Chemistry Major, Geology Emphasis

See [www.chem.utah.edu](http://www.chem.utah.edu) for details or contact Professor Richard Ernst (ernst@chem.utah.edu; 801-581-8639)

Chemistry Core Courses (required of all majors):
- CHEM 1210, 1220 General Chemistry I, II (4, 4) both SF (or 1211/1221 honors versions)
- CHEM 1215, 1225 General Chemistry Lab I, II (1, 1) (or 1240/1241 honors versions)
- CHEM 2310, 2320 Organic Chemistry I, II (4, 4) (or 2311/2321 honors versions)
- CHEM 2315, 2325 Organic Chemistry Lab I, II (2, 2)
- CHEM 3000 Quantitative Analysis (4) QI CW
- CHEM 3060 Quantum Chemistry and Spectroscopy (4) QI
- CHEM 3100 Inorganic Chemistry (5)

Math and Physics Core (required of all majors):
- MATH 1210, 1220 Calculus I, II (4, 4) or MATH 1250 AP Calculus I (4) all QR
- MATH 2210 Calculus III (3) or MATH 1260 AP Calculus II (4) both QR
- PHYS 2210, 2220 Physics for Scientists and Engineers I, II (4, 4) (or 3210/3220 honors versions)
- PHYS 2215, 2225 Physics Laboratory for Scientists and Engineers I, II (1, 1)

E. Chemistry, Geology Emphasis

Core courses, plus:
- CHEM 3070 Thermodynamics and Chemical Kinetics (4) QI

Complete two of the following half-semester lab courses:
- CHEM 5700 Advanced Analytical Chemistry Lab (2) CW
- CHEM 5710 Advanced Organic Chemistry Lab (2)
- CHEM 5720 Advanced Physical Chemistry Lab (2)
- CHEM 5730 Advanced Inorganic Chemistry Lab (2)
- CHEM 5750 Advanced Chemical Biology Lab (2)

Sixteen or more units selected from the following:
- GEO 1110 Introduction to Earth Systems (3)
- GEO 1115 Laboratory for Introduction to Earth Systems (1)
- GEO 3060 Structural Geology and Tectonics (3)
- GEO 3080 Earth Materials I (4)
- GEO 3090 Earth Materials II (4)
- GEO 4100 Petrography and Petrogenesis (3)
- GEO 5450 Ore Genesis and Mineral Exploration (3)
- GEO 5660 Geochemistry (3)
- GEO 5670 Isotope Tracers in Earth Science (3)
- CHEM 4800 or 4999 Undergraduate Research or Honors Thesis (max. 2 units counted total)

Selected chemistry courses may be substituted with prior approval of the chemistry advisor.

University Requirements: 122 Hours (at least 40 upper division), DV, IR, WRTG, GEN ED

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<tr>
<td>Year 1 Fall</td>
<td>CHEM 1210, 1215</td>
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<td>CHEM 3000 or 3100</td>
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<td>MATH 1210</td>
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