

**PHIL 460, 461 Senior Project (2) (2)**

Selection, development and completion of a project under faculty supervision. Results presented in a formal thesis. Minimum of 60 hours per quarter. Requirements for PHIL 460 must be completed before student can enroll in PHIL 461. Prerequisite: Senior standing, consent of instructor.

**PHIL 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. *Class Schedule* will list topics selected. Total credit limited to 6 units. 1–3 lectures. Prerequisite: Consent of instructor.

**PHYS–PHYSICS****PHYS 104 Introductory Physics (4) GE B1a**

Selected topics in physics with applications to contemporary issues in science and technology. Intended to provide non-science students with an understanding of basic physical concepts. Not open to students who have credit in a college physics course. 4 lectures. Prerequisite: MATH 117, MATH 118 or MATH 120.

**PHYS 121 College Physics (4) GE B1a**

An introductory course in mechanics emphasizing motion, force, and energy. Not open for credit to students having a grade of C- or better in PHYS 131. 3 lectures, 1 laboratory. Prerequisite: MATH 118 and high school trigonometry, or MATH 120.

**PHYS 122 College Physics (4) GE B1a**

Continuation of PHYS 121. Topics include properties of materials, fluids, waves and vibrations, sound, heat, light and optics. Not open for credit to students having a grade of C- or better in PHYS 132. 3 lectures, 1 laboratory. Prerequisite: PHYS 121.

**PHYS 123 College Physics (4) GE B1a**

Continuation of PHYS 121 and 122. Electrostatics, electric current, magnetic fields and induction. Elements of modern physics. Not open for credit to students having a grade of C- or better in PHYS 133. 3 lectures, 1 laboratory. Prerequisite: PHYS 121. Recommended: PHYS 122.

**PHYS 131 General Physics (4) GE B1a**

Fundamental principles of mechanics. Vectors, particle kinematics, statics and dynamics. Equilibrium of a rigid body. Work and energy, linear momentum, rotational kinematics and dynamics. Primarily for engineering and architecture students, and for students majoring in the physical sciences. 3 lectures, 1 laboratory. Prerequisite: MATH 141 with grade C- or better, and MATH 142 (or concurrent enrollment). High school physics recommended.

**PHYS 132 General Physics (4) GE B1a**

Oscillations, waves in elastic media, sound waves. Temperature, heat and the first law of thermodynamics. Kinetic theory of matter, second law of thermodynamics. Geometrical and physical optics. 3 lectures, 1 laboratory. Prerequisite: PHYS 131.

**PHYS 133 General Physics (4) GE B1a**

Charge and matter, electric field, electric potential, dielectrics, capacitance, current and resistance, electromotive force and circuits, magnetic fields, magnetic field of a moving charge, induced emf. 3 lectures, 1 laboratory. Prerequisite: PHYS 131, MATH 132 or MATH 142.

**PHYS 137 General Physics: Applied Physics for Architects (4)**

Applied physics problems related to architecture. Damped, forced, and coupled oscillations in mechanical structures and electric circuits. Earthquakes and structures. Elementary electric circuit and wiring concepts. Energy transport, and efficient use of energy and passive solar energy in buildings. For College of Architecture and Environmental Design majors. 3 lectures, 1 laboratory. Prerequisite: PHYS 132, MATH 142.

**PHYS 200 Special Problems for Undergraduates (1–2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department chair.

**PHYS 201 Learning Center Tutor (1) (CR/NC)**

Act as a tutor in the Physics Learning Center. Help students with problem solving techniques and introductory physics course material. Total credit limited to 3 units, with a maximum of 1 unit per quarter. Credit/No Credit grading only. Prerequisite: PHYS 133 and consent of instructor.

**PHYS 202 Physics on the Computer (4)**

Introduction to computer algebra system for solving problems in physics: differential equations, matrix manipulations, simulations and numerical techniques, nonlinear dynamics. 4 lectures. Prerequisite: PHYS 133, MATH 242 (or concurrent enrollment) and GE F1 elective.

**PHYS 206 Instrumentation in Experimental Physics (3)**

L-R-C circuits and electronic circuit elements emphasizing the applications of analog and digital electronics to instrumentation in modern physics. 3 lectures. Prerequisite: PHYS 133, MATH 143, GE F1 elective, and concurrent enrollment in PHYS 256.

**PHYS 211 Modern Physics I (4) GE B1a**

Special relativity, fundamental principles of quantum mechanics, emphasizing the modern description of atomic phenomena. Kinetic theory, wave particle duality, Bohr theory, Schroedinger equation, elementary atomic structure. 4 lectures. Prerequisite: PHYS 123 or PHYS 133, and MATH 133 or MATH 241.

**PHYS 212 Modern Physics II (3) GE B1a**

Applications of quantum physics to atoms, nuclei, and elementary particles. Nuclear reactions, radioactivity, nuclear energy. 3 lectures. Prerequisite: PHYS 211.

**PHYS 215 Physics of Sound and Music (3) GE B1a**

Wave nature of sound. Musical instruments and production of sound, overtones and tone quality, musical scales, decibels and noise hazards. Speech and hearing. Recording and reproduction of sound. Electronic instruments and synthesizers. Room acoustics. 3 lectures. Prerequisite: PHYS 104 or PHYS 122 or PHYS 132 or PSC 101 or consent of instructor.

**PHYS 256 Electrical Measurements Laboratory (1)**

Experimental studies of circuit analysis and electronics; introduction to digital techniques; instrumentation. 1 laboratory. Prerequisite: PHYS 133, MATH 143, and concurrent PHYS 206.

**PHYS 301 Thermal Physics I (3) GE B1a**

Thermodynamics and statistical mechanics. Entropy, temperature, chemical potential, free energy. Selected applications including paramagnetism, ideal gas, Fermi-Dirac distribution. 3 lectures. Prerequisite: PHYS 132, PHYS 211, MATH 241.

**PHYS 302 Analytical Mechanics I (3) GE B1a**

Vector analysis, laws of motion, kinematics and dynamics of a particle. Work and energy. Oscillatory motion (damped and forced oscillation). Center of mass. Linear and angular momentum. 3 lectures. Prerequisite: PHYS 131, MATH 242.

**PHYS 303 Analytical Mechanics II (3) GE B1a**

Dynamics of a rigid body. Three-dimensional motion of a rigid body. Introduction to Lagrange's and Hamilton's equations. 3 lectures. Prerequisite: PHYS 302. Concurrent: MATH 304.

**PHYS 310 Physics of Energy (3) GE B1a**

Physics and mathematics applied to broad energy topics. Efficient usage, transportation, solar energy, nuclear fission and fusion. Plasma, hydrogen economy, fuel cells, wind wave, tidal, and geothermal energy. Transmission, storage, fossils. National planning, and energy economics. 3 lectures. Prerequisite: PHYS 133.

**PHYS 313 Introduction to Atmospheric Physics (3) GE B1a**

Properties of the atmosphere, atmospheric motions, solar and terrestrial radiation. Atmospheric optics and cloud physics. 3 lectures. Prerequisite: PHYS 132 or PHYS 122 and MATH 143 or equivalent.

**PHYS 315 Introduction to Lasers and Laser Applications (3) GE B1a**

Interaction of radiation with matter, theory of laser action, characteristics and modification of laser output, types of lasers. Holography and other applications. 3 lectures. Prerequisite: PHYS 133, or PHYS 123 or MATH 143.

**PHYS 317 Special Theory of Relativity (3) GE B1a**

Fundamental experiments and basic postulates of special relativity. Simultaneity, length and time measurements. Lorentz transformations. Four-Vectors. Space-time diagrams. Relativistic mechanics and electromagnetism. 3 lectures. Prerequisite: PHYS 211.

**PHYS 323 Optics (5) GE B1a**

Geometric optics, lens systems, aberration, physical optics and polarization. 4 lectures, 1 laboratory. Prerequisite: PHYS 133, MATH 241.

**PHYS 340, 341, 342 Quantum Physics Laboratory I, II, III (1) (1) (2) GE B1a**

Experimental studies of quantum properties of particles and radiation, and their interaction with atoms and nuclei. Atomic and nuclear spectra, nuclear radiation detection, Monte Carlo simulations, transport properties of resistors, diodes and transistors. Measurement of fundamental physical constants. Courses must be taken in numerical order. PHYS 340, 341: 1 laboratory; PHYS 342: 2 laboratories. Prerequisite: PHYS 212, and PHYS 256.

**PHYS 357 Advanced Instrumentation in Experimental Physics (3)**

Advanced analog and digital electronics, computer interfacing to experiments, robotics. 2 lectures, 1 laboratory. Prerequisite: PHYS 206 and PHYS 256.

**PHYS 363 Undergraduate Seminar (2)**

Study and oral presentation of physics topics of interest to students and faculty. Discussion of projects and research by students and faculty. 2 seminars.

**PHYS 400 Special Problems for Advanced Undergraduates (1-2)**

Individual investigations, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department chair.

