 112	Major
7 ENG 112	3	ENG 112 College Composition II	ENGH XXX	General Elective
8 Humanities/Fine Arts #1	3	ART 100 Art Appreciation <b>OR</b> ART 101 History and Appreciation of Art I <b>OR</b> ART 102 History and Appreciation of Art II <b>OR</b> CST 130 Introduction to Theatre <b>OR</b> CST 151 Film Appreciation I <b>OR</b> MUS 121 Music Appreciation I	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
9 MTH 263 or MTH 264	4	MTH 263 Calculus I	MATH 113	Major
10 CSC 202 or Computer Science Elective	4	CSC 202 Computer Science II <sup>2</sup>	CS 211	Major
11 MTH 264 or Computer Science Elective	4	MTH 264 Calculus II <sup>2</sup>	MATH 114	Major
12 Science Course #1	4-5	<b>See footnote #3 when selecting from the following:</b> BIO 101 General Biology I <b>OR</b> CHM 111 General Chemistry I <b>OR</b> PHY 231 General University Physics I <b>OR</b> GOL 105 Physical Geology	BIOL 103/105 CHEM 211-213 PHY 160-161-266 GEOL 101	Natural Science
13 Social/Behavioral Sciences #1	3	GEO 220 World Regional Geography <b>OR</b> HIS 111 History of World Civilization I <b>OR</b> PLS 140 Introduction to Comparative Politics <b>OR</b> PLS 241 International Relations I <b>OR</b> PSY 219 Cross-Cultural Psychology	GGG 101 HIST L387 GOVT 133 GOVT 132 PSYC L379	Global

14	Humanities/Fine Arts #2	3	ENG 236 Introduction to the Short Story <b>OR</b> ENG 241 Survey of American Literature I <b>OR</b> ENG 242 Survey of American Literature II <b>OR</b> ENG 251 Survey of World Literature I <b>OR</b> ENG 252 Survey of World Literature II <b>OR</b> ENG 253 Survey of African-American Literature I	ENGH 202	Literature
15	Computer Science Elective	4	MTH 265 Calculus III <sup>2</sup>	MATH 213	Major
16	Science Course #2	4-5	<b>See footnote #3 when selecting from the following:</b> BIO 102 General Biology II <b>OR</b> CHM 112 General Chemistry II <b>OR</b> PHY 232 General University Physics II <b>OR</b> GOL 106 Historical Geology	BIO 102 CHEM 212-214 PHY 260-261-XXX GEOL 102	Major
17	Social/Behavioral Sciences #2	3	ECO 201 Principles of Macroeconomics <b>OR</b> ECO 202 Principles of Microeconomics <b>OR</b> GEO 210 Introduction to Cultural Geography <b>OR</b> HIS 121 United States History I <b>OR</b> HIS 122 United States History II <b>OR</b> PLS 135 American National Politics <b>OR</b> PSY 200 Principles of Psychology <b>OR</b> SOC 200 Principles of Sociology <b>OR</b> SOC 211 Principles of Anthropology I	ECON 104 ECON 103 GGS 103 HIST 121 HIST 122 GOVT 103 PSYC 100 SOCI 101 ANTH 114	Soc/Behav
18	HIS Elective	3	HIS 101 History of Western Civilization I <b>OR</b> HIS 102 History of Western Civilization II <b>OR</b> HIS 112 History of World Civilization II	HIST 101 HIST 102 HIST 125	Western Civ
19	Transfer Elective (Elective only needed if a student's total degree credits are less than 61)	3-4	MTH 288 Discrete Mathematics <sup>2</sup> <b>OR</b> MTH 266 Linear Algebra <sup>2</sup> <b>OR</b> <b>CS 110 Essentials of Computer Science (co-enrollment course)<sup>2,4</sup></b> <b>OR</b> EGR 265 Digital Electronics and Logic Design <sup>2</sup>	MATH 125 MATH 203 <b>CS 110</b> ECE L301	Major

**A. S. COMP SCIENCE DEGREE**  
**TOTAL 61-63**

For academic policies and procedures, please see NOVA catalog - <http://www.nvcc.edu/catalog/index.html>

## B.S. Computer Science

	MASON DEGREE REQUIREMENT	Credits	Course	MASON CORE/DEGREE EQUIVALENT
20	Mathematics/Statistics Requirement	0-3	<b>If not completed at NOVA:</b> MATH 125 Discrete Mathematics I	Major
21	Mathematics/Statistics Requirement	0-3	<b>If not completed at NOVA:</b> MATH 203 Linear Algebra	Major
22	Gen Ed: Written Communication (Upper-level)	3	ENGH 302 Advanced Composition (Natural Science Section)	Written Comm
23	Additional Natural Science <sup>2</sup>	4	<b>See footnote #3 when selecting from the following:</b> BIOL 103/105 Introductory Biology I <b>OR</b> BIOL 102 Introductory Biology II Lecture & Lab <b>OR</b> CHEM 211 & 213 General Chemistry I Lecture & Lab <b>OR</b> CHEM 212 & 214 General Chemistry II Lecture & Lab <b>OR</b> PHYS 160/161 University Physics I Lecture & Lab <b>OR</b> PHYS 260/261 College Physics I Lecture & Lab <b>OR</b> GEOL 101 Introductory Geology I <b>OR</b> GEOL 102 Introductory Geology II	Major
24	Computer Science Core Requirements	0-3	CS 110 Essentials of Computer Science ( <i>if not taken through co-enrollment</i> )	Major
25	Computer Science Core Requirements	3	CS 262 Introduction to Low-Level Programming	Major
26	Computer Science Core Requirements	3	CS 306 Synthesis of Ethics and Law for the Computing Professional	Major
27	Computer Science Core Requirements	3	CS 310 Data Structure	Major
28	Computer Science Core Requirements	3	CS 321 Software Engineering	Major

