

## Frequently Asked Questions

### Q: How do I sign up for a minor?

- Answer: See the minor advisor first. The Department of Chemical Engineering requires that you turn in a minor audit form to the advisor before the minor may be added. Then you may submit a request to add the minor using the online curriculum change portlet on MyMichiganTech.  
<https://mymichigantech.mtu.edu/>

### Q: How do I drop a minor?

- Answer: Submit a request to drop the minor using the online curriculum change portlet on MyMichiganTech. No approval is needed to drop a minor.  
<https://mymichigantech.mtu.edu/>

### Q: Do credits from a minor double count towards my major?

- Answer: Yes, they may double count for both your major and minor.

### Q: Can I minor in more than one thing?

- Answer: Yes, however each course can only be used towards one minor and only two minors can be printed on your diploma.

### Q: When are the courses offered?

- Answer: The course schedule is on the web: <http://www.mtu.edu/registrar/> Note that some courses are only offered every other year, so it is best to plan ahead.



Michigan Technological University  
Chemical Engineering

### *Faculty Involved with the Bioprocess Engineering Minor:*

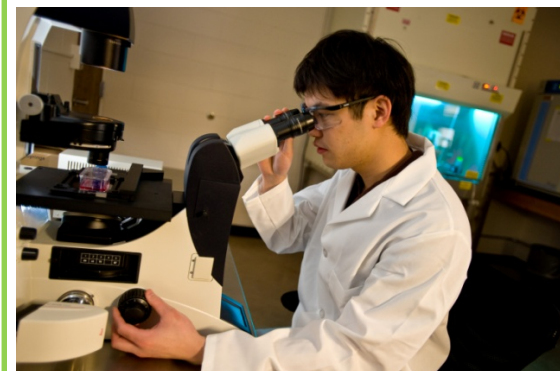
- Dr. Andre Da Costa  
*adacosta@mtu.edu*
- Dr. Caryn Heldt  
*heldt@mtu.edu*
- Dr. Adrienne Minerick  
*minerick@mtu.edu*
- Dr. Rebecca Ong  
*rgong1@mtu.edu*
- Dr. David Shonnard  
*drshonna@mtu.edu*

---

**Chemical Engineering Advising**  
**Email: *cmadvise@mtu.edu***  
**ChemSci 202M 906-487-4327**

**Department of Chemical Engineering**  
Michigan Technological University  
1400 Townsend Drive  
Houghton, MI 4993101295  
906-487-3132

## Minor in Bioprocess Engineering at Michigan Tech



*This minor prepares students for careers in the field of bioprocess engineering, which includes pharmaceutical engineering and manufacturing, and agricultural engineering and processing. Biological processes are being increasingly utilized by major chemical, pharmaceutical, and food manufacturers, creating a strong demand for graduates with expertise in this area. The students who are interested in this program are those who want to work in bio-related organizations, including the largest chemical and pharmaceutical companies in the world, several of which are based in Michigan.*

**Required credits: 18cr**

**Required classes: See other side**



Student Name and ID Number \_\_\_\_\_

Required Engineering Course (Select one course, 3 credits)	Credits
CM 2110 Fund of Chem Engg I (3) <i>Prereqs: CH 1112 or (CH 1150 and CH 1151)</i>	
CM 2200 Intro to Minerals and Materials (3) <i>Prereqs: none</i>	
CEE 3501 Env Engg Fundamentals (3) <i>Prereqs: MA 2160 and CH 1112 or (CH 1150 and CH 1151)</i>	
CEE 3503 Environmental Engineering (3) <i>Prereqs: MA 2160 and CH 1112 or (CH 1150 and CH 1151)</i>	

Required Biochemistry Course (Select one course, 3 credits)	Credits
BL 2100 Principles of Biochemistry (3) <i>Prereqs: (BL 1020 or BL 1040 or BE 2400) and CH 1112 or (CH 1150 and CH 1151))</i>	
CH 4710 Biomolecular Chemistry I (3) <i>Prereqs: CH 2420</i>	

Required Applied Biochemistry Courses (Select 3 or more credits)	Credits
BL 4070 Environmental Toxicology (3) <i>Prereqs: (BL 1020 or BL 1040) and CH 1150 and CH 1160</i>	
BL 4120 Environmental Remediation (3) <i>Prereqs: BL 1020 or BL 1040</i>	
CM 4710 Biochemical Processes (3) <i>Prereqs: CM 3110(C)</i>	

Elective Courses (Select remaining credits from course list below, 3 - 9 Credits)	Credits
BL 3210 General Microbiology (4) <i>Prereqs: (BL 1020 or BL 1040) and (BL 2100 or CH 4710)</i> or BL 3310 Environmental Microbiology (3) <i>Prereqs: BL 1040 or BL 3070 or BL 3080</i>	
BL 4000 Research in Biology (1-6) <i>Instructor Permission Required</i>	
BL 4010 Biochemistry I (3) <i>Prereqs: (BL 1020 or BL 1040 or BL 2010) and BL 2100 and (CH 2410 or CH 2420)</i>	
BL 4020 Biochemistry II (3) <i>Prereqs: BL 4010</i>	
BL 4820 Biochem Lab Techniques I (2) <i>Prereqs: BL4010(C) or CH4710(C)</i>	
CH 4110 Pharmaceutical Chemistry: Drug Action (3) <i>Prereqs: BL4010 or CH4710</i>	
CH 4120 Pharmaceutical Chemistry: Drug Design (3) <i>Prereqs: CH 2420</i>	
CH 4140 Pharmaceutical Analysis (3) <i>Prereqs: CH 2410</i>	
CH 4720 Biomolecular Chemistry II (3) <i>Prereqs: BL 4010 or CH 4710</i>	
CM 4040 UG Research in Bioengineering (1-6) <i>Prereqs: none</i>	
CM 4080 UG Research in Biofuels (1-6) <i>Prereqs: none</i>	
CM 4125 Bioprocess Engineering Lab (1) <i>Prereqs: CM 4710(C) or BL 3210 or BL 3310</i>	
CM 4770 Analytical Microdevice Technologies (3) <i>Prereqs: PH 2200</i>	
CM 4780 Biomanufacturing and Biosafety (3) <i>Prereqs: BL 2100 or CH 4710 or CM 4040 or CM 4080 or CM 4710 or (CM 3110(C) and BL 1040)</i>	
<b>Total Credits Required = 18</b>	

Student Signature

Date

Academic Advisor Signature

Date