**PHYS 401 Thermal Physics II (3)**

Additional topics in thermodynamics and statistical physics, including chemical equilibrium, phase transitions, transport processes, and cryogenics. 3 lectures. Prerequisite: PHYS 301.

**PHYS 403 Nuclear and Particle Physics (3)**

Advanced nuclear physics topics. The two-nucleon problem at low energy. The deuteron. Subnuclear particles and their structure. Elementary particles. Symmetries and conservation laws. Parity, charge conjugation and time reversal invariance. Hadronic interactions. The weak interaction. 3 lectures. Prerequisite: PHYS 212 and PHYS 405.

**PHYS 405 Quantum Mechanics I (4)**

Wave nature of matter and the basic postulates of quantum mechanics. The wave function, operators, and their interpretation. Schrodinger's Equation and its solutions in one and more dimensions. The hydrogen atom and the periodic table. 4 lectures. Prerequisite: PHYS 211, MATH 242. Recommended: PHYS 212, MATH 304.

**PHYS 406 Quantum Mechanics II (3)**

Angular momentum operators and problems in three dimensions including the hydrogen atom. The elements of matrix mechanics and spin wave functions. Perturbation theory. 3 lectures. Prerequisite: PHYS 405.

**PHYS 408, 409 Electromagnetic Fields and Waves I, II (4) (3)**

Electric and magnetic field theory using vector analysis. Electric fields, dielectric materials, magnetic fields, induced emf's, magnetic materials, Maxwell's equations, wave equations, plane electromagnetic waves. Dipole radiation, radiation from an accelerated charge. 4 lectures, 3 lectures. Prerequisite: MATH 304, PHYS 206 or consent of instructor.

**PHYS 410 Physics of the Solid Earth (3)**

Gravity and the figure of the Earth. Body wave seismology, structure and composition of the Earth, heat flow and heat sources, Earth tides, rotational dynamics, the geomagnetic field and its source, paleomagnetism. 3 lectures. Prerequisite: PHYS 133 and MATH 242 or equivalent.

**PHYS 412 Solid State Physics (3)**

Physics of the solid state of matter. Relationship between atomic bonding and the structural, mechanical, thermal, optical, and electronic properties of solids. Emphasis on those properties that influence electronic behavior and processes in metals, insulators, and semiconductors. 3 lectures. Prerequisite: PHYS 211 or MATE 340, MATH 242.

**PHYS 413 Advanced Topics in Solid State Physics (3)**

Semiconducting devices, including junction and field-effect transistors, LED's, and diode lasers. Magnetic properties of solids. Superconductivity, including discussion of high-temperature superconductors. Other topics of current interest in solid state physics. 3 lectures. Prerequisite: PHYS 412.

**PHYS 423 Advanced Optics (4)**

Lens aberrations, interference and diffraction, Fourier optics, quantum optics, image formation and holography, non-linear optics. Miscellaneous course fee required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: PHYS 323.

**PHYS 424 Theoretical Physics (3)**

Contour integration in the complex plane, properties of the delta function, properties of some common functions of theoretical physics, Green's function techniques for solving differential equations. 3 lectures. Prerequisite: PHYS 133, MATH 304, MATH 318.

**PHYS 452 Solid State Physics Laboratory (1)**

Selected experiments on the solid state of matter using electrical, optical, and x-ray methods. 1 laboratory. Prerequisite or concurrent: PHYS 412.

**PHYS 461, 462 Senior Project (2) (2)**

Selection and completion of a project under faculty supervision. Projects typical of problems which graduates must solve in their fields of employment. Project results are presented in a formal report. Minimum 120 hours total time.

**PHYS 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1 to 3 lectures. Prerequisite: Consent of instructor.

**PHYS 471 Selected Advanced Laboratory (1–3)**

Directed group laboratory study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1 to 3 laboratories. Prerequisite: Consent of instructor.

**PHYS 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**PHYS 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**PM–POULTRY MANAGEMENT****PM 145 Introduction to Poultry Management (4)**

Introduction to modern techniques in poultry production, processing, marketing and price discovery. Consumption trends, breeds and consumer grades. Laboratory application of management skills, health care, keeping of production and accounting records and processing techniques. 3 lectures, 1 laboratory.

**PM 200 Special Problems for Undergraduates (2–3)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 3 units per quarter. Prerequisite: Consent of instructor.

**PM 240 Poultry Business Management (3)**

Organization and management of vertically integrated poultry operations. Structuring of staffing, cost and profit centers and financial statements. Managing the finance, public relations, production scheduling, product distribution and sales. 3 lectures.

**PM 250 Poultry Processing (3)**

Processing, value added further processing, quality determination, distribution and merchandising of poultry meat and eggs. Governmental regulations applicable to the processing and marketing of poultry products. Development and promotion of consumer products. 2 lectures, 1 laboratory. Prerequisite: PM 145.

**PM 290 Poultry Management Enterprise (2–4) (CR/NC)**

Introduction to management techniques of the poultry enterprise. Providing health, nutritional and physical care to a representative group of birds. Planning, budgeting and marketing. Instructor approval required. Total degree credit for 290/490 limited to 9 units. Credit/No Credit grading only. Prerequisite: Consent of instructor.

**PM 305 Game Bird Propagation and Management (3)**

Habitat needs, management and propagation of North American game bird species in the wild and in captivity. Reproduction, nutrition and maintenance of flock health as practiced by commercial game bird operations. 3 lectures. Prerequisite: One quarter college mathematics, one quarter animal biology.

**PM 330 Poultry Production Management (4)**

Modern production techniques for the commercial poultry industry. Management of hatcheries, replacement pullets, egg production, and broiler and turkey meat production enterprises. 3 lectures, 1 laboratory. Prerequisite: PM 145.

**PM 340 Poultry Anatomy, Physiology and Diseases (4)**

Structure, function and pathology of the principal organ systems of domestic poultry. Prevention and control of poultry diseases and parasites. Planning and management of poultry flock health maintenance program. 3 lectures, 1 laboratory. Prerequisite: PM 145.

**PM 350 Applied Poultry Feeding and Nutrition (3)**

Nutritional requirements, feeding principles and practices as applied to commercial poultry flocks. Least-cost ration formulation, feed manufacturing principles and governmental regulations applicable to the poultry feed manufacturing industry. 3 lectures. Prerequisite: ASCI 220 or consent of instructor.

**PM 360 Poultry Industry Seminar (3)**

New trends, management techniques and governmental regulations, special problems and research developments related to the poultry industry. 3 seminars. Prerequisite: PM 145, PM 330 and PM 340.

**PM 400 Special Problems for Advanced Undergraduates (2–4)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 4 units per quarter. Prerequisite: Consent of instructor.

**PM 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1–3 lectures. Prerequisite: Consent of instructor.

**PM 490 Advanced Poultry Management Enterprise (2–4) (CR/NC)**

Intensified management of specialized poultry enterprises in all species areas. Application of applied research and progressive husbandry and processing practices employed. Industry contact and visitation encouraged. Total degree credit for 290/490 limited to 9 units. Credit/No Credit grading only. Prerequisite: Consent of instructor.

**PM 581 Graduate Seminar in Poultry (3)**

Current trends and characteristics of the poultry industry enterprise. Group discussion of skills, techniques and practices to improve teaching of vocational agriculture as it applies to poultry. 3 seminars.

**POLS–POLITICAL SCIENCE****POLS 110 American and California Government (3)**

(formerly POLS 210)

**GE D1**

Study of governmental institutions, politics, issues and political behavior in the United States and California in constitutional, historical, social and cultural perspectives. Contemporary political problems. Satisfies the United States government and California state and local government requirement. 3 lectures.

**POLS 111 California Constitution and Government (1)**

Basic aspects of California state government. Satisfies California state and local government requirement for students who have AP credit for American Government or have taken American Government without coverage of California government. 1 lecture.

**POLS 180 Political Inquiry (4)**

(formerly POLS 100)

Introduction to the scope, language, concepts and approaches employed in political science and the social sciences. Includes emphasis on basic methodological and research strategies for assessing political issues, events, the dynamics of political change and philosophy of science. 4 lectures.

**POLS 200 Special Problems for Undergraduates (1–4)**

Individual investigation, research, study, or survey of selected problems under faculty supervision. Total credit limited to 4 units. Prerequisite: Consent of department head.

**POLS 225 Introduction to International Relations (4)**

(formerly POLS 105)

Introduction to the evolution, dynamics and substance of the international system; consideration of such subjects of conflict and accommodation, power and weakness, perception and reality, prosperity and poverty, and war and peace in international relations. 4 lectures.

**POLS 230 Basic Concepts of Political Thought (4)**

(formerly POLS 204)

Introduction to such concepts as: law, justice, community, right, citizen, and constitution, which are fundamental to political discourse, as developed in the works of Plato, Aristotle, Augustine,

Thomas Aquinas, Machiavelli, and other illustrious thinkers from classic to modern times. 4 lectures. Prerequisite: POLS 110.

