

ADVANCE

A NOVA | GEORGE MASON PARTNERSHIP



A.S. Engineering /
B.S. Bioengineering Pathway
2026-2027

A.S. Engineering

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 George Mason University and/or result in termination from ADVANCE. For Milestones #4-#7, failure to meet these milestones may delay matriculation to George Mason.

- Students must graduate with the NOVA degree aligned with their ADVANCE academic pathway within 4 years of being admitted into ADVANCE. Students must ensure they are enrolled in the matching degree.
- Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to George Mason.
- Students who wish to enroll at George 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 George Mason for the spring semester must apply for NOVA fall graduation by October 1.
- Students must begin developmental coursework 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.
- Students must complete a college level math course with a C or better no later than one semester before NOVA graduation. Refer to your pathway to select the appropriate MTH course(s).

ADVANCE Program-Specific Requirements: All ADVANCE students in this degree program must adhere to the following requirements prior to matriculation. Failure to do so may prevent a student from matriculating into this program at George Mason or progressing in coursework at George Mason.

- Engineering students must begin the calculus sequence within the first 30 credits and complete Calculus I and II with a B or better.
- While not required to matriculate to George Mason, Bioengineering students must complete MTH 267 Differential Equations with a B- or better to progress to Bioengineering coursework at George Mason.
- Bioengineering students must complete Matlab applications concurrently with MTH 266.⁴

	NOVA DEGREE REQUIREMENT	Credits	Courses	GEORGE MASON TRANSFER EQUIVALENT	GEORGE MASON CORE/DEGREE EQUIVALENT
1	SDV Course	1	SDV 100 College Success Skills OR SDV 101 Orientation to Engineering	UNIV 100	General Elective
2	ENG 111	3	ENG 111 College Composition I	ENGH XXX	General Elective
3	MTH 263	4	MTH 263 Calculus I	MATH 113	Major & Quantitative
4	CHM 111 Required (NOVA Catalog: Lab Science #1)	4	CHM 111 General Chemistry I	CHEM 211-213	Major
5	ECO 202	3	ECO 202 Principles of Microeconomics	ECON 103	Soc/Behav & Major
6	ENG 112	3	ENG 112 College Composition II	ENGH 101	Written Comm
7	MTH 264	4	MTH 264 Calculus II	MATH 114	Major
8	Technical Elective # 1	1	BENG 111 Overview of Bioengineering (Fall and Spring)	BENG 111	Major
9	Technical Elective #2	3	CST 100 Principles of Public Speaking OR CST 110 Introduction to Human Communication	COMM 100 COMM 101	Major & Oral Comm
10	PHY 241 Required (NOVA Catalog: Lab Science #2)	4	PHY 241 University Physics I	PHYS 160-161	Major & Nat Science
11	Technical Elective #3	4	CHM 112 General Chemistry II	CHEM 212-214	General Elective
12	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

13	Technical Elective #4	4	PHY 242 University Physics II	PHYS 260-261	Major & Nat Science
14	EGR 121	2	BENG 222 Bioengineering Fundamentals ¹ (Fall only)	BENG 222	Major
15	Technical Elective #5	4	BIOL 213/215 Cell Structure and Function + Lab ¹	BIOL 213/215	Major
16	MTH 265	4	MTH 265 Calculus III	MATH 213	Major
17	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
18	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 ²	ENGH 202 or FRLN L330 (ENG 255 only)	Literature
19	MTH 267	3	MTH 267 Differential Equations ³	MATH 214	Major
20	Technical Elective #6	3	MTH 266 Linear Algebra ⁴	MATH 203	Major
21	Technical Elective #7	4	EGR 125 Introduction to Computer Programming for Engineers ^{5,6}	ENGR 125T	Major & Info Tech

A. S. ENGINEERING DEGREE TOTAL 67

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

B.S. Bioengineering

Concentrations: Bioengineering Healthcare Informatics; Biomaterials and Nanomedicine; Biomedical Imaging and Devices; Computational Biomedical Engineering; Neurotechnology and Computational Neuroscience.

NOTE: Students interested in the Bioengineering Prehealth concentration should speak with a Bioengineering Advisor before matriculating. Email bioeng@gmu.edu.

GEORGE MASON DEGREE REQUIREMENT	Credits	Course	GEORGE MASON CORE/DEGREE EQUIVALENT	
22	Concentration Courses	3	CHEM 310 Survey of Organic Chemistry (<i>Bioengineering Prehealth students: See Advisor</i>)	Major
23	Bioengineering	3	BENG 240 Biomaterials	Fall Only Major
24	Bioengineering	1	BENG 391 Bioengineering Professional Development	Fall Only Major
25	Bioengineering	3	BENG 320 Bioengineering Signals & Systems	Major
26	Bioengineering	3	BENG 230 Continuum Biomechanics and Transport I	Major
27	Bioengineering	1	BENG 224 Basic Methods in BIOE Lab	Spring Only Major
28	Bioengineering	4	BENG 370 Bioinstrumentation and Devices I AND BENG 371 Bioinstrumentation and Devices Lab	Spring Only Major
29	Gen Ed: Written Communication (Upper-	3	ENGH 302 Advanced Composition (Natural Science Section)	Written Comm
30	Bioengineering	3	BENG 214 Physiology for Engineers	Spring Only Major
31	Mathematics and Statistics	3	STAT 344 Probability and Statistics for Engineers and Scientists I (BIOE section)	Spring Only Major
32	Bioengineering/Synthesis	3	BENG 492 Senior Advanced Design Project I	Fall Only Major
33	Concentration Courses	3	Concentration Specialization Course ⁷	Major
34	Bioengineering	4	BENG 330 Computational Methods in Bioengineering AND BENG 331 Computational Methods in Bioengineering Lab	Fall Only Major
35	Concentration Courses	3	Concentration Specialization Course ⁷	Major
36	Bioengineering	3	BENG 360 Biomedical Imaging	Fall Only Major
37	Gen Ed: Apex/Bioengineering	3	BENG 493 Senior Advanced Design Project II	Spring Only Apex
38	Concentration Courses	3	Concentration Specialization Course ⁷	Major

39	Concentration Courses	3	Technical Elective ⁷		Major
40	Bioengineering	3	BENG 350 Neural System Designs	Spring Only	Major
41	Bioengineering	3	BENG 375 Intellectual Property, Regulatory Concepts and Product Development	Spring Only	Major
42	Concentration Courses	3	Concentration Specialization Course ⁷		Major

B.S. BIOENGINEERING
DEGREE TOTAL 128

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:

- ¹Students should complete BENG 222 and BIOL 213 in the same term.
- ²200-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.
- ³Students must earn a B- or higher in MTH 267 to progress to Bioengineering coursework at George Mason.
- ⁴NOVA students must register for Matlab applications to obtain content that is not included in non-Bioengineering sections of Linear Algebra prior to matriculation. Please email bioeng@gmu.edu for registration information.
- ⁵Students need departmental approval to enroll in EGR 125. Contact your campus dean for Engineering for permission to register for this course: <https://www.nvcc.edu/academics/divisions/mstb/contact.html#panel3>
- ⁶Students may need the EGRX student code added to their record to accommodate an additional engineering/technical elective. Please see your ADVANCE Coach for information.
- ⁷For approved Concentration Courses and Technical Electives, please visit - <https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/bioengineering/bioengineering-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 George 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 each BENG, BIOL, CHEM, CS, ECE, ME course presented as part of the required credits for the degree with a grade of C or better.
- For academic policies and procedures, please see George 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.