BIOCHEMICAL ENGINEERING SPECIALIZATION

The specialization is available to undergraduate chemical engineering students at SD Mines and others that meet the prerequisites for the course requirements. Students should work with their advisor on the application procedure and appropriate forms as the specialization is officially noted on transcripts.

The biochemical engineering specialization requires completion of 12 credits of course work from the requirement lists below in replacement of various electives of the main Chemical Engineering major. See the next page as an example and your advisor for further details.

Microbiology Requirement

BIOL 341: Microbial Process in Engineering and Natural Sciences; **3 credits**
OR
BIOL 331: Microbiology; **3 credits**

Chemical and Biological Engineering Requirements

CBE 484/584: Fundamentals of Biochemical Engineering; **3 credits**
CBE 484L/484L: Biochemical Engineering Laboratory; **1 credit**

AND 2 credits from:

CBE 486/586: Immuno-Engineering; **2 or 3 credits**
OR
CBE 434/534: Design of Separation Processes; **1 credit**
CBE 434L/534L: Design of Separation Processes Laboratory; **1 credit**

Science Requirement

CHEM 464/564: Biochemistry I; **3 credits**
OR
BIOL 371: Genetics; **3 credits**
OR
BIOL 438/538: Industrial Microbiology; **3 credits**

Contact Information

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SOUTH DAKOTA SCHOOL OF MINES & TECHNOLOGY

Biochemical Engineering Specialization

DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING

BS Chemical Engineering Curriculum: 2018/2019 Catalog Name _____

Gen. Ed. Requirements (*) must be completed in first 64 credits at SDSM&T.

*Engl 101 (3) _____

*Engl 279 (3) _____

Engl 289[7] (3) _____

***Humanities courses (6) (CD² cr.)**

_____ __ _____

_____ __ _____

***Soc. Sci courses (6) (CD² cr.)**

_____ __ _____

_____ __ _____

CBE Required (45)

CBE 111/111L (2) ____
CBE 117L (1) ____
CBE 217 (3) ____
CBE 218 (3) ____
CBE 222 (3) ____
CBE 250 (2) ____
CBE 317 (3) ____
CBE 318 (3) ____
CBE 321 (3) ____
CBE 333 (1) ____
CBE 333L (1) ____
CBE 343 (3) ____
CBE 361L (1) ____
CBE 362L (1) ____
CBE 364 (2) ____
CBE 417 (2) ____
CBE 433 (3) ____
CBE 461L (1) ____
CBE 463 (2) _____
CBE 465 (2) ____
CBE 466 (2) ____
CBE 487 (1) ____

Biology Elective[1] (3)

Biol 341 (3) ____
BIOL 331 (3)

Chem Required (23)

*Chem 112 (3) ____
*Chem 112L (1) ____
*Chem 114 (3) ____
*Chem 114L (1) ____
Chem 220L (1) ____
Chem 332 (2) ____
Chem 332L (1) ____
Chem 326 (3) ____
Chem 328 (3) ____
Chem 342 (2) ____
Chem 344 (2) ____
Chem 344L (1) ____

Physics (6)

Phys _____
*Phys 211 (3) ____
*Phys 213 (3) ____

Engineering Elective[6] (3)

_____( ) ____
_____( ) ____

Total Credits Required: 130

Math (15)

Math _____
Math _____
*Math 123 (4) ____
*Math 125 (4) ____
*Math 225 (4) ____
Math 321 (3) ____

ChE Electives[3] (6)

CBE 484/584 (3) ____
CBE 434/534 (1) ____
CBE 486/586 (2-3) ____
CBE 434L/534L(1) ____
CBE _____ ( ) ____

ChE Lab Elective[4] (1)

CBE 484L/584L (1) ___
434L/534L

Dept. Approved Elect.[5] (7)

CHEM 464/564 (3) ___
BIOL 371 (3) ___
BIOL 438/538 (3) ___
CBE 434/534 (3) ___

1. BIOL Elective: (3) Select from BIOL 341, 371 or others approved by advisor.
2. ChE Elective (6): Select from CBE 424, 434/434L, 444, 450, 455, 474, 474L, 475, 476, 484, 484L, 485, 485L, 488, 489, 491, 492, 498, or others approved by advisor.
3. ChE Lab Elective (1): Select from CBE 434L, 474L, 484L, 485Lor 498 or others approved by advisor.
4. Dept. Approved Elective (7): Select from the following: CBE, Chem, or other approved courses to fulfill emphasis electives. These course are typically at a 120 level or higher. May include up to three (3) credits of advanced military science, up to six (6) credits of cooperative education (CP297, CP397, or CP497), up to three (3) credits of 300 level or above Humanities, Social Sciences or Business, and one (1) credit of PE or MUEN.
5. Engineering Elective (3): Select 3 credits from engineering courses other than CBE prefix; requires advisor approval. These courses are typically at a 200 level or higher.
6. Engl 289 may be taken in the semester following completion of 64 credits.
7. Optional emphasis in ChE: The academic advisor recommends and approves courses to take if students are interested in an emphasis in one of these areas: biochemical engineering, energy technology, environmental engineering, petroleum engineering, or advanced materials (nano materials, polymers, ceramics, materials processing, corrosion, or solid state/semi-conductors).