**POLS 285 Model United Nations (2) (CR/NC)**

(formerly 250)

Preparation for participation in the campus Model United Nations. Procedure, MUN rules of debate, preparation of country positions, area papers, and policy statements suitable for use in mock United Nations sessions. Total credit limited to 2 units. Credit/No Credit grading only. 2 lectures. Prerequisite: One course in POLS or consent of instructor.

**POLS 308 Revolutions and Collective Violence (4)**

Causes, methods, outcomes of and authority responses to collective violence and revolutionary movements. Contemporary events including terrorist and other forms of collective violence in industrialized and developing states. 4 lectures. Prerequisite: POLS 110.

**POLS 310 Politics of Ethnicity and Gender (4)**

**USCP**

(formerly POLS 303)

Analysis of factors that affect the changing role of women and major ethnic groups in American politics. Involvement, organization and role of minority groups in the political process. 4 lectures. Prerequisite: POLS 110.

**POLS 315 The American Presidency (4)**

(formerly POLS 342)

Nature and problems of contemporary presidential leadership emphasizing the impact of bureaucracy, Congress, public opinion, the courts, interest groups, and the party system upon the presidency and national policy making. 4 lectures. Prerequisite: POLS 110.

**POLS 316 Political Parties and Interest Groups (4)**

(formerly POLS 331)

Make-up and major functions of political parties. Role of political parties and interest groups in a democracy. Degree of consensus and conflict between present day political parties and interest groups in their attempts to influence public policy. 4 lectures. Prerequisite: POLS 110.

**POLS 317 Public Opinion and Political**

**Participation (4) (formerly POLS 332)**

Origins and dimensions of public opinion. Focus on contemporary political campaigns and elections in the U.S. Impact of political ideology, mass media, high technology, pressure groups on electoral outcomes. Voting behavior and other forms of political participation in the U.S. 4 lectures. Prerequisite: POLS 110.

**POLS 318 Political Behavior (4)**

(formerly POLS 380)

Political behavior of individuals and groups examined in light of biological, economic, psychological and social-psychological theories and research, including emphasis on the relationship between attitudes and behavior. 4 lectures. Prerequisite: POLS 110.

**POLS 319 Legislative Process (4)**

(formerly POLS 335)

Theory and practice of representative government in the United States and other selected political systems. Organization and procedures in Congress, state legislatures and local legislative bodies. Use of simulations will be encouraged. 4 lectures. Prerequisite: POLS 110.

**POLS 320 Politics of Global Survival (4)***(formerly POLS 304)*

Consideration of global survival from east-west, north-south and global perspectives. Arms race, development, and the political dimensions of energy, environment, food and population. 4 lectures. Prerequisite: POLS 225 or junior standing.

**POLS 324 International Politics (4)***(formerly POLS 312)*

International political processes and problems. Foreign policies and politics in relations between states. Conflicts and adjustments. Analyses of selected problems. 4 lectures. Prerequisite: POLS 225.

**POLS 325 Contemporary Global Political Issues (3)***(formerly POLS 370)***GE D4b**

Coverage of current international political issues. Directed toward making students more aware of issues, problems, tensions in the international arena, relationship of the western and nonwestern countries to these issues, emphasizing both causes and effects. 3 lectures. Prerequisite: POLS 110.

**POLS 326 World Food Politics (3)***(formerly POLS 371)***GE D4b**

Self-reliant, food-first politics of the hungry poor in the less-developed countries; political support of food policies in the U.S. and other developed nations. Moral, ecological and commodity politics of food in a variety of cultural settings which direct food production, consumption and distribution and reduce food demand through population stabilization. 3 lectures. Prerequisite: POLS 225 or junior standing.

**POLS 327 Inter-American Relations (4)***(formerly POLS 311)*

Inter-American affairs. Political, economic, and social problems; forces motivating cultural behavior, economic development, trade, distribution of resources, institutional organization. Finding and evaluating authoritative source materials on Latin America. 4 lectures. Prerequisite: POLS 225.

**POLS 328 Politics of Developing Areas (4)***(formerly POLS 384)*

Process of political development in the Third World with appropriate examples taken from particular areas and countries. 4 lectures. Prerequisite: POLS 225.

**POLS 329 Comparative Politics (4)***(formerly POLS 382)*

Comparative study of the governments of selected Western and non-Western countries. Case studies. 4 lectures. Prerequisite: POLS 225 or POLS 110.

**POLS 330 Modern Political Thought (4)***(formerly POLS 306)*

Theories of political participation and the relationship between the individual and the state as developed in the works of influential thinkers such as Locke, Rousseau, Mill and Marx. 4 lectures. Prerequisite: POLS 230.

**POLS 334 Jurisprudence (3)****(Also listed as PHIL 334)****GE C3**

Normative and analytic questions about law. Nature of law and legal systems. Justification of law. Moral obligation to obey the law. Nature and justification of punishment. Guilt and legal responsibility, liberty and justice. 3 lectures. Prerequisite: PHIL 230 or PHIL 231.

**POLS 337 American Political Thought (4)***(formerly POLS 307)*

The central political ideas of America's leading thinkers from the Puritans to the present. 4 lectures. Prerequisite: POLS 110, POLS 230.

**POLS 341 American Constitutional Law (4)***(formerly POLS 321)*

United States Constitution as interpreted by the Supreme Court. Decisions in the areas of taxation, separation of powers, nature of congressional presidential powers. Emphasis on social, economic and political factors. 4 lectures. Prerequisite: POLS 110.

**POLS 343 Civil Rights in America (4)***(formerly POLS 323)***USCP**

Case-based examination of race, ethnic and gender discrimination in the United States. The course emphasizes the response of the Supreme Court to issues of equality including affirmative action and abortion. 4 lectures. Prerequisite: POLS 110.

**POLS 344 Civil Liberties (4)***(formerly POLS 322)*

Role of Supreme Court as interpreter of Constitutional rights and liberties, freedom of expression, religion and the press, search and seizure, due process of law. 4 lectures. Prerequisite: POLS 110.

**POLS 345 Judicial Process (4)***(formerly POLS 336)*

Examines legal processes, emphasizing political influences on law. Topics may include: types of law, legal culture, state and federal courts, criminal trials, the role of police, judges, attorneys in the legal system. 4 lectures. Prerequisite: POLS 110.

**POLS 351 Public Administration (4)***(formerly POLS 314)*

Development of the management functions in government. Survey of administrative concepts and cases. Attention given to national, state and local administrative systems. Case studies and simulations. 4 lectures. Prerequisite: POLS 110.

**POLS 360 Political Analysis (4)***(formerly POLS 305)*

Introduction to methodology research design and quantitative methods used in survey research and political analysis. Bi-variate inferential statistics and SPSS statistical computer programs will be used to analyze political phenomena. 3 lectures, 1 activity. Prerequisite: POLS 180 and STAT 221 or equivalent.

**POLS 375 California State and Local Politics (4)***(formerly POLS 301)*

Political culture, processes, behavior, institutions, public policy and distribution of power in California state and substate governments. 4 lectures. Prerequisite: POLS 110.

**POLS 385 Advanced Model United Nations (2)***(formerly POLS 350)*

Participation in the campus Model United Nations. Procedure, MUN rules of debate, preparation of country positions, area papers, and policy statement for use in mock United Nations sessions. Total credit limited to 6 units. 2 lectures. Prerequisite: POLS 285 or consent of instructor.

**POLS 386 Government Internship (2-12) (CR/NC)***(formerly POLS 340)*

Supervised work experience in a government or related public agency as approved by the college dean. Intern will function as an

employee subject to all the duties and responsibilities of employees engaged in comparable work. 30 hours of work experience per unit of credit. Credit/No Credit grading. Recommended preparation: Junior standing with a minimum 2.5 GPA.

**POLS 400 Special Problems for Advanced Undergraduates (1–4)**

Individual investigation, research, study, or survey of selected problems. Total credit limited to 4 units. Prerequisite: Consent of department head.

**POLS 420 Contemporary U.S. Foreign Policy (4)**  
(formerly POLS 411)

Formulation and conduct of U.S. foreign policy. Analysis of the theory and elements of U.S. strategy; diplomacy, propaganda, economic operations, psychological warfare, and military strategies. 4 lectures. Prerequisite: POLS 225.

**POLS 421 Asian Politics (4)**  
(formerly POLS 417)

Analysis of political, economic, and social institutions and conditions in selected Asian nations. 4 lectures. Prerequisite: POLS 225.

**POLS 422 European Politics (4)**

Comparative study of European political systems before and after the demise of communist governments in Eastern Europe and the USSR. Regional organizations including the European Union and NATO. Discussion of alternative futures for Europe. 4 lectures. Prerequisite: POLS 225 or POLS 327.

**POLS 423 Middle Eastern Politics (4)**  
(formerly POLS 465)

Analysis of political, economic, and social institutions of the Middle East and North Africa. Turkey, Iran, Egypt and Israel are used as case studies to illustrate the mosaic of nationalisms that have developed in that region. 4 lectures. Prerequisite: POLS 225 or junior standing.

