**SCIENCE (SCI)**

**SCI 50 Math Concepts-Preparatory Mathematics for Pathways Courses (Unit: 1)**
Prerequisite: Concurrent enrollment in MATH 50.

Student-centered discussion and problem solving section. Promotes understanding of key concepts and enhances student success in MATH 50. May be repeated for a total of 2 units. (Plus-minus ABC/NC, CR/NC grading only)

**Course Attributes:**
- Pre-Collegiate

**SCI 101 First Year Experience in Science and Engineering (Units: 3)**
Prerequisite: Freshmen.

Goals of higher education, emphasis on content in programs in the College of Science and Engineering; structure of university and college; skills development related to academic success. (ABC/NC grading, CR/NC allowed)
(Note: In order for this course to satisfy General Education, students must earn a C- or CR or higher grade if taken fall 2014 or later.)

**Course Attributes:**
- E1: Lifelong Learning Develop
- A3: Critical Thinking
- Environmental Sustainability

**SCI 102 Science Concepts: Statics (Unit: 1)**
Prerequisites: MATH 227, PHYS 220; concurrent enrollment in ENGR 102.

Student-centered discussion and problem solving designed to promote understanding of key concepts of statics and enhance student success in ENGR 102. Limit of 4 units of science concepts courses allowed toward baccalaureate degree.

**SCI 103 Science Concepts - Survey of Chemistry (Unit: 1)**
Prerequisite: Concurrent enrollment in CHEM 101.

Student-centered discussion and problem-solving designed to promote understanding of key concepts and enhance student success in the concurrent chemistry course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (Plus-minus ABC/NC grading, CR/NC allowed)

**SCI 110 Science Concepts - Human Biology (Unit: 1)**
Prerequisite: Concurrent enrollment in BIOL 100.

Student-centered discussion and problem-solving designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (Plus-minus ABC/NC grading, CR/NC allowed)

**SCI 111 Science Concepts: Physics I (Unit: 1)**
Prerequisite: Concurrent enrollment in PHYS 111.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in PHYS 111. Limit of 4 units of any combination of SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

**SCI 115 Science Concepts - Chemistry I (Unit: 1)**
Prerequisite: Concurrent enrollment in CHEM 115.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in the concurrent chemistry course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (ABC/NC grading; CR/NC allowed)

**SCI 121 Science Concepts: Physics II (Unit: 1)**
Prerequisite: Concurrent enrollment in PHYS 121.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in PHYS 211. Limit of 4 units of any combination of SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

**SCI 124 Math Concepts - Elementary Statistics (Unit: 1)**
Prerequisite: Concurrent enrollment in MATH 124.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in MATH 124. Limit of 4 units of any combination of SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (Plus-minus ABC/NC, CR/NC grading option)

**SCI 140 Essential Concepts of Physics and Chemistry (Units: 3)**
Fundamental concepts of physics and chemistry, from motion, forces, and energy on to atomic structure, molecules, bonding, and chemical reactions. Basic organic and biochemistry. Classwork, 2 units; laboratory, 1 unit.

**SCI 199 Mathematics Concepts: Pre-Calculus (Unit: 1)**
Prerequisite: Concurrent enrollment in MATH 199.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in MATH 199. Limit of 4 units of any combination of SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

**SCI 201 Science Concepts: Dynamics (Unit: 1)**
Prerequisites: ENGR 102; concurrent enrollment in ENGR 201.

Student-centered discussion and problem solving designed to promote understanding of key concepts of dynamics and enhance student success in ENGR 102. Limit of 4 units of science concepts courses allowed toward baccalaureate degree.

**SCI 205 Science Concepts: Electric Circuits (Unit: 1)**
Prerequisites: PHYS 230; concurrent enrollment in ENGR 205.

Student-centered discussion and problem-solving section. Designed to promote understanding of key concepts of circuit analysis and enhance student success in ENGR 205. Limit of 4 units of any combination of science, math, and engineering concepts courses allowed toward the baccalaureate degree. (ABC/NC, CR/NC grading only)

**SCI 210 Science Concepts - General Microbiology and Public Health (Unit: 1)**
Prerequisite: Concurrent enrollment in BIOL 210.

