Elective List for Chemistry Major

**Chemistry Electives:**

**Laboratory Courses**
- CHEM 3010 (synthetic chemistry lab) 4 cr/ 4 lab cr
- CHEM 3020 (instrumental analysis) 4 cr/ 4 lab cr

**Analytical Chemistry**
- CHEM 6250 (advanced analytical chemistry)
- CHEM 6280 (trace element and isotopic analysis)
- CHEM 6290 (electrochemistry)

**Chemical Biology**
- CHEM 4500 (principles of chemical biology)
- CHEM 4510 (structural chemical biology)
- CHEM 6860 (physical chemistry of proteins)
- CHEM 7880 (macromolecular crystallography)

**Organic & Polymer Chemistry**
- CHEM 6650 (advanced organic chemistry)
- CHEM 6660 (synthetic organic chemistry)
- CHEM 6690 (transition metal catalysts in organic & polymer synthesis)
- CHEM 6700 (fundamental principles of polymer chemistry)
- CHEM 6710 (synthetic polymer chemistry)

**Inorganic Chemistry**
- CHEM 4300 (structure and bonding)
- CHEM 6050 (advanced inorganic chemistry)
- CHEM 6060 (advanced inorganic chemistry)
- CHEM 6080 (organometallic chemistry)

**Physical Chemistry**
- CHEM 2880 (introductory to physical chemistry)
- CHEM 5810 (computational methods in chemistry)
- CHEM 6070 (nanomaterials: chemistry and physics)
- CHEM 7870 (mathematical methods of physical chemistry)
- CHEM 7910 (spectroscopy)
- CHEM 7930 (quantum mechanics I)
- CHEM 7940 (quantum mechanics II)
- CHEM 7960 (statistical mechanics)

**Electives from Other Departments:**

**Biology and Biochemistry**
- BIOMG 3310-3320 or BIOMG 3300 or BIOMG 3350 or NS 3200 (introductory biochemistry)
- BIOMG 4380 (ribonucleic acids)
- BIOMG 4400 (biochemistry laboratory) 4 cr/ 4 lab cr
- BIOMG 6310 (protein structure and function)
- BIOMG 7300 (protein NMR spectroscopy)
- BIOL 3920 (drugs and the brain)
- BIOL 4620 (plant biochemistry)
- BIOL 4832 (proteomics)
- CHEM 4010 (BME 3010) (molecular biomedical eng) 4 cr/ 4 lab cr
- EAS 3030 (biogeochemistry) 4 cr/ 1 lab cr
- NS 3310 (biochemistry and nutrition)
- NS 3320 (metabolism laboratory) 3 cr/ 3 lab cr
- VETMM 7050 (chemistry of signal transduction)

**Mathematics**
- MATH 1920 or 2130 or 2220 (multivariable calculus)
- MATH 2210 or 2230 or 2310 or 2940 (linear algebra)
- MATH 2930 or 3230 (differential equations)

**Statistics**
- MATH 1710 or PSYCH 3500 or SOC 3010 (introductory statistics)
- STSCI 2100 (introductory statistics)
- AEM 2100 (introductory statistics)
- BTRY 3010 (biological statistics I)
- BTRY 6010 (statistical methods I)
- ENGRD 2700 (basic engineering probability and statistics)
- IRLST 2100 (introductory statistics)
- IRLST 6100 (statistical methods I)
- STSCI 2100 (introductory statistics)
- STSCI 2150 (introductory statistics for biology)
- STSCI 2200 (biological statistics I)
- MATH 4710 or ECON 3130 (intermediate probability and statistics)
- ECON 3140 or ECON 3125 (applied statistics)

**Physics**
- PHYS 2214 or 2218 (waves and optics) 4 cr/ 1 lab cr
- PHYS 3314 or AEP 3330 (mechanics)
- PHYS 3323 or AEP 3550 (electricity and magnetism)
- PHYS 3360 or AEP 3630 (circuits) 4 cr/ 2 lab cr

**Computer Science**
- CS 1110 or 1112 or 1114 or 1115 (introductory programming)
- CS 2110 or 2112 (intermediate programming)

**Materials Science and Engineering**
- MSE 2610 (mechanical properties of materials)
- MSE 2620 (electronic materials)
- MSE 3010 (materials chemistry)

**Environmental Science**
- ENTOM 3070 or 4900 (pesticides, insecticides, and the environment)
- BEE 2220 or BEE 4800 or BIOEE 6680 (bioengineering, atmospheric sciences, biogeochemistry)
- CEE 6530 – (water chemistry, environmental engineering)

**Education**
- EDUC 2410 (the art of teaching)
- EDUC 2710 (America’s promise: social and political context of American education)
- EDUC 3110 (educational psychology)
- EDUC 3405 (multicultural issues in education)
- EDUC 4040 (engaging youth in learning)

**Science and Society**
- HIST 1941 or 1942 (history of science)
- PHIL 3810 or STS 3811 or STS 4811 or STS 6311 (philosophy of science; scientific methods)
- STS 3020 or STS 4661 or STS 6661 (science communication)
- STS 3911 or STS 4071 or STS 4111 (science and the law; public policy)