**POLS 424 African Politics (4)**  
(formerly POLS 468)

Analysis of indigenous institutions, Western influences, and nationalism in Africa south of the Sahara. Emphasis on post-independence with selective case studies including South Africa. Impact of outside powers on Africa. 4 lectures. Prerequisite: POLS 225 or junior standing.

**POLS 451 Science, Technology and Public Policy (4)**  
(formerly POLS 404)

Techniques for performing technical assessment and impact analysis in communication, transportation, health technologies, aerospace, electronics and other new technologies. Case studies on contemporary problems stemming from the relationship of technology and politics. 4 lectures. Prerequisite: POLS 110.

**POLS 452 Politics of Finance and Planning (4)**  
(formerly POLS 405)

Economic and political factors affecting federal, state and local governments. Intergovernmental relations and policy considerations in finance, debt management and tax administration. Appropriations and audits in government departments, commissions and agencies. 4 lectures. Prerequisite: POLS 110.

**POLS 453 Administrative Theory and Behavior (4)**  
(formerly POLS 441)

Theories, concepts and case studies related to organizations and to the individuals and groups that work in them. Application of concepts to public and non-profit organizations. Research paper required. 4 lectures. Prerequisite: POLS 110 and POLS 351.

**POLS 454 Public Personnel Administration (4)**  
(formerly POLS 442)

Concepts, techniques, and issues related to human resource administration. Techniques and concepts for public and nonprofit organizations. Case studies utilized to illustrate issues in the bureaucracy. Research papers on legislation, application, litigation, and other aspects of personnel administration required. 4 lectures. Prerequisite: POLS 110 and POLS 351.

**POLS 455 Public Policy Analysis (4)**  
(formerly POLS 425)

Methods of analyzing the intent and action of government. Techniques for evaluating the outputs and impacts of governmental policies. Case studies on various domestic issue areas such as transportation, education, housing, welfare, and law enforcement. 4 lectures. Prerequisite: POLS 110.

**POLS 460 Intermediate Political Analysis (4)**

Intermediate social science methodology focusing on stochastic model specification and estimation. Enhancements and generalizations of the basic approaches with applications to multivariate, nonlinear and large sample settings. Increased use of computer packages and data analysis. 3 lectures, 1 activity. Prerequisite: POLS 360.

**POLS 461, 462 Senior Project (2) (2)**

Selection and completion of a project under faculty supervision. Project results presented in a formal paper. Prerequisite: Senior standing (completion of 135 quarter hours), completion of required core courses and concentration. May not be taken CR/NC.

**POLS 470 Selected Advanced Topics (1–4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. 1–4 lectures. Prerequisite: POLS 110, junior standing.

**POLS 471 Municipal Government (4)**  
(formerly POLS 403)

Concepts, policies and politics in urban governments and organization and power-structure issues of modern American municipalities. Inter-governmental relations, finance, and planning problems in city government. 4 lectures. Prerequisite: POLS 110.

**POLS 472 State and Local Government (4)**  
(formerly POLS 401)

Theoretical approaches to and structure, function and problems of state, county and local governments, including case studies, simulations and/or computer research exercises. 4 lectures. Prerequisite: POLS 110.

**POLS 481 Undergraduate Seminar (4)**  
(formerly POLS 463)

Preparation and presentation of current developments in the field of political science, with primary attention to American politics,

or international relations, or public administration. 4 seminars. Prerequisite: Junior or senior in Political Science.

**POLS 484 Community Research Seminar (2)**  
(formerly POLS 450)

Participation in small groups performing action research requested by one or more community agencies. May include surveys, interviewing, on-site evaluations and computer data analysis. Total credit limited to 6 units. 1 seminar, 1 activity. Prerequisite: Junior or senior standing.

**POLS 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**POLS 550 Administration in Developing Nations (4)**  
(formerly POLS 510)

Processes of administration with reference to the differing cultural, political, and economic environments of the developing areas of the world. Impact of technological developments in emerging nations. 4 seminars. Prerequisite: Graduate standing.

**POLS 560 Advanced Political Analysis (4)**

Advanced social science methodology focusing on stochastic model specification and estimation. Topics include maximum likelihood estimation, event count models, time series data, nonparametric analysis, Resampling techniques, and Bayesian Methods. Advanced computer packages will be used to analyze challenging data sets. 3 lectures, 1 activity. Prerequisite: POLS 360 or STAT 322.

## PSC—PHYSICAL SCIENCE

**PSC 101 The Physical Environment: Matter and Energy (4)** **GE B1a**

Introduction to the basic principles of physical science and application of these principles in modern society. Objects at rest and in motion, energy and power, fluids, heat, light, and sound. 3 lectures, 1 laboratory.

**PSC 102 The Physical Environment: Atoms and Molecules (4)** **GE B1a**

Introduction to the basic principles of the atomic, molecular, and sub-atomic behavior of matter, and applications of these principles in modern society. Electricity and magnetism, electrical nature of matter, organic and inorganic chemistry, modern physics, the nucleus. 3 lectures, 1 activity. Prerequisite: PSC 101.

**PSC 103 The Physical Environment: Earth and the Universe (4)** **GE B1a**

Introduction to the basic principles of the Earth sciences and astronomy, and applications of these principles in modern society. Structure and formation of the Earth, earthquakes, weather, oceanography, Solar System, stars, and cosmology. 3 lectures, 1 recitation. Prerequisite: PSC 101.

**PSC 110 Energy for the Present and the Future (3)** **GE B1a**

Detailed qualitative presentation of current and future energy sources along with the associated environmental problems. Energy production, energy consumption, efficient use of energy, fossil

fuels, nuclear fission and alternative sources such as solar, geothermal and fusion energy. 3 lectures.

**PSC 171 Nuclear Weapon Proliferation in the Post Soviet World (3)** **GE B1a**

Science and technology of fission and fusion weapons, effects of nuclear weapons and nuclear radiation, nuclear proliferation. Nuclear arms treaties and the technology of verification. Nuclear reactor technology. 3 lectures.

**PSC 201 Introduction to Physical Oceanography (3)** **GE B1a**

Origin, extent of oceans. Nature of sea bottom, sediments. Causes, effects of ocean circulation, tides and waves. Physical properties of sea water. Interaction with atmosphere and influence on our climate. Shorelines and shoreline processes. Marine environments. Possible field trips. 3 lectures.

**PSC 304 Applications of Physical Science (4)**

Serious problems faced by technological societies worldwide, such as the destruction of ozone, runaway greenhouse effect, smog, acid rain, water pollution, nuclear radiation hazards, and the depletion of fossil fuels. 3 lectures, 1 activity. Prerequisite: PSC 101, PSC 102, PSC 103 or equivalent.

**PSC 305 Patterns of Change (4)**

Patterns of change in the formation and evolution of the Universe, the Earth, and life. Topics include the Big Bang, radiometric dating, plate tectonics, the fossil record, biogeography, and the biochemical evidence that supports evolution. 3 lectures, 1 activity. Prerequisite: PSC 101 or PSC 103 or consent of instructor.

**PSC 424 Organizing and Teaching of Physical Sciences (3)**

Techniques, aims and objectives in the teaching of physical sciences and general sciences at the secondary level. Selection and organization of teaching material. Evaluation of results. 3 lectures. Prerequisite: Evidence of satisfactory preparation in physics and chemistry.

**PSC 461 Senior Project (2)**

Selection and completion of a project under faculty supervision. Project results are presented in a formal report. Minimum of 60 hours total time.

## PSY—PSYCHOLOGY

**PSY 103 Pairing and Marriage (4)**

Functional approach to contemporary dating and pairing patterns with emphasis on developing communication during the early developmental stage of the paired relationships. 4 lectures.

**PSY 104 Effective Study Techniques (3) (CR/NC)**

Provides adequate instruction and practice in specific study skills such as note-taking, time-planning, memory, concentration, reading, test taking, self monitoring, and use of personal resources. Credit/No Credit grading only. 2 lectures, 1 activity.

**PSY 200 Special Problems for Undergraduates (1–4)**

Individual investigation, research, study or survey of selected problems in consultation and with prior approval of instructor. Written report required. Total credit limited to 4 units. Prerequisite: PSY 201 or PSY 202 and consent of department head.

**PSY 201 General Psychology (3)****GE E1**

Introduction to the psychological study of human beings; applications of research in psychobiology, perception, learning, motivation, consciousness, cognition, personality, emotion, development, psychological assessment, social behavior, psychopathology, and psychotherapy. A student may enroll for credit in either PSY 201 or PSY 202, but not both. 3 lectures.

**PSY 202 General Psychology (3)****GE E1**

Introduction to the psychological study of human beings. Applications of research in psychobiology, perception, learning, motivation, consciousness, cognition, personality, emotion, development, psychological assessment, social behavior, psychopathology, and psychotherapy. A student may enroll for credit in either PSY 202 or PSY 201, but not both. 2 lectures, 1 recitation.