Student-centered discussion and problem-solving designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (Plus-minus ABC/NC grading, CR/NC allowed)
SCI 211 Science Concepts: Computer Programming (Unit: 1)
Prerequisite: Concurrent enrollment in CSC 210.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in the concurrent computer science course. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (Plus-minus ABC/NC, CR/NC allowed)

SCI 215 Science Concepts - Chemistry II (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 215.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in the concurrent chemistry course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (ABC/NC grading; CR/NC allowed)

SCI 220 Science Concepts: Physics with Calculus I (Unit: 1)
Prerequisite: Concurrent enrollment in PHYS 220.

Designed to promote understanding of key concepts and enhance student success in PHYS 220. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (Plus/Minus ABC/NC; CR/NC allowed)

SCI 226 Mathematics Concepts: Calculus I (Unit: 1)
Prerequisite: Concurrent enrollment in MATH 226.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in MATH 226. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 227 Math Concepts: Calculus II (Unit: 1)
Prerequisite: Concurrent enrollment in MATH 227.

Student centered discussion and problem solving section designed to promote understanding of key concepts and enhance student success in MATH 227. Limit of four units in any combination of SCI 235, SCI Science Concepts, and SCI Math Concepts toward the baccalaureate degree. (Plus-minus ABC/NC; CR/NC allowed)

SCI 230 Science Concepts: Biology I (Unit: 1)
Prerequisite: Concurrent enrollment in BIOL 230.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses. (ABC/NC grading; CR/NC allowed)

SCI 231 Science Preparatory I - Foundations (Units: 2)
Enhance students’ knowledge in the foundational core of biology, chemistry, physics, and mathematics. Covers basic concepts, tools, and approaches.

SCI 232 Science Preparatory II - Study Skills (Units: 2)
Emphasis on increasing students’ study skills in the context of basic science coursework. Writing and communication skills addressed.

SCI 233 Science Preparatory III - Projects (Units: 2)
Builds upon the skills developed in SCI 231 and SCI 232. Develop and work on individual project with the instructors to put these skills in action. Explore a variety of careers in various science fields.

SCI 234 Science Concepts: Physics with Calculus II (Unit: 1)
Prerequisites: PHYS 220, MATH 227; concurrent enrollment in PHYS 230, PHYS 232.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts of electromagnetism and enhance student success in PHYS 230. Limit of 4 units of science concepts courses allowed toward baccalaureate degree. (ABC/NC, CR/NC grading only)

SCI 235 Science Concepts (Units: 2)
Prerequisite: Concurrent enrollment in BIOL 230 or BIOL 240, CHEM 115 or CHEM 215.

Preference given to students in Health Career Opportunity Program. Designed to enhance student success in introductory biology and chemistry courses by emphasizing problem solving and scientific writing skills. May be repeated once for a total of 4 units.

SCI 239 Introduction to Health Professions (Units: 2)
Introduction to the broad array of health professions, helping students make a more informed health career choice. Activities include talks from guest speakers representing various health professions, small group activities, and student projects. Intended for freshmen and sophomores.

SCI 240 Science Concepts: Biology II (Unit: 1)
Prerequisite: Concurrent enrollment in BIOL 240.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses. (ABC/NC grading; CR/NC allowed)

SCI 300 Science Concepts: Physical Chemistry I (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 300.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 300 and CHEM 351. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 321 Science Concepts: Quantitative Analysis (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 321.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 321. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 328 Science Concepts: Human Anatomy (Unit: 1)
Prerequisites: A college course in biology; concurrent enrollment in BIOL 328.

Student-centered discussion and problem-solving. Designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235, Science, Concepts, and Mathematics Concepts courses. (ABC/NC grading only)
SCI 333 Science Concepts: Organic Chemistry I (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 233.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 333. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 335 Science Concepts: Organic Chemistry II (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 335.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 335. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 340 Science Concepts: Biochemistry I (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 340.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 340. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 341 Science Concepts: Biochemistry II (Unit: 1)
Prerequisite: Concurrent enrollment in CHEM 341.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in CHEM 341. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 350 Science Concepts: Cell Biology (Unit: 1)
Prerequisite: Concurrent enrollment in BIOL 350.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in BIOL 350. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 355 Science Concepts: Genetics (Unit: 1)
Prerequisite: Concurrent enrollment in BIOL 355.

