# 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

## 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.

a) *The first 0.5 credit can come from the approved non-technical elective list ([https://www.eng.uwo.ca/undergraduate/upper-year/electives.html](https://www.eng.uwo.ca/undergraduate/upper-year/electives.html)).

b) 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

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*The official version of the academic calendar can be found at: [www.westerncalendar.uwo.ca](http://www.westerncalendar.uwo.ca)*
# 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)

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### Biomedical Engineering (BME) Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>CBE 4421A/B</td>
<td>Intro. to Biomaterials Engineering</td>
</tr>
<tr>
<td>ECE 4438A/B</td>
<td>Advanced Image Processing &amp; Analysis</td>
</tr>
<tr>
<td>Medical Biophysics 3507F/G</td>
<td>Analysis of Oxygen Transport</td>
</tr>
<tr>
<td>Medical Biophysics 3645A/B</td>
<td>Intro. to Biomedical Optics</td>
</tr>
<tr>
<td>Medical Biophysics 4475A/B</td>
<td>Medical Imaging</td>
</tr>
<tr>
<td>Physics 4662A/B</td>
<td>Magnetic Resonance Imaging</td>
</tr>
<tr>
<td>Physics 4672A/B</td>
<td>Radiological Physics</td>
</tr>
</tbody>
</table>

**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.