29	Computer Science Core Requirements	3	CS 330 Formal Methods and Models	Major
30	Computer Science Core Requirements	4	CS 367 Computer Systems and Programming	Major
31	Computer Science Core Requirements	3	CS 471 Operating Systems	Major
32	Computer Science Core Requirements	3	CS 483 Analysis of Algorithms	Major
33	Computer Science Core Requirements	3	CS 455 Computer Communications and Networking <b>OR</b> CS 468 Secure Programming and Systems <b>OR</b> CS 475 Concurrent and Distributed Systems <b>OR</b> CS 487 Introduction to Cryptography	Major
34	Computer Science Core Requirements	3	Approved Senior Computer Science Elective <sup>5</sup>	Major
35	Computer Science Core Requirements	3	Approved Senior Computer Science Elective <sup>5</sup>	Major
36	Computer Science Core Requirements	3	Approved Senior Computer Science Elective <sup>5</sup>	Major
37	Computer Science Core Requirements	3	Approved Senior Computer Science Elective <sup>5</sup>	Major
38	Mathematics/Statistics Requirement	3	STAT 344 Probability and Statistics for Engineers and Scientists I	Major
39	Computer Science Core Requirements	3	Approved Computer Science Related-Course Elective <sup>5</sup>	Major
40	Computer Science Core Requirements	3	Approved Computer Science Related-Course Elective <sup>5</sup> <i>(if EGR 265 is completed at NOVA, it will fulfill this requirement, See: Advisor)</i>	Major
41	General Elective	0-3	General Elective	General Elective

**B.S. COMPUTER SCIENCE  
DEGREE TOTAL**

**120-126**

Denotes a course that must be taken at George Mason University. Please see your Success Coach to enroll.

**Important Academic Information:**

<sup>1</sup>Students with no prior computer science or programming experience should take CSC 200 within the first two semesters. Students who meet prerequisite requirements or have prior computer science and programming experience may start with CSC 201.

<sup>2</sup>All students should complete CSC 201, CSC 202, and MTH 265 before matriculating to Mason. Students who bypass CSC 200 or place directly into MTH 263 should select from the following for their computer science electives: MTH 265 (Calculus III), MTH 288 (Discrete Mathematics), MTH 266 (Linear Algebra), and CS 110 (Essentials of Computer Science - co-enrollment course) or EGR 265 (Digital Electronics and Logic Design) - in that order of priority. Please discuss with your Success Coach.

<sup>3</sup>12 credits of Natural Science must include a two-course sequence in the same subject. See advisor to ensure the selected course was not already completed at NOVA.

<sup>4</sup>If students opt to take CS 110 as a co-enrollment course, students should take this course in their final semester, fall or spring, at NOVA. Students who do not co-enroll in CS 110 should prioritize the completion of MTH 265, MTH 288, MTH 266, or EGR 265 in that order.

<sup>5</sup>For Computer Science Electives, please visit - <https://catalog.gmu.edu/colleges-schools/engineering/computer-science/computer-science-bs/#requirements>

**Additional General Notes & Resources:**

- Students interested in pursuing licensure to teach at the secondary level may add the Undergraduate Certificate: Secondary Education - Computer Science to this degree. For more information visit: <https://education.gmu.edu/secondary-education-6-12/academics/>. Some certificate courses can be used to fulfill general elective requirements, but additional credits may be needed to complete the certificate. Students interested in teacher licensure should meet with a Mason pre-teacher advisor. Contact information: <https://cehd.gmu.edu/teacher/advising/advising-appointment/>
- ADVANCE students who earn at least a 2.85 cumulative GPA and no more than 9 credits of unrepeatable D/F grades may be eligible to receive a waiver for any lower-level Mason Core courses not already completed. To be eligible for the core waiver, students must also complete the requirements of the AA or AS degree listed on their pathway, and apply to graduate from NOVA by the deadline (see milestone #3). Students must meet these criteria by the time of matriculation to Mason and provide the Office of Admissions a final, official transcript reflecting the degree conferral date.
- For academic policies and procedures, please see Mason catalog - <https://catalog.gmu.edu/policies/>
- Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements. This cannot include transferred credits with an L-designation (e.g. ECE-L301). All B.S. degrees at Mason require a minimum of 120 credits; see your Mason advisor for advice on what courses to take if needed.