Student-centered discussion and problem solving section. Designed to promote understanding of key concepts and enhance student success in BIOL 355. Limit of 4 units of any combination of: SCI 235, Science Concepts, and Mathematics Concepts courses allowed toward the baccalaureate degree. (ABC/NC grading; CR/NC allowed)

SCI 499 Culminating Experience Continuous Enrollment (Unit: 0)

SCI 560GW Science Writing - GWAR (Units: 3)
Prerequisite: ENG 214 with a grade of C- or better.

Principles of research, writing, and editing of technical documents and articles for the public understanding of science. Students write publication-quality articles for possible inclusion in Intersci, the journal of the College of Science and Engineering. (Plus-minus ABC/NC grading only)

Course Attributes:

- Graduation Writing Assessment

SCI 610 Science Concepts - Principles of Human Physiology (Unit: 1)
Prerequisites: BIOL 328, CHEM 101; concurrent enrollment in BIOL 212; or consent of instructor.

Student-centered discussion and problem solving designed to promote understanding of key concepts and enhance student success in the concurrent biology course. Limit of 4 units of any combination of SCI 235 and Science Concepts courses. (Plus-minus ABC/NC grading, CR/NC allowed)

SCI 614 Graduate Writing Skills (Units: 3)
Prerequisite: Graduate standing. Enrollment priority given to College of Science and Engineering students.

Designed to increase the writing proficiency of graduate students. May not be used to meet MS ATC requirements. (CR/NC grading only)

SCI 652 SFSU Science Partners K-12 Schools (Units: 4)
Prerequisites: One upper division course in your major field of study and instructor consent.

Introduction to science teaching and learning. Students engage in K-12 classroom teaching, examine their own understanding of science, discuss science education literature, and analyze science lessons and student learning. Classwork, 2 units; fieldwork, 2 units.

SCI 693 Cooperative Education Program (Units: 1-12)
Prerequisite: Consent of instructor.

Supervised employment in academically relevant fields of study. Objectives are career development, occupational experience, and educational subsidy. Contact the Cooperative Education Office for more information. May be repeated for a total of 24 units with consent of major adviser.

SCI 695 Health Professions Colloquium (Units: 2)
Prerequisites: BIOL 230/BIOL 240, CHEM 115/215.

Preference given to students in Health Career Opportunity Program. Designed to prepare juniors and seniors for successful application to health professions schools. Application preparation, mock interviews, standard test preparation, oral presentations of journal articles. May be repeated for a total of 4 units.

SCI 750 Science Teaching for Scientists I (Units: 2)
Prerequisite: Graduate standing or consent of instructor.

Introduction to practical teaching strategies, science education theory and research, and scientific teaching to SF State graduate student scientists who are teaching science in a variety of contexts. May be repeated for a total of 4 units. (Plus-minus letter grade only)

(This course is offered as SCI 750 and BIOL 750). Students may not repeat the course under an alternate prefix.)

SCI 751 Fieldwork: Science Teaching for Scientists I (Units: 2)
Prerequisites: SCI 750 (may be taken concurrently); consent of instructor.

Fieldwork component that accompanies SCI 750 seminar. Fieldwork in a variety of settings from K-12 science classrooms, TA appointment in SFSU College of Science and Engineering course, or other science education setting. May be repeated for a total of 4 units for degree credit. (CR/NC grading only)
SCI 793 Cooperative Education Program (Units: 1-3)
Prerequisites: Graduate standing and consent of instructor.

Supervised employment in academically relevant fields of study. Objectives are career development, occupational experience, and educational subsidy. Contact the Cooperative Education Office for more information. May be repeated for a total of 3 units.

SCI 850 Science Teaching for Scientists II (Units: 2)
Prerequisites: SCI 750; may be taken concurrently with SCI 851 (fieldwork component); consent of instructor.

Explores issues in science and learning and the larger context of K-12 science education. May be repeated for a total of 4 units. (AB/NC grading only)

SCI 851 Fieldwork: Science Teaching for Scientists II (Units: 2)
Prerequisites: SCI 750; concurrent enrollment in SCI 850; consent of instructor.

Fieldwork component that accompanies SCI 850 seminar. Fieldwork can be in a variety of settings from K-12 science classrooms, TA appointment in course in SFSU College of Science and Engineering, or other science education settings. May be repeated for a total of 4 units. (CR/NC grading only)