Chemistry (CHEM)

CHEM 1A General Chemistry 3 Units
Department: Chemistry
Course level: Undergraduate
Terms course may be offered: Fall, spring and summer
Grading: Letter grade.
Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.
Prerequisites: High school chemistry recommended.
Stoichiometry of chemical reactions, quantum mechanical description of atoms, the elements and periodic table, chemical bonding, real and ideal gases, thermochemistry, introduction to thermodynamics and equilibrium, acid-base and solubility equilibria, introduction to oxidation-reduction reactions, introduction to chemical kinetics.
Students will receive no credit for 1A after taking 4A.

CHEM 1AL General Chemistry Laboratory 1 Unit
Department: Chemistry
Course level: Undergraduate
Terms course may be offered: Fall, spring and summer
Grading: Letter grade.
Hours and format: 1 hour of Lecture and 3 hours of Laboratory per week for 15 weeks. 1 hour of Lecture and 6 hours of Laboratory per week for 8 weeks.
Prerequisites: 1A (may be taken concurrently).
An experimental approach to chemical sciences with emphasis on developing fundamental, reproducible laboratory technique and a goal of understanding and achieving precision and accuracy in laboratory experiments. Proper use of laboratory equipment and standard wet chemical methods are practiced. Areas of investigations include chemical equilibria, spectroscopy, nanotechnology, green chemistry, and thermochemistry. Concurrent enrollment in 1A is recommended.
Students will receive no credit for 1AL after taking 4A.

CHEM 1B General Chemistry 4 Units
Department: Chemistry
Course level: Undergraduate
Terms course may be offered: Spring and summer
Grading: Letter grade.
Hours and format: 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 8 hours of Laboratory per week for 8 weeks.
Prerequisites: 1A and 1AL or equivalent, or a score of 3, 4, or 5 on the Chemistry AP test.
Introduction to chemical kinetics, electrochemistry, properties of the states of matter, binary mixtures, thermodynamic efficiency and the direction of chemical change, quantum mechanical description of bonding introduction to spectroscopy. Special topics: Research topics in modern chemistry and biochemistry, chemical engineering.
Students will receive no credit for 1B after taking 4B.

CHEM W1A General Chemistry 3 Units
Department: Chemistry
Course level: Undergraduate
Terms course may be offered: Fall, spring and summer
Grading: Letter grade.
Hours and format: 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 6 hours of Web-based lecture and 2 hours of Web-based discussion per week for 8 weeks. This is an online course.
Prerequisites: High school chemistry is recommended.
Stoichiometry of chemical reactions, quantum mechanical description of atoms, the elements and periodic table, chemical bonding, real and ideal