

Prospective Transfer Student Guide



University Core Requirements

English I and II

Purpose: This integrated 20-week-unit on academic writing helps students develop their knowledge of and facility with composing processes and rhetorical concepts as a means to improve critical thinking, reading, and writing. Both Composition and Rhetoric I and Composition and Rhetoric II emphasize analysis, interpretation, evaluation, rhetorical principles, and the writing process, with particular attention to revision. The two courses differ in the level of complexity of reading and writing assignments.

Tips: Equates to the two introductory college-level *composition* courses for a school. Courses focusing on topics such as grammar, punctuation, practice with sentence/paragraph formation and structure will not transfer.

SCU English 1 - Composition and Rhetoric:

Study and practice of academic discourse emphasizing rhetorical knowledge and the composing processes, with special focus on critical contexts for thinking, reading, and writing. Attention to the rhetorical relationship of writer, subject, purpose, and audience and the recursive nature of the writing process, including drafting, responding to feedback, and revising.

SCU English 2 - Composition and Rhetoric II:

A continuation of Composition and Rhetoric I topics in critical thinking, reading, and writing with focus on increasingly complex rhetorical tasks, including attention to such issues as genre, multiple audiences and authorial voices, and collaborative work. *Prerequisites: ENGL 1*

Laboratory Science

Purpose: The purpose of the natural science requirement is to enable students to become active participants and to assume leadership roles in the increasingly scientific and technological world in which they live. The requirement will provide students with the intellectual skills needed to deal effectively with science in their personal, professional, and public lives.

Tips: Select a course that has a significant laboratory component (either separately or included with class) that is noted; lab component must be minimum of two hours per week to qualify to transfer in as a lab science; content will be assessed on case by case basis. Please note that certain majors (especially those within natural sciences and Engineering) have specific laboratory science requirements. Check the SCU website for your particular area of study to research major requirements.

Link to listing

of SCU course offerings that fulfill laboratory science requirement:

<http://cms.scu.edu/provost/ugst/core2009/2003-08/reachingout/theme2-7.cfm>

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Mathematics

Purpose: This requirement seeks to introduce students to mathematics, both as a pure discipline and as an important tool in problem solving. Mathematics is a basic building block of contemporary society and, over the centuries, has had a particularly profound impact on the social sciences, natural sciences, and technology.

Tips: Not all math courses are transferable. SCU does not accept courses in algebra, trigonometry, and geometry, as transferable. One pre-calculus course will be eligible to transfer in for elective units. Be aware that courses such as Brief Calculus may not be transferable due to course information that may not be covered.

Math Courses Offered at SCU: Finite Math, Calculus for the Social Sciences, Introduction to Statistics, Calculus & Analytic Geometry (four quarters), Differential Equations, Calculus for Business (two quarters).

Sample Math Descriptions:

SCU Math 6 - Finite Mathematics for Social Sciences Course Description:

Introduction to finite mathematics with applications to the social sciences. Sets, logic, combinatorial problems, probability, vectors, and matrices. (4 units)

SCU MATH 7 - Calculus for Social Sciences Course Description:

Introduction to differential and integral calculus with applications to the social sciences. Ordinarily, only one of MATH 7, 11, or 30 may be taken for credit. (4 units)

SCU MATH 8 - Introduction to Statistics Course Description:

Elementary topics in statistics chosen from descriptive statistics, probability, random variables and distributions, sampling, estimation, hypothesis testing, regression, and correlation. Prerequisite: MATH 6 or equivalent. (4 units)

Link for listing of all math courses SCU offers that meet core requirement:

<http://cms.scu.edu/provost/uqst/core2009/2003-08/foundations/theme1-5.cfm>

Link for full list of math course descriptions:

<http://www.scu.edu/bulletin/undergraduate/Department-of-Mathematics-and-Computer-Science.cfm>

Western Culture

Purpose: This chronological sequence introduces students to the intellectual traditions of the West through significant cultural monuments, texts, and events studied within their historical contexts. The sequence helps to prepare students for responsible citizenship and leadership.

