

MATERIALS EMPHASIS

The materials emphasis suggests completion of 10 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.

Chemical and Biological Engineering Suggestions

CBE 455/555: Pollution Phenomena and Process Design; **3 credits**

AND 4 credits from:

CBE 474/574: Polymer Technology; **3 credits**

CBE 474L/574L: Experimental Polymer Technology; **1 credit**

OR

MET 330: Physics of Metals; **3 credits**

MET 231: Structures and Properties of Materials Laboratory; **1 credit**

Metallurgical Engineering Suggestion

MET 232: Properties of Materials; **3 credits**

Additional Courses

CBE 424/524: Molecular Modeling and Simulation; **3 credits**

CBE 475/575: Advances in Processing and Nanoengineering of Polymers; **2 credits**

CBE 476/576: Organosilicon Polymer Chemistry and Technology; **1 credit**

CBE 489/589: Composites Manufacturing; **1 credit**

MET 330L: Physics of Metals Laboratory; **1 credit**

BS Chemical Engineering Curriculum: 2018/2019 Catalog Name _____

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

*Engl 101 (3) _____ ***Humanities courses (6) (CD² cr.)** ***Soc. Sci courses (6) (CD² cr.)**
 *Engl 279 (3) _____
 Engl 289⁷ (3) _____

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) _____

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 Elective⁶ (3)

MET 231 (1) _____
 MET 232 (3) _____
 MET 330 (3) _____

Math (15)

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

ChE Electives³ (6)

CBE 455/555 (3) _____
 CBE 474/574 (3) _____
 CBE 474L/574L (1) _____
 CBE () _____
 CBE () _____

ChE Lab Elective⁴ (1)

CBE 474L/574L (1) _____

Dept. Approved Elect.⁵ (7)

MET 231 (1) _____
 MET 232 (3) _____
 MET 330 (3) _____
 CBE 455/555 (3) _____
 CBE 474/574 (3) _____

Biology Elective¹ (3)

Biol () _____

Total Credits Required: 130

- BIOL Elective: (3) Select from BIOL 341, 371 or others approved by advisor.
- 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.
- ChE Lab Elective (1): Select from CBE 434L, 474L, 484L, 485L or 498 or others approved by advisor.
- 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.
- 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.
- Engl 289 may be taken in the semester following completion of 64 credits.
- 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).