**Other courses not listed in these elective categories must receive approval of student's advisor prior to registration.**

**Advanced Chemical Science Elective (six credits minimum)** -- Choose from:

- **Biol 450 - Molecular Genetics (2)**
- **BMB 301 - Biochemistry (3)**
- **BMB 401 - Biochemistry of Proteins & Information Flow (3)**
- **Chem 333/333L - Analytical Chemistry/Lab (3/1)**
- **Chem 342/L - Organic Chemistry II/Lab (3/1)**
- **Chem 441/442/443 - Instrumental Analysis I/II/III - Spectroscopy/ Electrochemistry / Chromatography and Mass Spectrometry (2/2/2)**
- **Chem 454 - Inorganic Chemistry II (3)**
- **Chem 455 - Spectroscopy and Structure (3)**
- **Chem 463 - Advanced Synthesis Lab (3)**
- **Chem 471 - Quantum Mechanics & Spectroscopy (3)**
- **Chem 475 - Materials Chemistry (3)**
- **Chem 520 - Advanced Organic Chemistry I (3)**
- **ChE 509 - Advanced Chemical Engineering**
- **ChE 509 - Advanced Chemical Engineering Thermodynamics (3)**
- **ChE 511 - Advanced Chemical Engineering Kinetics (3)**
- **ChE 512 - Transport of Mass (3)**
- **ChE 520 - Impurities in Combustion and Gasification Systems (3)**
- **ChE 525 - Polymer Engineering (3)**
- **ChE 530 - Combustion Theory & Modeling (3)**
- **ChE 531 - Rocket Propulsion (3)**
- **ChE 532 - Explosives: Theory & Modeling (3)**
- **ChE 535 - Metallic Corrosion & Polymer Degradation (3)**
- **Geol 407 – Petroleum Geology (3)**
- **MBio 302/302L - General Microbiology/ Lab (2/2)**
- **PtrE 311 – Petroleum Fluid Properties (3)**
- **PtrE 431 – Reservoir Engineering (3)**
- **PtrE 461 – Natural Gas Engineering (3)**
- **ChE 505 - Biochemical Engineering (3)**
- **ChE 509 - Advanced Chemical Engineering**

**Material Science Elective (three credits minimum)** -- Choose from:

- **ChE 435 - Materials and Corrosion (3)**
- **Chem 475 – Materials Chemistry (3)**
- **ME 301 - Materials Science (3)**
- **Engr 203 - Mechanics of Materials (3)**
- **AtSc -- any regularly offered 300-,400-, or 500-level course having Math 166 or higher or Phys 252 or higher as a prerequisite**
- **Biol 315 - Genetics (3)**
- **Biol 341/341L - Cell Biology/Laboratory (3/1)**
- **Biol 369/369L - Histology/Lab (2/2)**
- **BIMD 510 - Basic Biomedical Statistics (2)**
- **ChE 380 - Service Learning (1-3)**
- **ChE 381 - Experiential Learning (1-3)**
- **ChE 397 - Cooperative Education (1-3)**
- **ChE - any regularly offered 400- or 500-level course not required for the BSChE degree**
- **Engr 410 - Technology Venture (3)**
- **Mgmt/Mrkt/Finance -- any regularly offered 300- or 400-level course**
- **N&D 441 Advanced Nutrition (4)**
- **Phys -- any regularly offered 400-level course having Phys 251 or higher as a prerequisite**
- **EE -- any regularly offered 300- or 400-level course**
- **Engr 201 - Statics (3)**
- **Engr 202 - Dynamics (3)**

**Technical Elective (three credits minimum)** -- Choose from:

- **AtSc -- any regularly offered 300-,400-, or 500-level course having Math 166 or higher or Phys 252 or higher as a prerequisite**
- **Biol 315 - Genetics (3)**
- **Biol 341/341L - Cell Biology/Laboratory (3/1)**
- **Biol 369/369L - Histology/Lab (2/2)**
- **BIMD 510 - Basic Biomedical Statistics (2)**
- **ChE 380 - Service Learning (1-3)**
- **ChE 381 - Experiential Learning (1-3)**
- **ChE 397 - Cooperative Education (1-3)**
- **ChE - any regularly offered 400- or 500-level course not required for the BSChE degree**
- **Engr 410 - Technology Venture (3)**
- **Engr -- any regularly offered 500 level course**
- **Engr -- any regularly offered 500 level course**
- **Phys -- any regularly offered 400-level course having Phys 251 or higher as a prerequisite**
- **Mgmt/Mrkt/Finance -- any regularly offered 300- or 400-level course**
- **N&D 441 Advanced Nutrition (4)**
- **PtrE - any regularly offered 300- or 400-level course**
- **PtrE - any regularly offered 300- or 400-level course**
- **PtrE - any regularly offered 300- or 400-level course**
- **SE 510 - Process Design & Feasibility Assessment of Sustainable Technologies (3)**
- **SpSt -- any regularly offered 500-level course**

**Minor in Chemistry**

Requirements for the BSChE degree include a number of credits of chemistry. It is possible, using the required courses as a base, to meet the requirements for a minor in chemistry using courses that meet elective requirements in the BSChE program.

**Concentrations and Emphasis Areas**

Students interested in a specific technical area can take a focused set of elective courses. Available options include the following **Concentrations which will be included on a student's transcript:** Energetics, Petroleum Engineering, and Sustainability. Also available are the following **Emphasis Areas:** Biochemical, Chemical Engineering Research, Entrepreneurship, Environmental Engineering, Management, Pre-Health, and Pre-Law.