

DEPARTMENT OF ELECTRICAL ENGINEERING

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING - BIOMEDICAL

The biomedical option within the electrical engineering degree program allows graduates to pursue a career in the biomedical engineering discipline or to pursue a graduate degree in biomedical engineering. An additional 15 course credit hours beyond the 122 required for the degree will qualify graduates to apply for a post graduate medical degree program. The Bachelor of Science in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Graduates are eligible to practice and become licensed professional engineers.

It is highly recommended that all freshmen engineering students purchase a laptop computer. The recommended laptop computer specifications are at: <https://www.atu.edu/engineering/specifications.php>.

For a detailed policy regarding transfer credit for the Electrical Engineering programs, please see the [Electrical Engineering Programs](#) page.

The following curriculum represents the program of study and a suggested sequence for the Bachelor of Science in Electrical Engineering degree with the biomedical engineering option. The student should be aware that not all courses are offered each semester and the ordering of courses is subject to change. In order to minimize scheduling difficulties, each student should schedule a special session with their advisor at the beginning of their junior year to plan the remaining coursework.

Curriculum

Program: Bachelor of Science Electrical Engineering
Major: Electrical Engineering with Biomedical Option

The matrix below is a sample plan for all coursework required for this major.

Freshman

Fall	Credits
ENGL 1013 ¹	3
BIOL 1114	4
MATH 2914	4
CHEM 2124 and CHEM 2120	4
ELEG 1011	1
TECH 1001	1
Total Hours	17

Spring	Credits
ENGL 1023 ¹	3
BIOL 2014	4
MATH 2924	4
CHEM 2134 and CHEM 2130	4
Total Hours	15

Sophomore

Fall	Credits
CHEM 3254	4
MATH 3243	3
PHYS 2114 and PHYS 2000	4

Fall	Credits
ELEG 2103	3
Total Hours	14

Spring	Credits
USHG 1XXX ¹	3
SOC 1003	3
COMS 1011 and COMS 1013	4
ELEG 2111	1
ELEG 2113	3
Total Hours	14

Junior

Fall	Credits
MATH 2703	3
MATH 2934	4
PHYS 2124 and PHYS 2010	4
ELEG 3103	3
Total Hours	14

Spring	Credits
ELEG 3123	3
ELEG 3143	3
STAT 3153	3
ELEG 4103	3
ELEG 4122	2
ELEG 4202 / MCEG 4202	2
Total Hours	16

Senior

Fall	Credits
PSY 2003	3
ELEG 2130 and ELEG 2134	4
ELEG 3003 / MCEG 3003	3
ELEG 4113 ²	3
ELEG 4143	3

Fall	Credits
ELEG 4191	1
Total Hours	17

Spring	Credits
FAH 1XXX ¹	3
BIOL 3074	4
ELEG 3133	3
ELEG 4192	2
ELEG 4303	3
Total Hours	15

¹See appropriate alternatives or substitutions in "[General Education Requirements](#)".

²This program partners the BSEE Biomedical option undergraduate degree with the MSEE degree. A maximum of 12 graduate level credit hours can be counted towards both the BSEE Biomedical option degree in Electrical Engineering and the MSEE degree. Four graduate level courses can be used to replace four upper-division undergraduate courses as follows:

- ELEG 5313 can replace ELEG 4313
- ELEG 5113 can replace ELEG 4113
- ELEG 5153 can replace ELEG 4153
- ELEG 5133 can replace ELEG 4133
- ELEG 5993 can replace ELEG 4993

The following courses are not required for the Biomedical Option major; however, they are recommended for application to an advanced medical degree program:

Semester	Course Number	Course Name	Credits
Sophomore Fall	BIOL 3034	Genetics*	4
Sophomore Spring	CHEM 3264	Mechanistic Organic Chemistry*	4
Junior Fall	CHEM 3344	Principles of Biochemistry*	4
Senior Spring	BIOL 4033	Cell Biology*	3
Total			15