Chemical: Biochemical and Environmental Engineering (Option B)

**September 2018 (students who entered first year in September 2016)**

### Year 2:

**Term A**
- AM 2270a Applied Math for Engineering II
- CBE 2206a Introductory Industrial Organic Chemistry
- CBE 2214a Engineering Thermodynamics
- CBE 2220a Chemical Process Calculations
- CBE 2290a Fundamentals of Biochemical and Environmental Engineering
- ES 2211F Engineering Communications

**Term B**
- AM 2277b Applied Math Chemical and Civil Engineering III
- CBE 2207b Applied Industrial Organic Chemistry
- CBE 2221b Fluid Flow
- CBE 2224b Chemical Eng. Thermodynamics
- CBE 2291b Computational Methods for Engineering
- SS 2143b Applied Statistics and Data Analysis for Engineers

### Year 3:

**Term A**
- CBE 3300a Bioreaction & Bioprocess Engineering
- CBE 3315a Reaction Engineering
- CBE 3318a Introduction to Chemical Process Simulation
- CBE 3322a Heat Transfer Operations
- CBE 3325a Particulate Operations
- CBE 3396y Biochemical Engineering Lab

**Term B**
- CBE 3310b Process Dynamics and Control
- CBE 3319b Introduction to Plant Design and Safety
- CBE 3323b Staged Operations
- CBE 3324b Mass Transfer Operations
- CBE 3396y Biochemical Engineering Lab
- ECE 2208b Electrical Measurement and Instrumentation
- CBE 4403b [Biochemical Separation Processes][H1]

### Year 4:

**Term A**
- Bus 2299E Business for Engineers
- CBE 4498 Biochemical Process and Plant Design
- CBE 4498* Biochemical Engineering Project
- One 0.5 Technical elective
- 0.5 Non-technical elective taken from approved list

**Term B**
- Bus 2299E Business for Engineers
- CBE 4498 Biochemical Process and Plant Design
- CBE 4498* Biochemical Engineering Project
- One 0.5 Technical elective
- ES 4498G Engineering Ethics, Sustainable Development and the Law

* A student may substitute two 0.5 technical electives from the list provided for CBE 4425

Accelerated Masters students can take a graduate course with special permission from the Department Chair.

### NOTES:

**Technical Elective List:**
Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBE 4404a/b</td>
<td>Downstream Processing in Pharmaceutical Manufacturing</td>
</tr>
<tr>
<td>CBE 4413a/b</td>
<td>Selected Topics in Chemical Engineering</td>
</tr>
<tr>
<td>CBE 4417a/b</td>
<td>Catalytic Processes</td>
</tr>
<tr>
<td>CBE 4418a/b</td>
<td>Industrial Multiphase Reactor Design</td>
</tr>
<tr>
<td>CBE 4420a/b</td>
<td>Computer Process Control</td>
</tr>
<tr>
<td>CBE 4432a/b</td>
<td>Energy and Fuels Production Systems</td>
</tr>
<tr>
<td>CBE 4485a/b</td>
<td>Energy and Society</td>
</tr>
<tr>
<td>CBE 4493a/b</td>
<td>Polymer Engineering</td>
</tr>
</tbody>
</table>

#### General Chemical Engineering Courses
- CBE 4407a/b Solid Waste Treatment
- CBE 4421a/b Introduction to Biomaterials Engineering
- CBE 4422a/b Nanobiotechnology
- CBE 4423a/b Tissue Engineering
- CBE 4424a/b Biosensor Principles and Applications
- CBE 4463a/b Water Pollution Design
- CEE 3362a/b Drinking Water Quality and Treatment
- CEE 4405a/b Air Pollution
- GPE 4484a/b Green Fuels and Chemicals
- MME 4429a/b Nuclear Engineering

---

The official version of the academic calendar can be found at: www.westerncalendar.uwo.ca