**PSY 204 Tutor Training and Certification (2) (CR/NC)**

Group study/tutorial certification program. Prepares students for certification with the College Reading and Learning Association (CRLA) tutor program. Emphasis on effective group study/tutorial strategies and techniques, communication skills, multicultural issues and disability awareness. Credit/No Credit grading only. 1 lecture, 1 activity.

**PSY 205 Human Sexuality (3) (CR/NC)**

Understanding development of personal sexuality. Sexual identity, biological aspects of sexuality, homosexuality, intimate relationships, communication, sexually transmitted diseases, sexual dysfunction, family planning, abortion. Emphasis on maintaining psychological and physical wellness. Credit/No Credit grading only. 3 lectures.

**PSY 212 Interpersonal Communication (4)****(Also listed as SPC 212)**

Introduction to the interaction process in two-person (dyadic) communication settings. Emphasis on the functions of varying messages in the initiation, development, maintenance and termination of personal and professional relationships. 4 lectures.

**PSY 251 Laboratory in Group Activities (1–3) (CR/NC)**

Skills and techniques of solving problems in large and small groups. Conducting and reporting meetings. Analyses of leadership dynamics in campus organizations. Credit/No Credit grading only. Total credit limited to 6 units. 1–3 activities.

**PSY 252 Social Psychology (4)**

How attitudes, beliefs, and behavior are affected by the social situation. Gender roles, prejudice, aggression, altruism, attitudes and persuasion, liking and loving, and group behavior. Use of social psychology to reduce racism and sexism and international conflict, improve relationships, and communicate persuasively. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 254 Family Psychology (4)**

Examination of methodology, theory, and domains of family psychology with emphasis on family behavior as related to clinical, public policy, and professional issues. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 256 Developmental Psychology (4)**

Introduction to the scientific study of development with emphasis on the lifespan, from infancy to old age. Basic research and concepts in understanding social, emotional, cognitive and

contextual influences on development. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 300 Human Development: An Ecological Perspective (4)**

Introduction to lifespan human development as an area of study closely related to developmental psychology. The developing self of the college student within an ecological context. Illustrative examples of research and scholarship focusing on the individual, family and community as interdependent developmental determinants. 4 lectures. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 301 Psychology of Personal Development (4)**

Application of developmental psychology to self awareness. Includes communication skills, self modification skills and examination of life goals and values. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 302 Behavior in Organizations (4)**

Characteristics of functioning organizations and their effects on individuals. Psychological issues relevant to the maintenance of the organization. Motivation, leadership, group phenomena, communication, decision-making, attitudes, personnel selection and organizational change. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 303 Family Interaction (4)**

Examination of the family ecosystem and how it creates reality. Emphasis on how the practitioner can recognize the cues present in patterned behavior in family interaction that produce a family's distinctive style or family type. Normal processes are studied in order to understand how dysfunctional patterns are introduced and reinforced. Focus on the internal dimension rather than the effect of external influences. 4 lectures. Prerequisite: PSY 201 or PSY 202, CD 203 or PSY 254.

**PSY 304 Physiological Psychology (4)****GE E2**

Relationship between physiological and behavioral processes such as learning and memory, language, sleep, and abnormal behavior. Information processing, biochemistry, and structural organization at the cellular and nervous system levels. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 305 Personality (4)**

Personality theories and research. Assessment, dynamics, and development of personality. Trait, behavioral, social learning, cognitive, humanistic, psychoanalytic and biological approaches. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 306 Adolescence (4) (Also listed as CD 306)**

Psychological analysis of the years from prepubescence to young adulthood. Current research on behavior and development during adolescence with emphasis on physical, affective, cognitive, sociocultural, historical, family, peer and school aspects of life during the post-child, pre-adult years. 4 lectures. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 307 Memory and Cognition (4)**

Principles and theories of memory and cognition including processes; models of perception, attention and memory; concept formation; language; intelligence; problem-solving and decision making; creativity; applications to areas such as law, artificial intelligence, and education. 4 lectures. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 309 Psychology of Consciousness (4)**

Characteristics and functions of selected, qualitatively unique patterns of consciousness such as hypnosis, meditation, dreaming, drug experiences and parapsychological phenomena, with particular emphasis on adaptive and maladaptive expressions of these states of consciousness. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 310 Psychology of Death (4)**

Psychological aspects of death, loss and grief, including scientific findings, person-culture transactions and expressions in the arts and humanities. Personal exploration and interdisciplinary application of psychology to issues such as death anxiety, dying processes, funerals, immortality beliefs, suicide, and grieving. 4 lectures. Prerequisite: PSY 201 or PSY 202, or consent of instructor.

**PSY 311 Environmental Psychology (4)**

Interrelationship between behavior and the built and natural environments. Evaluating and understanding environments, environmental stress, and the human aspects of environmental problems. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 314 Psychology of Women (4)**

Central issues in feminine psychology including stereotypes, gender differences, sex-roles, sex-typing, female sexuality, pregnancy and childbirth, women as victims, mental and emotional disorders of women, and aging. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 315 Psychology of Men (4)**

Central issues in male psychology including stereotypes, gender differences, sex-roles and their development, sex and role typing, male sexuality and models of masculinity. Health, mental and emotional disorders of men, and aging. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 317 Psychology of Stress (4)**

Examines the relationship between stress and psychological and physical well-being. Research on the psychological factors influencing stress as well as a description and critical evaluation of methods of stress reduction. Miscellaneous course fee required—see *Class Schedule*. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 318 Psychology of Aging (4)**

Psychological and physiological aging in the context of the culture. Theories and research relating to the issues of stability and both positive and negative changes in perception, learning, memory, intelligence, personality, identity, motivation, sexuality, family relationships, career. Disorders, institutionalization, death and bereavement. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 319 Motivation and Emotion (4)**

Examination of the mechanistic and cognitive-based theories of motivation and emotion. Practical applications of each theory covered in an attempt to understand certain personal and societal behaviors. Research evaluating each theory and diversity consideration. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 320 Nonverbal Communication (4)  
(Also listed as SPC 320)**

Influence of kinesic, proxemic, artifactual, olfactory, paralinguistic and environmental factors in human communication. Theory, research and practice in nonverbal communication. 4 lectures. Prerequisite: SPC 212 or consent of instructor.

**PSY 323 The Helping Relationship (4)**

Basic skills and approaches common to helping relationships with children, adults, and families. Examines theoretical, empirical, and practical applications of helping. Differentiation between professional, paraprofessional, and nonprofessional helping relationships. 2 lectures, 2 activities. Prerequisite: Junior standing, cultural pluralism course, Psychology & Human Development majors only, or consent of instructor.

**PSY 329 Research Methods in Psychology (3)**

Introduction to research methods used in psychology and other behavioral sciences. Topics include the logic and ethics of research; experimental, correlational, and survey methodology; library search strategies; basic statistical procedures; and the format of the research report. 2 lectures, 1 activity. Prerequisite: PSY 201 or PSY 202, STAT 217 or STAT 211, or consent of instructor.

**PSY 330 Behavioral Effects of Psychoactive Drugs (4)**

Pharmacokinetic, pharmacodynamic and behavioral effects of psychoactive drugs. Social and psychological issues related to drug use and misuse. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 333 Quantitative Research Methods for the Behavioral Sciences (3) (Also listed as SPC 333)**

Thorough introduction to the quantitative aspects of empirical research. Using SPSS statistical software, students will learn how to choose, conduct, and interpret analyses of research data from different behavioral science disciplines. 2 lectures, 1 activity. Prerequisite: PSY 329 or SOC 333 or SPC 312, and STAT 211 or STAT 217, or consent of instructor.

**PSY 351 Group Dynamics (4)**

Dynamics of small groups. Topics include functions of groups, group structure, power, leadership, intragroup conflict, personal space and territoriality, groups as agents of societal and personal change. Demonstrations emphasizing experiential learning in groups. 2 lectures, 2 activities. Prerequisite: PSY 252 or PSY 323.

**PSY 359 Applied Psychology Research Methods (4)**

Methods of testing hypotheses and evaluating social interventions in real-world settings. Interview, survey, correlation, field experimental, and quasi-experimental methods. Program evaluation. Experience with data collection and computer analysis. 3 lectures, 1 activity. Prerequisite: PSY 329.

**PSY 360 Applied Social Psychology (4)**

Applications of social psychology to education, business and industry, environmental problems, interpersonal and intergroup relations, health and welfare, mass communication, judicial systems, and politics. Analysis of social and organizational problems, methods of intervention, and program evaluation. 4 seminars. Prerequisite: PSY 252.

**PSY 370 Introduction to Clinical and Counseling Psychology (4)**

Introduction to the fields of clinical and counseling psychology. History, education and training, theories, assessment, diagnosis, and treatment. Introduction to diverse settings, ethical principles, legal guidelines, credentialing and employment opportunities. 4 lectures. Prerequisite: Any two Psychology courses.

