

## **BIOMEDICAL ENGINEERING EMPHASIS**

The biomedical engineering emphasis suggests completion of 15 credits of course work from the lists below in replacement of various electives of the main Chemical Engineering major. See the next page for an example and your advisor for further details.

### **Engineering Suggestions**

CBE 486/586: Immuno-Engineering;	<b>3 credits</b>
BME 408/508: Biomedical Engineering;	<b>3 credits</b>
MET 232: Properties of Materials;	<b>3 credits</b>

### **Science Suggestions**

BIOL 371: Genetics;	<b>3 credits</b>
CHEM 464/564: Biochemistry I;	<b>3 credits</b>

### **Additional Courses**

BIOL 221: Human Anatomy;	<b>3 credits</b>
BIOL 326: Biomedical Physiology;	<b>3 credits</b>
BIOL 446/546: Molecular Cell Biology;	<b>3 credits</b>
CHEM 465: Biochemistry II;	<b>3 credits</b>
NANO 401: Introduction to Nanoscience;	<b>3 credits</b>

**BS Chemical Engineering Curriculum: 2018/2019 Catalog**

Name \_\_\_\_\_

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

*Engl 101 (3) _____	* <b>Humanities courses (6)</b> (CD <sup>2</sup> cr.) _____	* <b>Soc. Sci courses (6)</b> (CD <sup>2</sup> cr.) _____
*Engl 279 (3) _____	_____	_____
Engl 289 <sup>7</sup> (3) _____	_____	_____

**CBE Required (45)**

**Chem Required (23)**

**Math (15)**

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) \_\_\_\_\_

\*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) \_\_\_\_\_

Math \_\_\_\_\_  
 Math \_\_\_\_\_  
 \*Math 123 (4) \_\_\_\_\_  
 \*Math 125 (4) \_\_\_\_\_  
 \*Math 225 (4) \_\_\_\_\_  
 Math 321 (3) \_\_\_\_\_

**ChE Electives<sup>3</sup> (6)**

CBE 486/586 (3) \_\_\_\_\_  
 CBE \_\_\_\_\_ ( ) \_\_\_\_\_  
 CBE \_\_\_\_\_ ( ) \_\_\_\_\_  
 CBE \_\_\_\_\_ ( ) \_\_\_\_\_  
 CBE \_\_\_\_\_ ( ) \_\_\_\_\_

**Physics (6)**

Phys \_\_\_\_\_  
 \*Phys 211 (3) \_\_\_\_\_  
 \*Phys 213 (3) \_\_\_\_\_

**ChE Lab Elective<sup>4</sup> (1)**

CBE \_\_\_\_\_ (1) \_\_\_\_\_

**Engineering Elective<sup>6</sup> (3)**

MET 232 (3) \_\_\_\_\_  
BME 408/508 (3) \_\_\_\_\_

**Dept. Approved Elect.<sup>5</sup> (7)**

CHEM 464/564 (3) \_\_\_\_\_  
BME 408/508 (3) \_\_\_\_\_  
MET 232 (3) \_\_\_\_\_  
 \_\_\_\_\_ ( ) \_\_\_\_\_

**Biology Elective<sup>1</sup> (3)**

Biol 371 (3) \_\_\_\_\_

**Total Credits Required: 130**

<ol style="list-style-type: none"> <li>1. BIOL Elective: (3) Select from BIOL 341, 371 or others approved by advisor.</li> <li>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.</li> <li>3. ChE Lab Elective (1): Select from CBE 434L, 474L, 484L, 485L or 498 or others approved by advisor.</li> <li>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.</li> <li>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.</li> <li>6. Engl 289 may be taken in the semester following completion of 64 credits.</li> <li>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).</li> </ol>
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