PHYSICAL SCIENCE (PSC)

PSC 1201 - Concepts of Physics (Conceptions : VCNS - Natural Science) - 4 cr.
A discovery course in which student groups design experiments, collect and analyze data which will help them to understand the processes of science and the basic concepts and laws of Newtonian mechanics, properties of matter, electricity and magnetism and energy, and waves. Conceptual understanding is stressed; some simple algebra is used. Mainly for elementary and middle school teacher education students.

PSC 1202 - Cosmic Systems - 4 cr.
A study of the universe as a set of interacting, evolving systems: galaxies, stars, the solar system and the Earth with its rocks, oceans and atmosphere. Study includes investigations of the matter-energy cycles in these systems and the effects of natural and human interventions upon them. In-class investigations and discovery activities and field trips are part of this course. Mainly for elementary and middle school teacher education students.

PSC 1209 - Overview of Astronomy - 1 cr.
Covers a broad introduction to astronomy including a study of the Earth-Moon system, the solar system, stars, and galaxies. The course is focused on topics required in the State of Minnesota space science standards for K-6 teachers.

PSC 1210 - Introduction to Physical Scien - 2 cr.
This course provides the basic content and concepts required for elementary and middle school teachers as outlined in the Minnesota Teacher Licensure standards. It will cover the major principles of Physical Science, including motion, waves, light, electricity, magnetism, properties of matter, chemical reactions, thermodynamics, and chemical kinetics. Tutorials and interactive activities, and discussion of concepts demonstrating basic principles of physical science will be presented to the student for analysis, thus allowing students to construct their own meaning of higher level concepts as presented in the text.

PSC 1301 - Explorations in Astronomy (Conceptions : VCNS - Natural Science) - 4 cr.
Explores a range of topics in astronomy including objects in our solar system, stars & stellar life cycles, galaxies, and cosmology. The course will present recent discoveries and observations, as well as discuss current issues in modern astronomy including cultural conflicts over how and where astronomy is practiced.

PSC 1501 - A Short Course in Physics - 4 cr.
Selected topics from introductory physics for students who wish or need an understanding of physical concepts for their professional or personal enrichment. Some hands-on activities. Topics include force and motion, energy, waves, momentum, fluid mechanics, heat, sound, light, electricity and magnetism. Problem solving at the level of elementary algebra.

PSC 2001 - Physics I - 0,4 cr.
Covers algebra-based general physics including Newtonian mechanics (motion, force, energy, momentum), harmonic motion, fluids, and thermodynamics. Students must have ease and familiarity with basic algebraic and trigonometric techniques. Includes one 2-hour laboratory per week.
Prerequisite Courses: A grade of C (2.0 on a 4.0 scale) or better in College Algebra (MTH 1111) or a C or better in a more advanced college math course or a math ACT score of 24 or higher or by permission of the instructor.

PSC 2002 - Physics II - 0,4 cr.
Continues the study of algebra-based general physics including content in electricity and magnetism, geometric optics, sound and light waves, and selected topics in modern physics. Includes one 2-hour laboratory per week.
Prerequisite Courses: A grade of C (2.0 on a 4.0 scale) or better in PSC 2001.

PSC 2011 - General Physics I - 4 cr.
This course and its continuation PSC 2012 serve as a two-semester introduction to classical and modern physics using calculus. Topics include principles of classical mechanics: descriptions of motion, force, torque, and rotational motion, energy, momentum, and their conservation: fluid mechanics, simple harmonic motion, wave motion, and sound. Includes one 2-hour laboratory per week.
Prerequisite Courses: Either completion of MTH 2221 or concurrent enrollment in MTH 2221.

PSC 2012 - General Physics II - 4 cr.
Introduces the principles of electricity and magnetism, geometric optics, sound and light waves, and selected topics in modern physics. This is the second course in a two-course calculus-based general physics sequence. The physical principles and applications involved in these studies tend to be more abstract than the laws of mechanics that were studied in the first course in the sequence. In this course, many of the principles studied involve forces whose effects cannot be seen directly. Some of the forces studied only affect minute, invisible particles. Students will study models of unseen events and particles using graphs, sketches, analogies, mathematics, and descriptions. They will study the effects of the laws of physics using abstract models. Includes a 2-hour laboratory per week.
Prerequisite Courses: A grade of C (2.0 on a 4.0 scale) or better in PSC 2011; either completion of MTH 2222 or concurrent enrollment in MTH 2222.

PSC 2777 - Topics in Physical Science - 0-4 cr.
Occasional or special-purpose courses in physics, electronics, history or cultural aspects of science, on a level appropriate to the freshman or sophomore student.

PSC 3777 - Topics in Physical Science - 0-4 cr.
Occasional or special-purpose courses in physics, electronics, history or cultural aspects of science, on a level appropriate to the junior or senior student.

PSC 4777 - Advanced Topics in Physical Science - 1-4 cr.
Occasional or special-purpose courses in physics, electronics, history or cultural aspects of science, on a level appropriate to the junior or senior student.

PSC 4999 - Independent Study/Project in Physical Science - 0-4 cr.
Students desiring to improve knowledge or expertise in one of above categories may select projects for study in depth under guidance of a department member.
Prerequisite Courses: approval of a supervising faculty member.