**PSY 390 Career Planning (2) (CR/NC)**  
(Also listed as CD 390)

Individual career and graduate school planning. Current employment issues for college graduates such as career profiles, trends and work environments. Credit/No Credit grading only. 2 seminars. Prerequisite: Junior or senior standing or consent of instructor.

**PSY 400 Special Problems for Advanced Undergraduates (1-4)**

Individual investigation, research, study or survey of selected problems in consultation and with prior approval of instructor. Written report required. Total credit limited to 4 units. Prerequisite: PSY 201 or PSY 202 and consent of department head.

**PSY 405 Abnormal Psychology (4)**

Normal and abnormal behavior in everyday life. Anxiety, somatoform, dissociative, mood, childhood, personality, psychotic, cognitive, eating, and substance use disorders and their treatment. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**PSY 410 History and Systems of Psychology (4)**

Survey of the philosophical and scientific roots of modern psychology, pioneer laboratories, systems, and schools of psychology, the refining of experimental methods, and applications of psychology in testing and psychological services. Examination of contributions by women and minorities in psychology. 4 seminars. Prerequisite: PSY 201 or PSY 202, PSY 305, PSY 458 or consent of instructor.

**PSY 413 Parent-Child Relationships (4)**

Application of major theories to understanding of parent-child relations. Examination of primary prevention strategies and programs. Review of current research and evaluation of literature on parent-child interactions. 4 lectures. Prerequisite: PSY 256 or CD 209, junior standing.

**PSY 419 Self and Identity (4)**

Concepts, theories, and research related to the development of the self across the lifespan. Examination of the influence of temperament, culture, individuation, self-esteem, self-awareness, roles and identity on maturity. 4 seminars. Prerequisite: PSY 201 or PSY 202 and PSY 256 or consent of instructor.

**PSY 420 Social and Emotional Development (4)**

Analysis of the development of social interaction and emotional processes across the lifespan. Research and theories on such behaviors as attachment and love, empathy and altruism, competition and aggression, peer relations and cooperation. 4 seminars. Prerequisite: PSY 256 or consent of instructor.

**PSY 421 Cognitive Development (4)**

Examination of significant processes in the development of cognition across the lifespan. Theory and research regarding Piagetian theory, information processing, problem solving, creativity, and language development. Educational and counseling applications. 4 seminars. Prerequisite: PSY 201 or PSY 202, PSY 307.

**PSY 422 Lifespan Sexuality (4)**

Sexual interest, activity, and functioning from birth through the late adult years. Influence of sexual roles, attitudes, and adaptation during the life span. Sexual practices in our society. Therapies for

enhancing a comfortable sexuality. 4 lectures. Prerequisite: PSY 201 or PSY 202, or PSY 205, and junior standing.

**PSY 429 Experimental Psychology (4)**

Research methodology and experimental design. Application of descriptive and inferential statistics to data from various content areas including development, animal and human learning, memory, cognition, and psychophysical processes. 3 lectures, 1 laboratory. Prerequisite: PSY 329, junior standing or consent of instructor.

**PSY 430 Sensation and Perception (4)**

Principles of sensory systems, psychophysics, attention and the perception of color, shape, movement, space, and time. Survey of the development of perception through the lifespan. 4 lectures. Prerequisite: PSY 201 or PSY 202, and PSY 307.

**PSY 432 Psychological Testing (4)**

Theory and practice of psychological measurement and testing. Principles of test construction, administration, and interpretation. Survey of common testing domains such as intelligence, scholastic aptitude and achievement, and personality. 4 lectures. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 444 The Atypical Infant (4)**  
(Also listed as EDUC 444)

Exploration of issues pertinent to the development of atypical infants. Relationship of theory and research to intervention efforts with handicapped, developmentally delayed infants, and other at-risk infants. 3 seminars, 1 activity. Prerequisite: Junior standing, PSY 256 or CD 209, and EDUC 440 or consent of instructor.

**PSY 450 Family Intervention (4)**

Basic elements of marriage and family therapy and crisis intervention. Emphasis on concepts, goals, and techniques of various family therapy approaches and family crisis intervention. 4 lectures. Prerequisite: PSY 254, or graduate standing.

**PSY 453, 454 Supervised Fieldwork (5) (5) (CR/NC)**

Supervised fieldwork experience in various community, governmental, and educational settings. Applied psychological, developmental, or educational experiences determined by participating institution, supervising faculty member, and student. Maximum of 5 units per quarter. Credit/No Credit grading only. Prerequisite: PSY 323, Psychology majors, junior standing, and consent of instructor.

**PSY 456 Behavioral Disorders in Children (4)**

Applications of psychological principles to childhood behavioral disorders. Aggression, delinquency, stress reactions, motivational, perceptual-attentional deficiencies, psychoses, anxiety disorders, biological dysfunctions, and retarded social and cognitive development. 4 seminars. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 458 Learning (4)**

Theoretical and philosophical foundations of the experimental analysis of behavior. Principles of classical and operant conditioning including aversive control of behavior through punishment and avoidance learning and the theoretical basis for behavior therapy techniques and applications of learning principles in education and health settings. 4 seminars. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 459 Lifespan Theories (4)**

Comparative study of theories that have been offered as explanations for lifespan development. Controversial issues, evaluations and applications of theories. Emphasis on biological, psychological, and social aspects of lifespan development. 4 seminars. Prerequisite: PSY 201 or PSY 202, junior standing.

**PSY 460 Child Abuse and Neglect (4)**

Issues in child maltreatment, including definitions and forms, causes, consequences, assessment, reporting, treatment, and prevention. Possible links among research, intervention, and public policy will be emphasized. 4 seminars. Prerequisite: PSY 201 or PSY 202 and junior standing.

**PSY 461 Senior Project Seminar (1)**

Discussion of occupational and graduate school opportunities and of current issues in psychology for the purpose of defining professional objectives and individual projects for PSY 462. Senior project progress reports with class critique. Psychology majors only. 1 seminar. Prerequisite: PSY 329, PSY 453, Graduation Writing Requirement.

**PSY 462 Senior Project (3)**

Design and completion of a faculty-supervised project in psychology. The project must be presented in a formal, written report. Minimum of 90 hours total time. Psychology majors only. Prerequisite: PSY 461.

**PSY 465 Cross-Cultural Issues in Psychology (4)**

Psychological, cultural, ecological and behavioral influences on human development in different cultural settings. Focuses on from one to three different cultures outside the U.S. in any given quarter. 4 seminars. Prerequisite: PSY 201 or PSY 202 and junior standing.

**PSY 470 Selected Advanced Topics (4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 8 units. 4 seminars. Prerequisite: Consent of instructor.

**PSY 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**PSY 494 Psychology of Technological Change (4)**

Examines the impact of technological change on the psychological and social characteristics of people and organizations. Identifies personal, social and organizational factors which provide obstacles and opportunities for technological change. Survey of methods of reducing the negative impact of change. 4 seminars. Prerequisite: PSY 201 or PSY 202 and senior standing.

**PSY 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**PSY 500 Individual Study (1-6)**

Advanced study planned and completed under the direction of a member of the department faculty. Open only to graduate students who have demonstrated ability to do independent work. Enrollment by petition. Only 6 units may be applied to degree requirements. Prerequisite: Consent of department head, graduate major adviser and supervising faculty member.

**PSY 504 Neuropsychology and Psychopharmacology (4)**

Advanced course in brain-behavior relationships. Neuropathology of brain disorders including the neurochemical etiology and treatment of mental illness and chemical dependency. 4 seminars. Prerequisite: PSY 304.

**PSY 555 Counseling and Communication (4)  
(Also listed as EDUC 555)**

Overview of the counseling profession, history, philosophy, theory, and ethics. Emphasis on developing interviewing, assessment and communication skills. Required practicum. 3 seminars, 1 activity. Prerequisite: Graduate standing or consent of instructor.

**PSY 556 Ethnic Counseling (4)  
(Also listed as EDUC 556)**

Socio-psychological and psycho-historical analysis of the visible ethnic and ethnic experience. Effects of poverty, history and the significance of oppression. Counseling techniques, assessment, community relations and required activities. 3 seminars, 1 activity. Prerequisite: Graduate standing.

**PSY 558 Career Counseling (4)**

Sources, methods and techniques for gathering, evaluating and disseminating occupational, technological and educational information through career counseling. 4 seminars. Prerequisite: Graduate standing.

**PSY 560 Individual Therapy: Theory and Application (4)**

Counseling theories and concepts applied to individuals. Develop skills in interviewing, assessment, intervention selection, termination and crisis intervention. Ethics and law included. 3 seminars, 1 activity. Prerequisite: EDUC/PSY 555, PSY 305 or consent of instructor.