Tips: Look for courses focusing on in-depth study of European History (preferably in areas of history, philosophy, art history, literature, music/theater). Our Western Culture courses are divided up into roughly three time periods-- a) Prehistoric -Middle Ages; b) Middle Ages to Renaissance; and c) Renaissance to Modern Times. Courses integrating U.S. history typically will not be considered as fulfilling this requirement (unless course is semester long, and covers a minimum of ten weeks of European content you can petition).

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Western Culture (continued)

Links to Western Culture Course Descriptions by Area of Study:

Art History 21, 22, 13:

<http://www.scu.edu/bulletin/undergraduate/Department-of-Art-and-Art-History.cfm>

History 21, 22, 23 (scroll down to Lower Division--European History)

<http://www.scu.edu/academics/bulletins/undergraduate/Department-of-History.cfm>

Philosophy 51, 52, 53:

<http://www.scu.edu/academics/bulletins/undergraduate/Department-of-Philosophy.cfm>

Theatre 41, 42, 43:

<http://www.scu.edu/academics/bulletins/undergraduate/Department-of-Theatre-and-Dance.cfm>

English 11, 12, 13:

<http://www.scu.edu/cas/english/schedule.cfm>

World Cultures (Area or Global)

Purpose: The purpose of this requirement is to provide students an opportunity to examine peoples, nations, and regions outside of Europe, the United States, or any of the cultures largely derived from these regions (e.g. Canada and Australia). In light of the rapid internationalization of contemporary life, informed citizens and responsible leaders must understand social, cultural, political, religious, and philosophical differences that have always marked human existence.

Tips: An example of a World Culture-Area course would be the study of a topic whose focus is within a specific area of the world (i.e. Art History of Africa, Buddhism, the History of Women in Japan) other than Western Cultures or those areas heavily influenced by Western Culture, such as Europe, Canada and Australia. The goal of these requirements is to expose students to cultures outside of their frame of reference. Requirement will not be met if study of Western culture is a significant portion of course. Please check the link below to review the many offerings SCU provides to meet this requirement to give yourself an idea of what might be comparable at your current institution. An example of a World Culture-Global course would be one which contrasts different areas within the world. It may include some study of Western culture, but that cannot be the main content of the course to meet this requirement.

Link to list of SCU Courses that fulfill World Culture Area and World Culture Global requirement:

<http://cms.scu.edu/provost/ugst/core2009/2003-08/reachingout/theme2-10.cfm>

PLEASE NOTE: To fulfill this requirement, students in the **College of Arts & Sciences** can take two Area courses or one Area and Global (NOT two global); **Business** majors only need one Area course because they must take their Global requirement at SCU; **Engineering** students only need to take one Area studies course.

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Social Science

Purpose: The purpose of this requirement is to prepare students to assume leadership roles in society by introducing them to knowledge and methodologies characteristic of the social science disciplines. These courses will expose students to those disciplines that combine theoretical considerations with empirical observations of society. Such perspectives are essential for leaders who will work in diverse groups and analyze complicated policy issues.

Tips: Search for an introductory course that studies different areas of culture/society in sociology, psychology, political science, anthropology or economics.

Link to list of SCU Courses that fulfill Social Science requirement:

<http://cms.scu.edu/provost/ugst/core2009/2003-08/reachingout/theme2-9.cfm>

United States

Purpose: The purpose of this requirement is to introduce students to the historical, cultural, literary, or social traditions of the United States as these have been made manifest through the experience of different groups who have shaped the nation. The requirement attempts to help prepare students for responsible citizenship and leadership in the United States.

Tips: This requirement has numerous options for fulfilling it. Please check link below to review the many offerings SCU provides to meet this requirement to give yourself an idea of what may be comparable at your current institution.

