**Electrical Engineering and Biomedical Engineering**  
**September 2022** (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.
  - a) The first 0.5 credit can come from the approved non-technical elective list [here](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  
- **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

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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)

### Biomedical Engineering (BME) Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<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.