**PSY 561 Group Counseling (3)  
(Also listed as EDUC 561)**

Theory and practice of group counseling, client selection, group structure, process and termination. Application of theories to specific developmental groups. Communication and facilitation skills emphasized with relevant ethics and law. 2 seminars, 1 activity. Prerequisite: EDUC/PSY 555, EDUC/PSY 560 or consent of instructor.

**PSY 564 Ethics and the Law: MFC Counseling (4)**

Ethical, legal and case management issues related to individual, child, family and group therapy. Client rights and professional orientation to ethical standards and state regulation of clinical practice. 4 seminars. Prerequisite: EDUC/PSY 560, PSY 566, PSY 450 or consent of instructor.

**PSY 565 Diagnosis and Treatment: Psychopathology (4)**

Assessment of mental status. Diagnostic and statistical Manual of Mental Disorders, treatment planning, treatment case documentation and research applied to client psychopathology. 3 seminars, 1 activity. Prerequisite: EDUC/PSY 560, PSY 405, or consent of instructor.

**PSY 566 Group Therapy: Theory and Application (4)**

Group therapy theory, leadership and research applied to client assessment, screening, treatment selection, evaluation and termination. Ethics, law included. 2 seminars, 2 activity. Prerequisite: EDUC/PSY 560, or consent of instructor.

**PSY 567 Counseling the Elderly and Their Families (3)**

Dynamics of aging and family transitions as applied to counseling. Application of medical, psychological, DSM IV, physiological, crisis and ethnic concerns with a required practicum. 2 seminars, 1 activity. Prerequisite: EDUC/PSY 555, PSY 459, equivalent or consent of instructor.

**PSY 568 Advanced Psychotherapies (4)**

Theory and application of advanced approaches in psychotherapy, including: cognitive-behavioral therapies, psychodynamic therapies and humanistic/existential therapies. Class schedule will list therapy selected. Total credit limited to 12 units. 4 seminars. Prerequisite: EDUC/PSY 560, PSY 565 or consent of instructor.

**PSY 569 Counseling Clinic Practicum (3) (CR/NC)**

Applied experience and instruction in assessment, diagnosis, treatment planning and treatment of individuals, couples, families and children under direct supervision of faculty in program clinic. Weekly meetings. Total credit limited to 12 units. Credit/No Credit grading only. Prerequisite: EDUC/PSY 560, PSY 405, PSY 450, or consent of instructor.

**PSY 570 Selected Topics in Psychology and Human Development (4)**

Directed group study of selected topics for advanced students. Open to graduate students and selected seniors. *Class Schedule* will list topic selected. Total credit limited to 8 units. 3 seminars, 1 activity. Prerequisite: Graduate standing or consent of instructor.

**PSY 571 Family Therapy: Theory and Application (4)**

Theory and application of process, structural and systems approaches to family and couple therapy. Assessment, diagnosis, treatment and follow-up of family and couple therapy with required supervised activities. Ethics and law related to family therapy. 3 seminars, 1 activity. Prerequisite: PSY 450, EDUC/PSY 555 or consent of instructor.

**PSY 572 Child and Adolescent Therapy: Theory and Application (4)**

Assessment, diagnosis, treatment planning and therapeutic modalities appropriate for children and adolescents. Seven hours of instruction in abuse and neglect of children with relevant ethics and law. Effective parenting approaches and integration of family treatment. 3 seminars, 1 activity. Prerequisite: EDUC/PSY 560, PSY 566, PSY 405, PSY 456 or consent of instructor.

**PSY 573 Field Experience: Counseling (6) (CR/NC)**

Practical application of guidance services and counseling in public schools, colleges and community settings. Weekly seminars with university staff included. Total credit limited to 12 units. Credit/No Credit grading only. Prerequisite: PSY 569 and consent of M.S. program committee.

**PSY 574 Applied Psychological Testing (4)**

Administration, scoring and interpretation of psychological tests. Reliability and validity of psychological measures. Ethical and cultural issues in testing. 4 seminars. Prerequisite: Graduate standing.

**PSY 575 Gender, Couple and Sexual Dysfunction Therapy (4)**

Antecedents to sex-role identity, gender aware therapy, couple therapy, treatment of spousal abuse, assessment, diagnosis, treatment of sexual dysfunction. 4 seminars. Prerequisite: PSY 450 and PSY 560.

**PSY 576 Field Experience: Marital and Family Counseling (4) (CR/NC)**

Supervised experience in applied psychotherapeutic techniques, assessment, diagnosis and treatment of individual, marital, family and child relationship problems. Total credit limited to 16 units. Credit/No Credit grading only. Weekly seminar with on-site and university supervisors. Prerequisite: PSY 569 and consent of M.S. program committee.

**PSY 585 Research Methods for Counseling Psychology (4)**

Research methods relevant to practitioners in counseling psychology and human services. Develop the ability to design, carry out and evaluate pertinent psychological research. Basic understanding of descriptive and inferential statistics and the use of computers in the analysis of data. 2 seminars, 2 activities. Prerequisite: Graduate standing or consent of instructor.

**PSY 586 Cooperative Education Experience (6) (CR/NC)**

Advanced study analysis and part-time work experience in student's career field; current innovations, practices, and problems in administration, supervision, and organization of business, industry, and government. Must have demonstrated ability to do independent work and research in career field. Total credit limited to 9 units. Credit/No Credit grading only. Prerequisite: Graduate standing and consent of instructor.

**PSY 590 Research Applications in Psychology and Human Services (4)**

Application of research techniques to problems in psychology and human services. Qualitative research design and analysis, needs assessment and program evaluation. Emphasis on the design of data collection instruments, data collection and analysis in an applied research project. 2 seminars, 2 activities. Prerequisite: PSY 585.

**PSY 596 Cooperative Education Experience (12) (CR/NC)**

Advanced study analysis and full-time work experience in student's career field; current innovations, practices, and problems in administration, supervision, and organization of business, industry, and government. Must have demonstrated ability to do independent work and research in career field. Total credit limited to 9 units. Credit/No Credit grading only. Prerequisite: Graduate standing and consent of instructor.

**PSY 599 Thesis (4)**

Completion of a thesis pertinent to the fields of psychology and human services. Supervision. Prerequisite: PSY 590.

**REC-RECREATION ADMINISTRATION****REC 100 Leisure Education and Lifestyle Management (2)****GE E2**

Exploration of the impact of work, play, and leisure upon society. Analysis of theoretical views of play and the relationship of positive leisure values upon the development of a well-integrated lifestyle. Foundations for understanding and assessment of personal leisure well-being. 1 lecture, 1 recitation.

**REC 101 Introduction to Recreation, Parks and Tourism (3)**

History, philosophy, theory, and organization of recreation and leisure services. Emphasis upon functions, areas, facilities, clientele, and career opportunities. Field visits required. 3 lectures.

**REC 110 Career Development and Planning in Recreation Administration (1) (CR/NC)**

Development and application of philosophy, learning strategies, and problem solving for career planning in Recreation Administration. Credit/No Credit grading only. 1 activity. Prerequisite: Recreation administration majors only.

**REC 127 Cross-Cultural Dimensions of Leisure (4)**

Sociological, psychological, and cultural aspects of leisure behavior. Needs, motivations, constraints, values and benefits explored. Cultural diversity as it relates to recreation and tourism and the natural resources. 4 lectures.

**REC 203 Resource Law Enforcement (3)  
(Also listed as FNR 203)**

Law enforcement applied to natural resource conservation on public and private lands. Examination of state and federal laws related to fish and wildlife management. Problems associated with implementation of resource laws examined. 3 lectures.

**REC 210 Introduction to Program Design (4)**

Methods of program planning, organization, implementation and evaluation in public and private settings. Interrelationship of needs and interests of people, physical settings, and activity content. Emphasis on program construction and scheduling in social recreation, cultural arts, health and fitness and sport/games areas. 2 lectures, 2 activities. Prerequisite: REC 101, REC 127 or consent of instructor.

**REC 252 Recreation and Special Populations (4)**

Introduction to special populations and therapeutic recreation. Specialized leadership and communication techniques. Modification requirements for programs, areas, facilities, equipment, and supplies. Exploration of disability rights issues, including legislation which impacts the delivery of recreation and leisure services. 3 lectures, 1 activity. Prerequisite: REC 127 or consent of instructor.

**REC 260 Intramural and Recreational Sports (3)**

Philosophy, foundations, policy and techniques underlying intramurals and recreational sport programs in schools, public, private and commercial settings. 2 lectures, 1 activity. Prerequisite: REC 210 or consent of instructor.

**REC 300 Computer Applications in Resource Management (2) (Also listed as FNR 300)**

Resource management applications of microcomputers. Software programs include forest and natural resource management planning, forecasting, analysis of systems, and resource data base management for multiple use objectives. Forestry and natural resource examples will be used. Miscellaneous course fee required—see *Class Schedule*. 1 lecture, 1 laboratory. Prerequisite: AG 250 or CSC 113, junior standing or consent of instructor.