Link to list of SCU courses that fulfill United States requirement:

<http://cms.scu.edu/provost/ugst/core2009/2003-08/foundations/theme1-3.cfm>

2nd Language

Purpose: The purpose of the requirement is to provide students with a level of proficiency in a second language sufficient to make basic communication genuinely possible. It also seeks to provide students with an introductory sensitivity to cultural differences as exhibited by language, the most fundamental artifact of any culture. The requirement seeks to introduce students to the complexities of cultural differences around the globe.

Tips: Students can transfer in any language (inc. ASL), even if we do not offer it at SCU. If we do not offer the language course here, students will need to complete the level of language proficiency required by their major prior to attending SCU or through examination (see requirements below). Languages offered by SCU are: Spanish, French, German, Chinese, Japanese, Italian, Arabic, Latin and Greek.

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University Core Requirements

2nd Language (continued)

PLEASE NOTE:

COLLEGE OF ARTS AND SCIENCES students have different second language requirements depending on the area of their major. They are as follows:

BACHELOR of SCIENCE students in the Natural Sciences and Mathematics must successfully complete the second course of the first-year college-level sequence in a classical or modern language or demonstrate an equivalent level of proficiency through examination

BACHELOR of SCIENCE students in the Social Sciences and **BACHELOR of ARTS** students must successfully complete the third course (second for semester) of the first-year college-level sequence in a classical or modern language or demonstrate an equivalent level of proficiency through examination.

BUSINESS students must successfully complete the second course of the first-year college-level sequence in a classical or modern language or demonstrate an equivalent level of proficiency through examination

ENGINEERING students are not required to complete course work or pass a proficiency exam, although SCU recommends attaining proficiency level of at least the first college course in a second language.

Religious Studies

Purpose: The first course provides a basic orientation to the Religious Studies Core sequence (intro/first level; 2nd level; and 3rd level after 88 units) and three areas of the curriculum: scripture and tradition (SCTR); theology, ethics, and spirituality (TESP); and religion and society (RSOC). As a course in one of these areas, the first course will push beyond the usual questions of believing or not believing in order to explore the categories with which to question and probe religion for what it reveals about human beings—their societies and traditions, convictions and aspirations, and changing systems of thought.

Tips: Religious Studies courses do not transfer in unless student is coming in from another Jesuit institution. If you are coming from another Jesuit school, you will need to speak directly with the chair of the Religious Studies Department to confirm transfer credit.

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University Core Requirements

Third Writing, Ethics and Technology

Tips: SCU prefers and recommends to have these requirements met here. If you feel after you have been accepted that you took a course(s) that covers one of these requirements, you will need to obtain a course syllabus and work with the transcript analyst to petition credit for the class once you are accepted.

Individual College Requirements

College of Arts & Sciences

Fine Arts

(Total of four quarter units)

Tips: This requirement is only for students transferring into the College of Arts & Sciences. Please remember that this requirement is a hands on requirement where the goal is to have the student take part in the arts. It will not be met by taking music/theatre/art appreciation or history course work. Dance, hands on art courses, acting/performance, music, set design are all examples of what can fulfill it.

PLEASE NOTE: Student will need to take a combined total of 4 quarter units of Fine Arts course work to satisfy requirement and may take multiple courses to reach that total.

Ethnic/Women's Studies

Tips: This requirement requires taking one course in either understanding a different culture(s) within the United States or women/gender studies in society.

Link to list of SCU courses that fulfill Fine Arts and Ethnic/Women and Gender Studies

Requirements:

<http://cms.scu.edu/provost/ugst/core2009/2003-08/cas.cfm>

Leavey School of Business

Introduction to Business

(Two courses)

Tips: The first course is met by an introduction to American Business course.

SCU Business 70 - Contemporary American Business Course Description:

SCU OMIS 17 -Introduction to Business Computing Course Description:

Use of an integrated set of software tools to solve business problems and communicate results of analysis. Software tools include spreadsheets, databases, graphical tools, and presentation tools. Use of computer networks to access business information. *Prerequisite:* Working knowledge of one

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Individual College Requirements

Leavey School of Business (continued)

Accounting (Two courses)

Tips: Must take a minimum of one quarter each of Financial and Managerial accounting coursework.

