ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Science / B.S. Physics - All Concentrations Pathway
2024-2025

A.S. 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-#7, failure to meet these milestones may delay matriculation to Mason.

1. 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.

2. Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to Mason.

3. Students who wish to enroll at Mason for the fall semester must apply for NOVA spring graduation by March 1 or summer graduation by June 1. Students who wish to enroll at Mason for the spring semester must apply for NOVA fall graduation by October 1.

4. Students must begin developmental coursework no later than the first semester in ADVANCE at NOVA.

5. 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).

6. In the first 30 credits, students must complete ENG 111 and ENG 112 with a C or better.

7. Students must complete a Mason Core Quantitative Reasoning course equivalent with a C or better no later than one semester before NOVA graduation. Refer to your pathway to select the appropriate MTH course(s).

The following concentrations are offered: Applied and Engineering Physics, Astrophysics, Computational Physics, and No Concentration. Students are encouraged to consult with a Mason Physics advisor early in their education to select an appropriate concentration. Contact: uadvphys@gmu.edu.

	NOVA DEGREE REQUIREMENT	Credits	Courses	MASON TRANSFER EQUIVALENT	MASON CORE/DEGREE EQUIVALENT
1	**SDV Course**	1	SDV 100 College Success Skills **OR** SDV 101 Orientation to XXX	UNIV 100	General Elective
2	**ENG 111**	3	ENG 111 College Composition I[1]	ENGH XXX	General Elective
3	**HIS Course**	3	HIS 101 Western Civilizations Pre-1600 CE **OR** HIS 102 Western Civilizations Post-1600 CE **OR** HIS 112 World Civilizations Post-1500 CE ***(recommended)***	HIST 101T HIST 102T HIST 125	Global History
4	**MTH 167 or Science**	5	MTH 167 PreCalculus with Trigonometry [3]	MTH 105	General Elective
5	**ENG 112**	3	ENG 112 College Composition II[1]	ENGH 101	Written Comm
6	**MTH 263**	4	MTH 263 Calculus I	MATH 113	Major & Quantitative
7	**CST Course**	3	CST 100 Principles of Public Speaking **OR** CST 110 Introduction to Human Communication	COMM 100 COMM 101	Oral Comm
8	**Social/Behavioral Sciences #1**	3	ECO 201 Principles of Macroeconomics **OR** ECO 202 Principles of Microeconomics **OR** GEO 210 People and the Land: An Introduction to Cultural Geography **OR** HIS 121 United States History to 1877 **OR** HIS 122 United States History Since 1865 **OR** PLS 135 U.S. Government and Politics **OR** PSY 200 Principles of Psychology **OR** PSY 230 Developmental Psychology **OR** SOC 200 Introduction to Sociology **OR** SOC 211 Cultural Anthropology	ECON 104 ECON 103 GGS 103 HIST 121 HIST 122 GOVT 103 PSYC 100 PSYC 211 SOCI 101 ANTH 114	Soc/Behav
9	**Science Course #1**	4	PHY 241 University Physics I	PHYS 160-161	Major & Nat Science
10	**MTH 264**	4	MTH 264 Calculus II	MATH 114	Major
11	**Humanities/Fine Arts #1**	3	ART 100 Art Appreciation **OR** ART 101 History of Art: Prehistoric to Gothic **OR** ART 102 History of Art: Renaissance to Modern **OR** CST 130 Introduction to Theatre **OR** CST 151 Film Appreciation I **OR** MUS 121 Music in Society	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
12	**Math or Science #1**	4	MTH 265 Calculus III	MATH 213	Major

13	**Science Course #2**	4	PHY 242 University Physics II	PHYS 260-261	Major & Nat Science
14	**Math or Science #2**	3-4	***Other Concentrations:*** MTH 266 Linear Algebra ***Astrophysics Only:*** **ASTR 210 Introduction to Astrophysics AND ASTR 124 Introductions to Observational Astronomy (co-enrollment courses)** ***(Typically only offered in Spring terms)***	MATH 203 **ASTR 210** **ASTR 124**	Major or General Elective
15	**ITE 152 or General Education Elective**	3	PHYS 251 Introduction to Computer Techniques in Physics[2]	PHYS 251	Info Tech
16	**Math or Science #3**	3	MTH 267 Differential Equations	MATH 214	Major or General Elective
17	**General Education Elective** ***(This elective is not needed if selections for all other requirements total 60 credits or more)***	3	CST 229 Intercultural Communication **OR** ECO 202 Principles of Microeconomics **OR** HUM 220 Introduction to African-American Studies **OR** HUM 256 Comparative Mythology **OR** MTH 245 Statistics I **OR** PHI 111 Logic I **OR** PSY 200 Principles of Psychology **OR** REL 100 Introduction to the Study of Religion **OR** SOC 200 Introduction to Sociology	COMM L305 ECON 103 AFAM 200 ENGH 202 STAT 250 PHIL 173 PSYC 100 RELI 100 SOCI 101	General Elective
18	**Social/Behavioral Sciences #2**	3	GEO 220 World Regional Geography **OR** PLS 140 Introduction to Comparative Politics **OR** PLS 241 Introduction to International Relations **OR**	GGS 101 GOVT 133 GOVT 132	General Elective
19	**Humanities/Fine Arts #2**	3	ENG 225 Reading Literature: Culture and Ideas **OR** ENG 245 British Literature **OR** ENG 246 American Literature **OR** ENG 255 World Literature **OR** ENG 258 African American Literature **OR** ENG 275 Women in Literature **OR** Any 200-Level ENG Literature course[4]	ENGH 202 or FRLN L330 (ENG 255 only)	Literature
A.S. SCIENCE DEGREE TOTAL		**62-63**			

