

## Electrical Engineering and Biomedical Engineering

September 2020 (for students entering Year 1 in September 2018)

### Year 2

#### Term A

AM 2270A	Applied Mathematics for Engineering II
BME 3201A	Fundamentals of Biomedical Engineering Design
CS 1027A	Computer Science Fundamentals II
ECE 2205A	Electric Circuits I
ECE 2240A	Electrical Laboratory
ECE 2277A	Digital Logic Systems

#### Term B

AM 2276B	Applied Mathematics for Electrical & Mechanical Eng. III
ECE 2231B	Introduction to Electronics
ECE 2233B	Circuits and Systems
ECE 2236B	Magnetic Circuits and Transmission Lines
ECE 2242B	Principles of Design in Electrical Engineering
Writ 2130G	Building Better (Communication) Bridges
One 0.5-credit non-technical elective *	

### Year 3

#### Term A

AM 3415A	Advanced Applied Mathematics for Electrical Engineering
Biol 1001A	Biology for Sciences I
ECE 3330A	Control Systems
ECE 3332A	Electric Machines
ECE 3337A	Electronic Circuits
SS 2141A	Applied Probability and Statistics for Engineers

#### Term B

Biol 1002B	Biology for Sciences II
ECE 3331B	Introduction to Signal Processing
ECE 3336B	Electromagnetic Theory
ECE 3370B	Communication Electronics I
ECE 3375B	Microprocessors and Microcomputers
ECE 3399B	Principles and Practices of Design of Electronic Systems

### Year 4

#### Term A

Biochem 2280A	Biochemistry and Molecular Biology
BME 3301A	Neural Systems Engineering
ECE 4455A	Biomedical Systems Analysis
Physiol 2130	Human Physiology
0.5 credit Biomedical Science elective	
0.5 credit Healthcare non-technical elective	

#### Term B

BME 3303B	Cellular Systems Engineering
MME 4469B	Biomechanics of the Musculoskeletal System
Physiol 2130	Human Physiology
Two 0.5-credit Biomedical Science electives	
One 0.5-credit Healthcare non-technical elective	
One 0.5-credit Open elective (taken in either term)**	

### Non-technical Electives

Students are required to complete 1.5 credits of non-technical electives as part of the program.

- \*The first 0.5 credit can come from the approved non-technical elective list (<https://www.eng.uwo.ca/undergraduate/upper-year/electives.html>).
- The remaining 1.0 credits must come from the following Healthcare Non-technical Elective list.

*Students must pay attention when selecting the first 0.5 credit to ensure appropriate prerequisite courses are completed for the non-technical electives below.*

#### Healthcare Non-technical Electives

Anthropology 2290F/G	Cultures of Health and Healing
Economics 2169F/G	Economics of Health Care
History 2195A/B	Epidemics in North America
Law 3101A/B	Healthcare Law
Philosophy 2071E	Biomedical Ethics
Philosophy 2072F/G	Bioethics and Disability
Philosophy 2715F/G	Health Care Ethics
Political Science 2276F/G	The Politics of Health Care
Religious Studies 2239F/G	Christian Bioethics
Sociology 2179A/B	Promotion of Community Health
Sociology 2180A/B	Development of Health Inequalities
Women's Studies 2244	Women and Health
Writing 3222F/G	Advanced Healthcare Communication

#### Technical Elective List:

Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing. Courses that do not appear on the list below require special permission from the Department.

#### Biomedical Sciences Electives

Biochemistry 3385A/B	Human Biochemistry
Biochemistry 3386A/B	Clinical Biochemistry
Biology 2382A/B	Cell Biology
Biology 2581A/B	Genetics
Chemistry 2213A/B	Organic Chemistry
Chemistry 2283F/G	Organic Chemistry II
Communication Sciences and Disorders 4417A/B	Hearing Science
Health Science 2300A/B	Systemic Approach to Functional Anatomy
Health Science 3300A/B	Anatomy of the Human Body
Medical Science 4931F/G	Selected Topics in Medical Science
Physiology 3140A/B	Cellular Physiology

## Year 5

### Term A

BME 4400	Biomedical Engineering Research Thesis (1.5-credit course)
ECE 4416	Electrical/Computer Engineering Project
ECE 4429A	Advanced Digital Signal Processing
ECE 4437A	Communications Theory
ECE 4445A	Introduction to Digital Image Processing
ES 4498F	Engineering Ethics, Sustainable Development and the Law

### Term B

BME 4400	Biomedical Engineering Research Thesis (1.5-credit course)
ECE 4416	Electrical/Computer Engineering Project
ES 3330B	Engineering Innovation I: New Venture Creation
Two 0.5-credit BME technical electives	
One 0.5-credit ECE technical elective	
<a href="https://www.eng.uwo.ca/undergraduate/upper-year/next.html">https://www.eng.uwo.ca/undergraduate/upper-year/next.html</a>	

Psychology 2220A/B

Intro. to Behavioural &  
Cognitive Neuroscience

### Biomedical Engineering (BME) Electives

CBE 4421A/B	Intro. to Biomaterials Engineering
ECE 4438A/B	Advanced Image Processing & Analysis
Medical Biophysics 3507F/G	Analysis of Oxygen Transport
Medical Biophysics 3645A/B	Intro. to Biomedical Optics
Medical Biophysics 4475A/B	Medical Imaging
Physics 4662A/B	Magnetic Resonance Imaging
Physics 4672A/B	Radiological Physics

### \*\*Open Electives

For the course credit designated as an “open elective”, students may select any course from the lists of: Biomedical Science electives; BME technical electives; ECE technical electives; Healthcare non-technical electives; or Faculty of Engineering approved non-technical electives.