SCU Accounting 11 --Information for Business Decisions I Course Description:

Overview of the role of financial information in economic decision making. Includes topics such as the dissemination of accounting information and its impact on capital market, and the analysis of corporate annual reports. Coverage of financial statements and their use in determining profitability and the financial condition of a business entity.

SCU Accounting 12 --Information for Business Decisions II Course Description:

Introduction to the role of accounting information in the decision making of business managers. The objective is to investigate the use of business data in typical managerial functions such as planning, control, and making operational decisions.

Data Analysis

(Two courses)

Tips: The first course can usually be met by taking an introduction to statistics course.

SCU OMIS 40- Statistics and Data Analysis I Course Description:

First in a two-course sequence. Students learn to describe, summarize, and evaluate sets of data using numerical and graphical methods; to quantitatively express the probability of events and formulate the probability of joint, marginal, and conditional events; to employ probability distributions to describe the probabilities associated with discrete and continuous random variables; to design and evaluate sample data collection plans for quantitative and qualitative data; to measure and evaluate the error associated with parameter estimation using samples; and to construct interval estimates for the population mean and the population proportion. Analysis of real-world data using spreadsheet software. *Prerequisites:* MATH 11 or MATH 30; OMIS 17. (4 units)

SCU OMIS 41- Statistics and Data Analysis II:

Second in a two-course sequence. Students learn to formulate hypotheses about population parameters and define the errors associated with hypothesis testing; to construct confidence interval; and test hypotheses about means, proportions, and variances; to formulate and test hypotheses about multinomial data and independence; to construct and evaluate both simple linear and multiple regression models; and to predict the value of dependent variables using regression models. Analysis of real-world data using spreadsheet software. *Prerequisite:* OMIS 40. (4 units)

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Individual College Requirements

Leavey School of Business

Economics (Three courses)

Tips: Two of the three requirements are usually transferable by taking Introduction to Microeconomics and Introduction to Macroeconomics courses. The third course is not as commonly offered at other institutions so pay close attention to our description.

SCU Economics 1 - Principles of Microeconomics Course Description:

The first course in the three-course sequence required of all business students and economics majors. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

SCU Economics 2 - Principles of Macroeconomics Course Description:

Determinants of national income and product in the long run and short run; inflation, unemployment, and business cycles; monetary and fiscal policies. *Prerequisite:* ECON 1. (4 units)

SCU Economics 3 - International Economics, Development, and Growth Course Description:

Analysis of international trade theory and policy, balance of payments adjustments and exchange rate regimes, growth and development, global poverty and inequality, and development related policy. *Prerequisite:* ECON 2. (4 units)

Information Systems (One course)

Tips: This course does not transfer in regularly, so be careful if selecting it.

OMIS 34--Management Information Systems Course Description:

Basic information systems concepts and terminology including different types of information systems. The components of software and hardware systems, and the basic of communication networks as enabling technologies for business. Developing integrated business software with the use of database and/or web technologies. Exposure to how contemporary business firms use information systems like ERP. (4 units)

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Individual College Requirements

School of Engineering

Mathematics

(Four quarters of Calculus and Analytic Geometry and one course of Differential Equations)

Tips: Students enrolled at an institution on the semester system must take three semesters of Calculus and Analytic Geometry. Students interested in Bioengineering must take a Differential Equations course equivalent to AMTH 106, not Math 22 and probably want to wait to take it at SCU.

SCU Math 11 - Calculus and Analytic Geometry I Course Description:

Differentiation and applications, introduction to integration. Prerequisite: Four years of high school mathematics (including trigonometry) or satisfactory grade in MATH 9. If MATH 9 (Precalculus) is taken, a grade of C- or higher is strongly recommended before taking MATH 11. (4 units)

SCU Math 12 - Calculus and Analytic Geometry II Course Description:

Continuation of 11. Methods and applications of integration, transcendental functions.