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

B.S. Physics

Concentrations: Applied and Engineering Physics; Astrophysics; Computational Physics; No Concentration

	MASON DEGREE REQUIREMENT	Credits	Course	MASON CORE/DEGREE EQUIVALENT
20	**Gen Ed: Written Communication (Upper-level)**	3	ENGH 302 Advanced Composition	Written Comm
21	**Physics Core Courses**	3	PHYS 262 University Physics III	Major
22	**Physics Core Courses**	3	PHYS 301 Analytical Methods of Physics	Major
23	**Physics Core Courses**	3	PHYS 303 Classical Mechanics	Major
24	**Physics Core Courses**	3	PHYS 305 Electromagnetic Theory	Major
25	**Intermediate Laboratory**	3	PHYS 311 Instrumentation	Major
26	**Concentration Course**	3	Approved Concentration Course[5]	Major
27	**Concentration Course**	3	Approved Concentration Course[5]	Major
28	**Concentration Course**	3	Approved Concentration Course[5]	Major
29	**Physics Core Courses**	3	PHYS 402 Introduction to Quantum Mechanics and Atomic Physics	Major
30	**Concentration Course**	3	Approved Concentration Course[5]	Major
31	**Physics Core Courses**	3	PHYS 307 Thermal Physics	Major
32	**Apex Course**	4	Approved Concentration Apex Course (See: Advisor)	Apex & Writing Intensive
33	**Concentration Course**	3	Approved Concentration Course[5]	Major
34	**Concentration Course**	3	Approved Concentration Course[5]	Major
35	**Concentration Course**	3	Approved Concentration Course[5] **OR** General Elective (See: Advisor)	Major

36	**Practical Work, Research, Internship, or Independent Study**	3	***Applied/Engineering Physics:*** Practical Work Elective[5] ***All Other Concentrations:*** Approved Research, Internship, or Independent Study Course[5]	Major
37	**Concentration Course**	3-4	Approved Concentration Course[5] **OR** General Elective (See: Advisor)	Major
38	**General Elective**	3-4	General Elective (See: Advisor)	General Elective
B.S. PHYSICS DEGREE TOTAL		**120**		

Denotes a course that must be taken at George Mason University while attending NOVA. Failure to complete your co-enrollment course(s) while attending NOVA can significantly affect your timeline for Mason graduation. Please see your ADVANCE Coach for more information and to enroll.

Important Academic Information:

[1]Students who complete ENG 111 after Spring 2024 will earn ENGH elective for ENG 111 and ENGH 101 for ENG 112.

[2]It is recommended that students take this co-enrollment course in their 3rd semester if attending full-time.

[3]Students who place into MTH 263 will take one alternative lab science. Options include CHM 111, GOL 105, and BIO 101. Consult your ADVANCE Coach for more information.

[4]200-level ENG literature classes include: ENG 225, ENG 230, ENG 236, ENG 237, ENG 245, ENG 246, ENG 250, ENG 255, ENG 256, ENG 257, ENG 258, ENG 271, ENG 275, and ENG 279.

[5]For approved Concentration courses, please visit: https://catalog.gmu.edu/colleges-schools/science/physics-astronomy/physics-bs/#requirementstext

General Education Waiver Policy and Guidance:

• Students who complete a VCCS transfer associate degree (AS, AA, or AFA) will receive a waiver of the Foundation and Exploration (lower division) Mason Core general education categories, which can be found here: https://catalog.gmu.edu/mason-core/ . To be eligible for the waiver, the students must provide the Mason Office of Admissions with a final, official transcript reflecting the degree conferral date. As a prerequisite for ENGH 302, ENGH 101 is not waived. Students must complete ENGH 100 or ENGH 101, or an equivalent, with a C or higher.

• When a course fulfills a Mason Core requirement **and** a major or college requirement (e.g. Major & Quant), students must complete the course listed on the pathway to fulfill the major/college requirement. Courses that fulfill only Mason Core Foundation and Exploration categories are recommendations. In most pathways, ADVANCE students must complete a Quantitative Reasoning course to matriculate through ADVANCE.

• ADVANCE students must complete the associate degree indicated on their pathway (see the ADVANCE Program Milestones listed above). Students who withdraw from ADVANCE and transfer without the associate degree or UCGS are required to complete each Mason Core general education category.

Additional General Notes & Resources:

• Students must complete a total of 75 credits in the major (69 credits if completing a second major), including at least 11 credits in mathematics, with a minimum GPA of 2.00. Students must complete the coursework described below and either select a concentration or select the "BS without Concentration" option.

• Students interested in pursuing licensure to teach at the secondary level may add the Undergraduate Certificate: Secondary Education - Physics 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/current-students/advising/

• 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.