

AAT Science Course Descriptions

- **Core Courses:** (Pick two as General Education. The other two become part of the Major requirements.)

Principles of Earth Science-

Basic processes guiding the formation of Earth's natural landscapes. Map reading, geography and astronomy, earth-sun relations, weather and climates, earth materials, continental drift theory, plate tectonics, energy and mineral resources, rivers, earthquakes, glaciers, and human-environment interactions. May include integrated field trip. Additional course fee \$10. IAI: P1 905L or P1909L
3.00 Credit hours
3.00 Lecture hours
1.00 Lab hours

Principles of Biology-

Major concepts of biology: cell structure and function, metabolism, homeostasis, genetics, evolution, and biodiversity. Emphasis on diversity of prokaryotes and the early evolution of life on Earth. Additional course fee required. Additional course fee \$35.
PREREQUISITE: Enrollment as a biology or chemistry major; successful completion of university qualifying examinations in reading and mathematics. IAI: BIO 913
3.00 Credit hours
3.00 Lecture hours
3.00 Lab hours

Principles of General Chemistry I (Majors Course w/lab)

Atomic theory, stoichiometry, concentration units, gas laws, thermochemistry, properties of elements, bonding, oxidation-reduction, and states of matter. Additional course fee \$20.
IAI: BIO 906 EGR 961 CHM 911
4.00 Credit hours

Principles of General Physics I with Calculus:

Heat and Electricity Lecture and Laboratory

Foundation of physics using calculus as a tool. Kinematics, Newton's laws of motion, energy and momentum conservation, wave motion.
Course fee. IAI: EGR 911 P2 900L MTH 921

4.00 Credit hours
4.00 Lecture hours
3.00 Lab hours

- ***Other Course Requirements (Take the other 2 core courses and then take 2 more in your area of concentration.)***

Anatomy and Physiology I-

A systemic approach to human anatomy and physiology. Includes lectures on body systems, labs on physiological process and the study of human skeletons. Additional course fee \$20.

4.00 Credit hours
4.00 Lecture hours
2.00 Lab hours

Biology II or elective-

Additional course fee \$20.

4.00 Credit hours
4.00 Lecture hours
2.00 Lab hours

Principles of General Chemistry II-

Continuation of General Chemistry I. Properties of solutions, descriptive chemistry, kinetics, equilibrium, acid-base theory, electrochemistry, nuclear reactions and radiochemistry. Additional \$20 course fee.

IAI: BIO 907 CHM 912 NUR 907

4.00 Credit hours

Principles of Organic Chemistry I-

Detailed examination of carbon compounds based on modern concepts of molecular structure and reaction mechanisms. Laboratory covers synthesis, purification and characterization of organic compounds. Additional \$20 course fee required.

IAI: BIO 908 CHM 913 NUR 908

4.00 Credit hours

Principles of General Physics II with Calculus:

Heat and Electricity

Lecture and Laboratory

Continuation of PHYS I with Calculus. Laws of thermodynamics, electrostatics, electrical circuits, magnetism. Course fee. IAI: EGR 912

4.00 Credit hours
4.00 Lecture hours
3.00 Lab hours

**Principles of General Physics III with Calculus:
Heat and Electricity**

Lecture and Laboratory

Continuation of PHYS II with Calculus. Geometric and physical optics, relativity, atomic and nuclear physics. Course fee. IAI: EGR 914

4.00 Credit hours

4.00 Lecture hours

3.00 Lab hours

- *General Education coursework that should be required:*

Precalculus Mathematics-

Sets, real numbers; theory and application of functions and functions; trigonometric functions; complex numbers exponentials and logarithms; matrices and determinants; vectors. The TI-83 Graphing Calculator is required for this course.

5.00 Credit hours

5.00 Lecture hours

1.00 Other hours

Calculus I-

Limits and continuity, derivatives of algebraic and trigonometric functions, chain rule, applications (such as extreme problems, related rates, graphing), antiderivatives, definite integral applications (such as area, volume, work, force).

The TI-83 Graphing Calculator is required for this course

IAI: M1 900 EGR 901 MTH 901

4.00 Credit hours

Calculus II-

Calculus of the exponential, logarithmic, and trigonometric functions, techniques of integration, l' Hopital's rule, improper integrals, infinite series, and polar coordinates.

The TI-83 Graphing Calculator is required for this course

IAI: M1 900, EGR 902, MTH 902

4.00 Credit hours