Prerequisite: MATH 11 or equivalent. A grade of C- or higher in MATH 11 is strongly recommended before taking MATH 12. (4 units)

SCU Math 13 - Calculus and Analytic Geometry III Course Description:

Polar coordinates, parametric equations, vector functions, partial derivatives. *Prerequisite:* MATH 12 or equivalent. A grade of C- or higher in MATH 12 is strongly recommended before taking MATH 13. (4 units)

SCU Math 21 - Calculus and Analytic Geometry IV Course Description:

Infinite series, multiple integrals, line integrals, Green's theorem. Prerequisite: MATH 13 or equivalent. A grade of C- or higher in MATH 13 is strongly recommended before taking MATH 21. (4 units)

SCU Math 22 - Differential Equations Course Description:

Use of series, numerical, and Laplace transform methods in solving differentialequations.

Applications. *Prerequisite:* Math 21. (4 units)

SCU Applied Math 106 – Differential Equations Description:

First-order linear differential equations, systems of linear differential equations, homogenous systems of linear differential equations with constant coefficients, the Laplace transform, the solution of differential equations by Laplace transform. *Prerequisite:* Math 21. (4 units)

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Individual College Requirements

School of Engineering

Natural Science Courses:

Chemistry (One quarter)

Tips: Students must take the first quarter (or semester) of the Chemistry series at their institution. A general survey course or one that serves as a prerequisite for the series at your school will not fulfill this requirement. *SCU Chemistry 11 – General*

Chemistry I Course Description:

Topics include chemical properties and reactions, thermochemistry, stoichiometry, quantitative problem-solving, and an introduction to ionic and covalent chemical bonding. Laboratory 3 hours per week. (5 units)

Physics

Tips: Students must take the calculus-based series if there are two series to choose from at their institution. Please note that Physics 32 and 33 have significant lab components.

(Three quarters of Physics for Scientists and Engineers; Electrical Engineering students must take a fourth quarter equivalent to SCU's Physics 34 or third semester)

SCU Physics 31 - Physics for Scientists and Engineers I Course Description:

Measurement. Vectors. Straight-line kinematics. Kinematics in two dimensions. Laws of inertia, mass conservation, and momentum conservation. Center-of-mass and reference frames. Force. Newtonian mechanics and its applications. Work and kinetic energy. Potential energy and energy conservation. Rotational dynamics. *Prerequisite:* Math 11. (Math 11 may be taken concurrently.) (4 units)

SCU Physics 32 - Physics for Scientists and Engineers II Course Description: Simple harmonic motion. Gravitation. Kepler's laws. Fluids. Waves. Thermal properties and kinetic theory of gases. Thermodynamics. Geometrical optics. Interference, diffraction, and polarization. *Prerequisites:* Math 12 and Physics 31. (Math 12 may be taken concurrently.) (4 units)

SCU Physics 32L - Physics for Scientists and Engineers II Laboratory: Measurement theory. Statistical reduction of data. Computer graphing techniques. Experiments directly related to Newton's Laws and to conservation laws. Experiments in periodic motion. Mechanical equivalent of heat. Use of oscilloscope. Lab quizzes. *Prerequisite:* Physics 32 (usually taken concurrently). (1 unit)

SCU Physics 33 - Physics for Engineers and Scientists III Course Description:

Electrostatics. Gauss's law. Potential. Capacitance. Electric current. Resistance. Kirchhoff's rules. DC circuits. AC circuits. Magnetic force. Electromagnetic induction. (4 units)

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Individual College Requirements

School of Engineering

Physics (continued)

SCU Physics 33L - Physics for Scientists and Engineers III Laboratory:

Experiments with simple circuits involving capacitors and resistors. Experiments in magnetism and circuits involving inductors. Geometrical optics and computer ray tracing. Lasers. Lab quizzes.

Prerequisite: Physics 33 (usually taken concurrently). (1 unit)

SCU Physics 34 - Physics for Scientists and Engineers IV Description:

Special relativity. Historical development of modern physics: black body radiation, photoelectric effect, Compton scattering, X-rays, Bohr atom, DeBroglie wavelength, Heisenberg uncertainty principle. Quantum waves and particles. Schrodinger equation. Nuclear structure and decay.

