

## Electrical Engineering and Biomedical Engineering

September 2021 (for students entering Year 1 in September 2020)

### Year 2

#### Term A

NMM 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

NMM 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
One 0.5-credit non-technical elective *	

### Year 3

#### Term A

NMM 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

#### 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
Psychology 2220A/B	Intro. to Behavioural & Cognitive Neuroscience

## 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
ELI 4410F	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
ELI 3200B	Engineering Innovation I: New Venture Creation

Two 0.5-credit BME technical electives

One 0.5-credit ECE technical elective

(<https://www.eng.uwo.ca/undergraduate/upper-year/next.html>)

## 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.