# Mechanical Engineering and Biomedical Engineering

**September 2023** *(for students who entered first year in September 2020 or later)*

## Year 2

### Term A
- NMM 2270A  Applied Mathematics for Engineering II
- BME 3201A  Fundamentals of Biomedical Engineering Design
- MME 2202A  Mechanics of Materials
- MME 2204A  Thermodynamics I
- MME 2259A  Product Design and Development
- MME 2260A  Industrial Materials

### Term B
- NMM 2276B  Applied Mathematics for Electrical & Mechanical Eng. III
- MME 2200S  Engineering Shop Safety Training
- MME 2221B  Computational Methods for Mechanical Engineers
- MME 2213B  Engineering Dynamics
- MME 2273B  Introduction to Fluid Mechanics and Heat Transfer
- MME 2285B  Engineering Experimentation
- SS 2143B  Applied Statistics and Data Analysis for Engineers

## Year 3

### Term A
- MME 3325A  Mechanical Vibrations
- Biol 1001A  Biology for Sciences I
- MME 3374A  Introduction to Electronics for Mechanical Engineering
  *(the former ECE 3374A)*
- MME 3303A  Fluid Mechanics II
- MME 3379A  Materials Selection
- MME 3381A  Kinematics and Dynamics of Machines

### Term B
- Biol 1002B  Biology for Sciences II
- MME 3307B  Heat Transfer II
- MME 3350B  System Modelling and Control
- MME 3360B  Finite Element Methods in Mechanical Engineering
- MME 3380B  Mechanical Components Design

One 0.5-credit non-technical elective*

## Year 4

### Term A
- Biochem 2280A  Biochemistry and Molecular Biology
- BME 3301A  Neural Systems Engineering
- ECE 4455A  Biomedical Systems Analysis
- Physiol 2130  Human Physiology
- One 0.5-credit Biomedical Science technical elective
- One 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)*.

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 Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology 2290F/G</td>
<td>Cultures of Health and Healing</td>
</tr>
<tr>
<td>Anthropology 2240A/B</td>
<td>Evolution, Ecology &amp; Human Health</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 2272F/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>
</tbody>
</table>

## 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

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry 3385A/B</td>
<td>Human Biochemistry</td>
</tr>
<tr>
<td>Biochemistry 3386A/B</td>
<td>Clinical Biochemistry</td>
</tr>
<tr>
<td>Biology 2382A/B</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>Biology 2581A/B</td>
<td>Genetics</td>
</tr>
<tr>
<td>Chemistry 2213A/B</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>Chemistry 2223F/G</td>
<td>Organic Chemistry of Biological Molecules</td>
</tr>
<tr>
<td>Communication Sciences and Disorders 4417A/B</td>
<td>Hearing Science</td>
</tr>
<tr>
<td>Health Science 2300A/B</td>
<td>Systemic Approach to Functional Anatomy</td>
</tr>
<tr>
<td>Health Science 3300A/B</td>
<td>Anatomy of the Human Body</td>
</tr>
</tbody>
</table>

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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)
- ELI 4410F  Engineering Ethics, Sustainable Development and the Law
- MME 4499  Mechanical Engineering Design Project
- One 0.5-credit BME technical elective
- One 0.5-credit MME technical elective

### Term B
- BME 4400  Biomedical Engineering Research Thesis (1.5-credit course)
- ELI 3200B  Engineering Innovation I: New Venture Creation
- MME 3334B  Thermodynamics II
- MME 4499  Mechanical Engineering Design Project
- Two 0.5-credit BME technical electives
- One 0.5-credit MME technical elective

### Medical Science (MS) Electives
- Physiology 3140A/B  Cellular Physiology
- Psychology 2220A/B  Intro. to Behavioural & Cognitive Neuroscience

### Biomedical Engineering (BME) Electives
- CBE 4421A/B  Intro. to Biomaterials Engineering
- CBE 4422A/B  Nanobiotechnology
- Medical Biophysics 3507F/G  Analysis of Oxygen Transport
- Medical Biophysics 3645A/B  Intro. to Biomedical Optics
- Medical Biophysics 4475A/B  Medical Imaging
- Medical Biophysics 4535A/B  Hemodynamics

**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; MME technical electives; Healthcare non-technical electives; or Faculty of Engineering approved non-technical electives.