Statistical physics. Solids. Semiconductors. Laboratory (Young). Winter quarter. Prerequisite:

Physics 33. (5 units)

Engineering Courses:

Tips: Pay careful attention to course prerequisites in order to be prepared to have requirements necessary to enroll in specific classes after you transfer to SCU.

Introduction to Engineering (One course)

SCU General Engineering 1 – Introduction to Engineering Course Description:

Introduction to the different disciplines. Interdisciplinary aspects of engineering. Engineering professionalism and ethics. (1 unit)

Programming Requirements by major

Tips: If you know your major, be sure to take the appropriate programming course(s) outlined for your area on the left.

Computer Engineering: COEN 11 and 12

Electrical Engineering: COEN 12 and 44

General Engineering: COEN 10

General Engineering majors with concentration in

Bioengineering: COEN 44

Mechanical Engineering: COEN 44

Civil Engineering: CENG 15

SCU Computer Engineering 10 – Introduction to Programming Course Description: Overview of computing. Introduction to program design and implementation: problem definition, functional decomposition, and design of algorithms using Alice, a 3D visual programming environment.

Programming in the C language: data types, variables, functions, parameters, control constructs, input and output. Program development: editing, compiling, linking, testing, and debugging. Credit is not allowed for more than one introductory class such as COEN 10, COEN 44, CSCI 10, or OMIS 30. (5 units)

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Individual College Requirements

School of Engineering

Programming Requirements (continued)

SCU Computer Engineering 11 – Advanced Programming Course Description:

The C Language: structure and style. Types, operators, and expressions. Control flow. Functions. Pointers, arrays, and strings. Structures and dynamic memory allocation. I/O and file processing. Special operators. Recursion and threads. The Unix environment. *Prerequisite*: Previous programming experience and/or an introductory programming course, such as COEN 010 with a grade of C- or better, CSCI 10, or OMIS 30. (5 units)

SCU Computer Engineering 12 - Abstract Data Types and Data Structures Course Description:

Data abstraction: abstract data types, information hiding, interface specification. Basic data structures: stacks, queues, lists, binary trees, hashing, tables, graphs; implementation of abstract data types in the C language. Internal sorting: review of selection, insertion, and exchange sorts; quicksort, heapsort; recursion. Analysis of run-time behavior of algorithms; Big-O notation. Introduction to classes in C++. *Prerequisite*: COEN 11 with a grade of C- or better or COEN 44. Recommended co-requisite: COEN 19 or MATH 51. Credit not allowed for more than one introductory data structures class, such as COEN 12 or CSCI 61. (5 units)

SCU Computer Engineering 44 -- Applied Programming Course Description: Introduction to computer operating systems. Elements of computer programming in C, including input/output, branching and loops, structured programming, programming for computational efficiency. Programming of elementary mathematical operations. Application to engineering problems. *Co-requisites*: Math 21 and CENG 41 (5 units)

SCU Civil Engineering 15 -- Computer Applications in Civil Engineering Course Description:

Computer-based methods for technical problem solving. Introduction to some of the basic features in spreadsheet and math analysis programs to aid engineering solutions. Visual Basic programming in a spreadsheet environment. Graphical presentation of technical data Autocad Basks. Laboratory. (4 units)

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Individual College Requirements

School of Engineering

Circuits **(One course)**

Tips: Your circuits course must have a laboratory component in order to transfer in as our Electrical Engineering 50. Pay careful attention to course prerequisites in order to be prepared to have requirements necessary to enroll in specific classes at SCU.

