## Electrical Engineering and Biomedical Engineering

### September 2022 (for students entering Year 1 in September 2019)

### 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 2235B  
  Magnetic Circuits and Transmission Lines
- ECE 2242B  
  Principles of Design in Electrical Engineering
- Writ 2130G  
  Building Better (Communication) Bridges

### 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)**

### 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

### 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

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

The official version of the academic calendar can be found at: [www.westerncalendar.uwo.ca](http://www.westerncalendar.uwo.ca)
# Year 5

## Term A

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 4400</td>
<td>Biomedical Engineering Research Thesis (1.5-credit course)</td>
</tr>
<tr>
<td>ECE 4416</td>
<td>Electrical/Computer Engineering Project</td>
</tr>
<tr>
<td>ECE 4429A</td>
<td>Advanced Digital Signal Processing</td>
</tr>
<tr>
<td>ECE 4437A</td>
<td>Communications Theory</td>
</tr>
<tr>
<td>ECE 4445A</td>
<td>Introduction to Digital Image Processing</td>
</tr>
<tr>
<td>ELI 4110F</td>
<td>Engineering Ethics, Sustainable Development and the Law</td>
</tr>
</tbody>
</table>

## Term B

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 4400</td>
<td>Biomedical Engineering Research Thesis (1.5-credit course)</td>
</tr>
<tr>
<td>ECE 4416</td>
<td>Electrical/Computer Engineering Project</td>
</tr>
<tr>
<td>ELI 3200B</td>
<td>Engineering Innovation I: New Venture Creation</td>
</tr>
</tbody>
</table>

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 Name</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.

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