ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Science / B.S. Physics - Computational Physics Concentration Pathway
2020-2021

A.S. Science

ADVANCE Program Milestones

1. Students must take SDV 100 or SDV 101 in the first semester at NOVA.
2. Students must begin Developmental coursework in the first semester in ADVANCE at NOVA.
3. Students must take first college-level MTH course and ENG 111 in the semester immediately following the completion of any MTT or ENF courses (excluding summer).
4. In the first 30 credits, students must complete ENG 111 and ENG 112 with a C or better.
5. Students must complete all Mathematics and Physics courses with a C or better.
6. Students must complete at least six degree-applicable credits with a C or better each fall and spring semester.
7. Students must maintain a 2.5 cumulative GPA.
8. Students must approve for NOVA graduation and complete their Associate's degree.

	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	Elective
2	**ENG 111**	3	ENG 111 College Composition I	ENGH 101	Written Comm
3	**HIS Course**	3	HIS 101 History of Western Civilization I **OR** HIS 102 History of Western Civilization II **OR** HIS 112 History of World Civilization II	HIST 101 HIST 102 HIST 125	Western Civ
4	**MTH 263**	4	MTH 263 Calculus I	MATH 113	Quantitative
5	**ENG 112**	3	ENG 112 College Composition II	ENGH XXX	Elective
6	**CST Course**	3	CST 100 Principles of Public Speaking **OR** CST 110 Introduction to Communication	COMM 100 COMM 101	Oral Comm
7	**Science Course #1**	5	PHY 231 General University Physics I	PHYS 160-161-266	Nat Science
8	**MTH 264**	4	MTH 264 Calculus II	MATH 114	Major
9	**Social/Behavioral Sciences #1**	3	ECO 201 Principles of Macroeconomics **OR** ECO 202 Principles of Microeconomics **OR** GEO 210 Introduction to Cultural Geography **OR** HIS 121 United States History I **OR** HIS 122 United States History II **OR** PLS 135 American National Politics **OR** PLS 211 United States Government I **OR** PSY 200 Principles of Psychology **OR** PSY 230 Developmental Psychology **OR** SOC 200 Principles of Sociology **OR** SOC 211 Principles of Anthropology I	ECON 104 ECON 103 GGS 103 HIST 121 HIST 122 GOVT 103 GOVT 103 PSYC 100 PSYC 211 SOCI 101 ANTH 114	Soc/Behav
10	**Math or Science #1**	4	MTH 265 Calculus III	MATH 213	Major
11	**Science Course #2**	5	PHY 232 General University Physics II	PHYS 260-261-XXX	Nat Science
12	**Humanities/Fine Arts #1**	3	ART 100 Art Appreciation **OR** ART 101 History and Appreciation of Art I **OR** ART 102 History and Appreciation of Art II **OR** CST 130 Introduction to Theatre **OR** CST 151 Film Appreciation I **OR** MUS 121 Music Appreciation I	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
13	**Math or Science #2**	3	MTH 266 Linear Algebra	MATH 203	Major
14	**ITE 115 or General Education**	3	PHYS 251 Introduction to Computer Techniques in Physics	PHYS 251	Info Tech
15	**Math or Science #3**	3	MTH 267 Differential Equations	MATH 214	Major
16	**MTH 167 or Science**	4	PHY 243 Modern Physics*	PHYS L308	Major

17	**Social/Behavioral Sciences #2**	3	GEO 220 World Regional Geography **OR** PLS 140 Introduction to Comparative Gov't **OR** PLS 241 International Relations I	GGS 101 GOVT 133 GOVT 132	Global
18	**Humanities/Fine Arts #2**	3	ENG 236 Introduction to the Short Story **OR** ENG 241 Survey of American Literature I **OR** ENG 242 Survey of American Literature II **OR** ENG 251 Survey of World Literature I **OR** ENG 252 Survey of World Literature II **OR** ENG 253 Survey of African-American Literature I	ENGH 202	Literature
A.S. SCIENCE DEGREE TOTAL		**60**			

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

B.S. Physics - Computational Physics Concentration

	MASON DEGREE REQUIREMENT	Credits	Course	MASON CORE/DEGREE EQUIVALENT
19	**Gen Ed: Written Communication (Upper level)**	3	ENGH 302 Advanced Composition	Written Comm
20	**Physics Core Courses**	3	PHYS 301 Analytical Methods of Physics	Major
21	**Physics Core Courses**	3	PHYS 303 Classical Mechanics	Major
22	**Physics Core Courses**	3	PHYS 305 Electromagnetic Theory	Major
23	**Intermediate Laboratory**	3	PHYS 311 Instrumentation	Major
24	**Mathmatics/ Computational Physics**	3	PHYS 325 Intermediate Methods of Experimental Physics	Major
25	**Astronomy and Physics Theory**	3	ASTR 328 Stars **OR** ASTR 403 Planetary Science **OR** PHYS 306 Wave Motion and Electromagnetic Radiation **OR** PHYS 412 Solid State Physics and Applications	Major
26	**Mathmatics/ Computational Physics**	3	ASTR 401 Computer Simulation in Astronomy **OR** CDS 302 Scientific Data and Databases **OR** CDS 303 Scientific Data Mining **OR** MATH 446 Numerical Analysis I **OR** MATH 447 Numerical Analysis II	Major
27	**Physics Core Courses**	3	PHYS 402 Introduction to Quantum Mechanics and Atomic Physics	Major
28	**Astronomy and Physics Theory**	3	ASTR 328 Stars **OR** ASTR 403 Planetary Science **OR** PHYS 306 Wave Motion and Electromagnetic Radiation **OR** PHYS 412 Solid State Physics and Applications	Major
29	**General Elective**	3	General Elective (See: Advisor)	Major
30	**Physics Core Courses**	3	PHYS 307 Thermal Physics	Major
31	**Astronomy and Physics Theory**	3	ASTR 328 Stars **OR** ASTR 403 Planetary Science **OR** PHYS 306 Wave Motion and Electromagnetic Radiation **OR** PHYS 412 Solid State Physics and Applications	Major
32	**Gen Ed: Synthesis/Core Requirement**	4	PHYS 410 Computational Physics Capstone	Synthesis & Writing Intensive
33	**Physics Core Courses**	1	PHYS 416 Special Topics in Undergraduate Physics	Major
34	**General Electives**	3	General Elective (Upper Level, See: Advisor)	Major
35	**Mathmatics/Computational Physics**	3	ASTR 401 Computer Simulation in Astronomy **OR** CDS 302 Scientific Data and Databases **OR** CDS 303 Scientific Data Mining **OR** MATH 446 Numerical Analysis I **OR** MATH 447 Numerical Analysis II	Major
36	**General Electives**	3	General Elective (See: Advisor)	Major
37	**Research, Internship, or Independent Study**	3	PHYS 326 Problems in Physics II **OR** PHYS 405 Honors Thesis in Physics I **OR** PHYS 406 Honors Thesis in Physics II **OR** PHYS 408 Senior Research **OR** PHYS 409 Physics Internship	Major

38	**General Elective**	3	General Elective (See: Advisor)	Major
39	**General Elective**	1	General Elective (See: Advisor)	Major
B.S. PHYSICS DEGREE TOTAL		**120**		

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

For academic policies and procedures, please see Mason catalog - https://catalog.gmu.edu/policies/

***PHY 243 is only offered in the spring semester. If PHY 243 is not available, students should take CHM 111, BIO 101, GOL 105, PHY 150 and will need to take PHYS 308 at Mason in the first "General Elective" space. Consult your Success Coach for more information.**

General Note: 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 seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.