SCU Electrical Engineering 50 - Electric Circuits I Course Description:
Physical basis and mathematical models of circuit components and energy sources. Circuit theorems and methods of analysis applied to DC and AC circuits. Laboratory. (Undergraduate core course)
Prerequisite: PHYS 33. (5 units)

Graphical Communication in Design **(One course; not required for Computer Engineering majors)**

SCU Mechanical Engineering 10 - Graphical Communication in Design Course Description:
Introduction to the design process and graphical communications tools used by engineers. Documentation of design through freehand sketching and engineering drawings. Basic descriptive geometry. Computer-aided design as a design tool. Conceptual design of individual projects presented in poster format. Computer laboratory. (5 units)

Statics **(One course; not required for Computer Engineering majors)**

SCU Civil Engineering 41 - Mechanics I Statics Course Description:
Resolution and composition of force systems and equilibrium of force systems acting on structures and mechanisms. Distributed forces. Friction. Prerequisites: Physics 31 and MECH 10. (4 units)

Strength of Materials **(One course; not required for Computer and Electrical Engineering majors)**

SCU Civil Engineering 43 - Mechanics III Strength of Materials Course Description:
Analysis of stresses and strains in machines and structural members. Axial forces, torsion, bending, and combined loads. Stability of columns. Energy theorems and their applications. Laboratory.
Prerequisite: CENG 41. (5 units)

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Suggested Course Plan for Science Majors

It is important if students know they will be pursuing a degree within Natural Science to complete as many science requirements as possible prior to attending Santa Clara University. Doing so will allow them to begin their upper-division course work during their Junior year and help ensure graduating in a timely manner. The guide below outlines the specific lower-division course requirements Natural Science majors at SCU. You will also utilize the other portion of the guide outlining the core requirements for the College of Arts & Sciences to select classes to round out your course load.

Biology

Tips: Biology majors at SCU are required to take Biology 21 through 25;
Biochemistry majors are required to take Biology 21, 24 and 25;
Public Health Science majors are required to take 21, 22, 24 and 25.

SCU Biology 21 - Introduction to Physiology Course Description: Introduction to general principles underlying homeostasis, and the relationship of anatomical form to biological function. The course will introduce students to the organization and function of cells, cellular metabolism, energy, nutrition, regulation, communication, gas exchange, circulation, and osmoregulation. Prerequisite: Completion of or concurrent enrollment in CHEM 11.

SCU Biology 22 - Introduction to Evolution & Ecology Course Description: Introduction to key concepts in evolution and ecology, including population genetics, natural selection and adaptation, phylogenetics and biodiversity, demography, and interactions among organisms and their environments. Prerequisite: BIO 21.

SCU Biology 23 - Investigations in Evolution & Ecology L & L Course Description: Introduction to experimental and statistical approaches used in modern ecological and evolutionary studies, with an emphasis on experimental design, data analysis, interpretation and presentation. Builds on concepts presented in BIO 22. Fieldwork and laboratory exercises (30 hours) will take advantage of the diversity of local terrestrial and marine ecosystems. Prerequisites: BIOL 22.

SCU Biology 24 - Introduction to Cellular and Molecular Biology Course Description: An introduction to the cell and molecular fundamentals necessary for life. Topics include macromolecular structure, enzyme function, membrane structure and physiology, metabolism and bioenergetics, the cell cycle and classical and molecular genetics. Prerequisites: BIO 21 and completion of or concurrent enrollment in Chemistry 31.

SCU Biology 25 - Investigations in Cellular & Molecular Biology L & L Course Description: An introduction to experimental methods for studying the cellular and molecular basis of life. Builds on the concepts covered in Biology 24. Topics include enzyme function and kinetics, cell reproduction, Mendelian genetics and molecular biology. The topics are explored through laboratory work, with emphasis placed on the analysis, interpretation, and presentation of experimental data. Laboratory 30 hours. Prerequisites: BIO 24 and completion of or concurrent enrollment in Chemistry 32.

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Suggested Course Plan for Science Majors

Chemistry

Tips: All science majors must take one full year of General Chemistry followed by a full year of Organic Chemistry (two quarters for Combined Sciences majors).

Physics

Tips: Most Biology and Public Health Science majors take Physics during their Junior year at SCU. It is helpful for Chemistry and Biochemistry majors to take Physics prior to the start of their Junior year. Students may take a year of either calculus or non-calculus based Physics to satisfy this requirement.
