

## Chemical Engineering and Biomedical Engineering

September 2024 (for students who entered *first year* in 2020 or later)

### Year 2

#### Term A

NMM 2270A/B	Applied Mathematics for Engineering II
BME 3201A/B	Fundamentals of Biomedical Engineering Design
CBE 2206A/B	Industrial Organic Chemistry I
CBE 2214A/B	Engineering Thermodynamics
CBE 2220A/B	Chemical Process Calculations
CBE 2290A/B	Fundamentals of Biochemical and Environmental Eng.

#### Term B

NMM 2277A/B	Applied Mathematics for Chemical & Civil Engineering III
CBE 2207A/B	Industrial Organic Chemistry II
CBE 2221A/B	Fluid Flow
CBE 2224A/B	Chemical Engineering Thermodynamics
CBE 2291A/B	Computational Methods for Engineering
SS 2143A/B	Applied Statistics and Data Analysis for Engineers

### Year 3

#### Term A

Biol 1001A	Biology for Science I
CBE 3307A	Energy and Environment
CBE 3315A	Reaction Engineering
CBE 3322A	Heat Transfer Operations
CBE 3318A	Introduction to Chemical Process Simulation
CBE 3395Y	Chemical Engineering Lab
One 0.5-credit non-technical elective *	

#### Term B

Biol 1002B	Biology for Sciences II
CBE 3310B	Process Dynamics and Control
CBE 3324B	Mass Transfer Operations
CBE 3319B	Introduction to Plant Design and Safety
CBE 3323B	Staged Operations
CBE 3395Y	Chemical Engineering Lab
CBE 3316B	Sustainable Chemical Engineering & Life Cycle Analysis

### 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 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.

- \*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 2290A/B	Cultures of Health and Healing
Anthropology 2240A/B	Evolution, Ecology & Human Health
Economics 2169F/G	Economics of Health Care
History 2195A/B	Epidemics in North America
Law 3101A/B	Healthcare Law
Philosophy 2071E	Biomedical Ethics
Philosophy 2272F/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 2223A/B	Organic Chemistry of Biological Molecules
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

## Year 5

### Term A

BME 4400 Biomedical Engineering Research Thesis (1.5-credit course)  
 CBE 4421A Introduction to Biomaterials Engineering  
 CBE 4497 Chemical Process and Plant Design  
 ELI 4110f Engineering Ethics, Sustainable Development and the Law  
 One 0.5-credit CBE technical elective

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

### Term B

BME 4400 Biomedical Engineering Research Thesis (1.5-credit course)  
 CBE 4497 Chemical Process and Plant  
 ELI 3200b Engineering Innovation I: New Venture Creation  
 Two 0.5-credit BME technical electives

One 0.5-credit CBE technical elective

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

Psychology 2220A/B	Intro. to Behavioural & Cognitive Neuroscience
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### Biomedical Engineering (BME) Electives

CBE 4423A/B	Tissue Engineering
CBE 4422A/B	Nanobiotechnology
Medical Biophysics 3330F/G	Human Biomechanics with Biomedical Applications
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; CBE technical electives; Healthcare non-technical electives; or Faculty of Engineering approved non-technical electives.