

BACHELOR OF SCIENCE WITH A MAJOR IN ELECTRICAL ENGINEERING, MEDICAL PREPARATION OPTION

The bachelor of science with a major in electrical engineering, medical option degree program prepares students for application to medical school. Students are prepared to work in various health sciences fields, to conduct research toward development of electronic equipment to assist in diagnosing and treating disease, or to continue as a graduate student in engineering with exceptional qualifications for biomedical engineering.

The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET (<http://www.abet.org>).

Double major

SEAS and non-SEAS students interested in pursuing the BS in electrical engineering as a double major should see Double Major under SEAS Regulations (<https://bulletin.gwu.edu/engineering-applied-science/#seasregulationstext>) in this Bulletin.

Visit the program website (<http://www.ece.seas.gwu.edu/bachelor-science-electrical-engineering/>) for additional information.

REQUIREMENTS

The following requirements must be fulfilled:

131 credits as outlined below.

A minimum technical GPA of 2.20 and SEAS GPA of 2.00. A student's technical GPA is calculated using all technical engineering courses outlined in the fifth, sixth, seventh, and eighth semester of curriculum.

Code	Title	Credits
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Recommended program of study

The plan of study lists all course requirements in sequence for the degree. Students should review this information carefully and consult their advisor before changing the sequence of any courses.

First semester

BISC 1111	Introductory Biology: Cells and Molecules
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CHEM 1111	General Chemistry I ¹
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ECE 1010	Introduction to Electrical and Computer Engineering I
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MATH 1231	Single-Variable Calculus I ¹
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UW 1020	University Writing ¹
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SEAS 1001	Engineering Orientation
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Second semester

CHEM 1112	General Chemistry II
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ECE 1020	Introduction to Electrical and Computer Engineering II
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ECE 1120	C Programming for Electrical and Computer Engineering
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MATH 1232	Single-Variable Calculus II ¹
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PHYS 1021	University Physics I ²
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or PHYS 1025	University Physics I with Biological Applications
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Third semester

APSC 2113	Engineering Analysis I
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ECE 1125	Data Structures and Algorithms for ECE
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ECE 2110	Circuit Theory
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ECE 2120	Engineering Seminar
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MATH 2233	Multivariable Calculus ¹
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PHYS 1022	University Physics II ¹
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or PHYS 1026	University Physics II with Biological Applications
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Fourth Semester

BISC 1112	Introductory Biology: The Biology of Organisms
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ECE 2115	Engineering Electronics
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ECE 2140	Design of Logic Systems
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ECE 2210	Circuits, Signals, and Systems
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Humanities, social science, or non-technical elective ²	
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Fifth Semester

APSC 3115	Engineering Analysis III
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CHEM 2151	Organic Chemistry I
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CHEM 2153	Organic Chemistry Laboratory I
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ECE 3130	Digital Electronics and Design
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ECE 3220	Introduction to Digital Signal Processing
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ECE 3520	Microprocessors: Software, Hardware, and Interfacing
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Sixth Semester

CHEM 2152	Organic Chemistry II
CHEM 2154	Organic Chemistry Laboratory II
ECE 3125	Analog Electronics Design
ECE 3310	Introduction to Electromagnetics
ECE 3410	Communications Engineering
ECE 3915W	Electrical and Computer Engineering Capstone Project Lab I

Seventh Semester

BME 3820	Engineering Analysis of Neural, Muscular, and Cardiovascular Physiology
ECE 4710	Control Systems Design
ECE 4920W	Electrical and Computer Engineering Capstone Project Lab II

Humanities, social science, or non-technical elective ²

One technical elective ³

Eighth Semester

ECE 4925W	Electrical and Computer Engineering Capstone Project Lab III
PHIL 2135	Ethics in Business and the Professions

Two humanities, social science, or non-technical electives ²

One technical elective ³

¹Course satisfies the University General Education Requirement (<https://bulletin.gwu.edu/university-regulations/general-education/>) in math, science, and writing.

²All electrical and computer engineering students take five courses to satisfy the ECE humanities, social science, or non-technical elective requirement. Three of these courses—one in humanities and two in social sciences—must be on the University General Education Requirement list; one course must be PHIL 2135 (or NSC 4176 for students in the NROTC Program); and one course can be in the humanities/social sciences, or a non-technical course related to public health, safety, and welfare; global cultural, social, environmental, and economic factors; or innovation, entrepreneurship, and creativity. For the last category, students can consider taking DNSC 1051, DNSC 4404, EMSE 4410, ISTM 4223, MGT 3300, MGT 3301, MGT 3302, MGT 3303, or MGT 4003. The non-technical course cannot focus on scientific/mathematical approaches or technology. All courses selected to satisfy this requirement must be taken for a minimum of 3 credits and approved by the advisor.

³Two 3-credit technical elective courses must be selected with the approval of the advisor from upper-division undergraduate (2000 to 4000 level) or graduate courses in engineering, computer science, mathematics, physical sciences, or biological sciences. Exceptions must be approved by the advisor.