ACS Certified Chemistry Majors at the University of Utah

Complete Core and one of the options below or see www.chem.utah.edu for more emphases.

**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)

**A. Chemistry, Professional Emphasis (Certified by the American Chemical Society)**

**Core courses, plus:**
- MATH 2250 Differential Equations and Linear Algebra (4) (or 2270 and 2280)
- MATH 3150 Partial Differential Equations for Engineering Students (2)
- CHEM 3070 Thermodynamics and Chemical Kinetics (4) QI
- BIOL/CHEM 3510 Biological Chemistry I (3)

Ten hours of laboratory courses selected from the following:
- 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) or BIOL/CHEM 3515 Biological Chemistry Lab (3) or BIOL/CHEM 3525 Molecular Biology of DNA Lab (3)
- CHEM 4800 Undergraduate Research (max. 2 counted) or CHEM 4999 Honors Thesis/Project (3)

**B. Chemistry, Biological Emphasis (Certified by the American Chemical Society)**

**Core courses, plus:**
- BIOL 2020 Principles of Cell Biology (3) or BIOL 2021 Principles of Cell Science (4)
- BIOL 2030 Genetics (3)
- BIOL/CHEM 3510 Biological Chemistry I (3)
- BIOL/CHEM 3515 Biological Chemistry Laboratory (3) or 3525 Molecular Biology of DNA Lab (3) or CHEM 5750 Advanced Chemical Biology Lab (2)
- BIOL/CHEM 3520 Biological Chemistry II (3)
- CHEM 3070 Thermodynamics & Chem. Kinetics (4) QI or CHEM 3090 Phys. Chem. Life Sci. (4) QI

Complete Five (5) or more additional semester units selected from approved Biology courses numbered 3000 or higher (see the General Catalog, a dar, or advisor). Selected chemistry courses, research (chem 4800 or 4999, 2 units counted max.), and courses from other bio-related departments, may be used to fulfill this requirement with the prior approval of the chemistry advisor.

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)

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

Other Chemistry Emphases include Business, Chemical Physics, Geology, Materials Science & Engineering, Mathematics and Teaching. See www.chem.utah.edu for details or contact Professor Richard Ernst (ernst@chem.utah.edu; 801-581-8639)