**REC 302 Environmental and Wilderness Education (4)**

Education and teaching techniques that apply to learning experiences in an outdoor environment. Impact of natural resource usage that affects sociological, biological and physical resources. Educational strategies for presenting environmental learning to

grades K-12 and selected environments. 3 lectures, 1 activity. Prerequisite: REC 210.

**REC 305 Recreation Areas and Facilities Management (4)**

Management of recreation areas and facilities: clientele considerations, facility and outdoor area site planning; day-to-day operations of common recreation areas and facilities. Agency visitation required. 3 lectures, 1 laboratory. Prerequisite: REC 210.

**REC 311 Environmental Interpretation (4)  
(Also listed as FNR 311)**

Interpretation of the biological, physical and aesthetic values of the natural elements of our environment; organization and presentation of interpretive materials by oral, written, and display methods of communication. 3 lectures, 1 laboratory. Prerequisite: SPC 201 or SPC 202.

**REC 312 Employee Services and Recreation (3)**

Administrative patterns, financing, programming, personnel, and legal concerns in programs designed to utilize leisure for employee motivation and productivity. Analysis of military, corporate, and contract services. Field visits required. 3 lectures.

**REC 313 Issues in Natural Resources and Agri-Tourism (4)**

Investigation of tourism industry from a sustainable tourism perspective. Examination of ecotourism, agri-tourism, rural tourism, sustainable tourism development, and adventure travel. Emphasis on tourism that sustains social, cultural, heritage, and natural environments while generating economic development. 3 lectures, 1 laboratory. Prerequisite: REC 210 or consent of instructor.

**REC 314 Travel and Tourism Planning (4)**

The history and development of tourism. Emphasis on the impact of tourism activity on individual cultures and the natural environment. Environments examined include urban, rural, and National and local park systems. Travel motivations, travel research and planning models. Field visits required. 4 lectures. Prerequisite: REC 210 or consent of instructor.

**REC 317 Conventions and Meeting Management (3)**

Role of conventions and meeting management in the area of tourism. Factors involved in meeting planning for small and large groups to include committees, amenities, logistics of operations and evaluation. Field visits required. 3 lectures. Prerequisite: REC 210 or consent of instructor.

**REC 324 Legal and Legislative Patterns in Recreation Administration (4)**

Legislative and legal aspects of public, private, commercial, and non-profit recreation and tourism agencies. Emphasis on risk management, liability, insurance, and negligence. Understanding of legal foundations and the legislative process. 3 lectures, 1 laboratory. Prerequisite: REC 210.

**REC 330 Directed Field Experience (3) (CR/NC)**

Practical work experience in related phases of recreation administration in organization or agency under qualified supervision. Minimum of nine hours per week. Credit/No Credit grading only. Total credit limited to 9 units. Prerequisite: REC 210 and consent of instructor.

**REC 360 Assessment and Evaluation of Recreation, Parks and Tourism (4)**

Evaluation of a full service program delivery system using a variety of research methodologies. Needs assessment, program evaluation, and decision making based on data analysis. 3 lectures, 1 laboratory. Prerequisite: REC 210, CSC 113/AGB 250, STAT 217.

**REC 400 Special Problems For Advanced Undergraduates (1–3)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 6 units, with a maximum of 3 units per quarter. Prerequisite: Consent of curriculum coordinator.

**REC 405 Management and Leadership for Recreation Administration (4)**

The study, analysis, and practice of management and leadership processes as they are applied to recreation organizations: planning, organizing, motivating, and controlling. Emphasis upon application of theories and practices in specific recreation settings. 4 lectures. Prerequisite: REC 324.

**REC 410 Resource Recreation Management (4)  
(Also listed as FNR 410)**

Practices of management of resource recreation on private and public lands. Consideration of the following management systems: biophysical, user/visitor, facilities, equipment, fiscal, personnel will be made in the provision of resource recreation services. Case studies in mass recreation and wilderness areas will be examined. 3 lectures, 1 laboratory. Some weekend labs necessary. Prerequisite: FNR 112 or consent of instructor.

**REC 414 Organization and Development of Commercial Leisure Services (4)**

Historical and contemporary development of the domains of commercial recreation and related services. Role of entrepreneurial activity. Procedures for creating and managing a socially responsible commercial leisure service. 3 lectures, 1 laboratory. Prerequisite: BUS 212, BUS 346 and senior standing.

**REC 417 Resource Recreation Planning (3)  
(Also listed as FNR 417)**

Development and analysis of resource recreation plans. Planning theory, types of plans, scheduling techniques, projecting supply and demand, application of models, and economic evaluations. Basic recreation planning skills examined. Examples emphasize planning for parks and recreation. Miscellaneous course fee may be required—see *Class Schedule*. 2 lectures, 1 laboratory. Prerequisite: FNR 112 or consent of instructor.

**REC 424 Financing Recreation Services (4)**

Financing leisure products and services in public, private, commercial and voluntary settings. Emphasis on sources and methods of financing; grant development; operational/ financial cost analysis; forecasting, budgeting, pricing and fiscal master planning through use of computer technology. 4 lectures. Prerequisite: BUS 212, CSC elective, REC 360.

**REC 450 Grant Development and Writing (4)**

Principles of all aspects of grantmanship; researching grant funding resources from both the private and public sector, preparing the grant proposal, and grant administration. Field visits required. 4 lectures. Prerequisite: ENGL 215 or ENGL 218 or consent of instructor, junior standing.

**REC 460 Research in Recreation, Parks and Tourism (4)**

Research design, literature review, questionnaire and interview schedule construction, sampling methods, data array and analysis, and computer applications. Selection of senior project topic and proposal development. 3 lectures, 1 laboratory. Prerequisite: CSC 113 or AG 250, STAT 217, REC 360.

**REC 461 Senior Project (3)**

Completion, under faculty supervision, of an investigative project typical of problems which graduates must solve in their fields of employment. Required minimum of 90 hours. Analytical, formal report is required. Prerequisite: Senior standing and completion of REC 460.

**REC 463 Pre-Internship Seminar (1) (CR/NC)**

Exploration of internship opportunities and practices. Internship selection process and procedures introduced. Recommended enrollment two quarters prior to REC 465. Credit/No Credit grading only. 1 seminar. Prerequisite: Senior standing.

**REC 465 Internship (6) (CR/NC)**

400 hours of full-time concentration-specific practical work experience over a ten-week period in an approved agency. Comprehensive involvement in agency program. Not open to T R Concentration students. Credit/No Credit grading only. Prerequisite: Minimum GPA of 2.0; 1,000 verified hours of adviser-approved paid and/or volunteer experience subsequent to high school; completion of all university coursework other than Internship; approval of Curriculum Coordinator.

**REC 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1–3 lectures. Prerequisite: Consent of instructor.

**REC 471 Selected Advanced Laboratory (1–3)**

Directed group laboratory study of selected topics for advanced students. Open to graduate and undergraduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1–3 laboratories. Prerequisite: Consent of instructor.

**REC 472 Leadership Practice (1)  
(Also listed as FNR 472)**

Leadership styles used in the natural resources management and recreation administration professions. Study and practice in setting goals and objectives; developing, evaluating and implementing an entrepreneurial project plan; decision making and problem-solving. 1 laboratory. Prerequisite: Junior standing or consent of instructor.

**REC 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**REC 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor

required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

## RELS—RELIGIOUS STUDIES

### RELS 304 Judaism (3) GE C3

Origin, beliefs and practices of Judaism and central themes in the Hebrew Bible. The relation of Judaism to other religions in the ancient Near East, such as the Zoroastrian and Egyptian traditions. The emergence of modern Judaism and Zionism. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125, and PHIL 230 or PHIL 231 or permission of the instructor.

### RELS 305 Christian Origins (3) GE C3

Origin, belief and practices of Christianity. Its early roots in the Messianic idea in Judaism. The Gospels, the life and ministry of Jesus, the letters of Paul, the development of the Catholic Church, heresies, and apocalypticism will be emphasized. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125, and PHIL 230 or PHIL 231 or permission of the instructor.

### RELS 306 Hinduism (3) GE C3

Origin, beliefs and practices of the *Veda* and the *Upanisads*. The teachings of the *Bhagavad Gita*. The six systems of Hindu philosophy. Modern Hindu institutions and social philosophy. Encounter with heterodox religions, such as the Jains and Sikhs. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125, and PHIL 230 or PHIL 231 or permission of the instructor.

### RELS 307 Buddhism (3) GE C3

Origin, beliefs, and practices of Buddhist traditions. The life of Gautama, the historical Buddha. Philosophies of Theravada, Mahayana and Tantrism. Development of Buddhism in China, Tibet, Japan, Southeast Asia. American encounter with Taoist, Shinto and Confucian traditions. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125, and PHIL 230 or PHIL 231 or permission of the instructor.

### RELS 308 Islam (3) GE C3

Beliefs, ethics and religious practices of Islam. Historical development of the Islamic tradition from the Prophet Muhammad. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125, and PHIL 230 or PHIL 231 or permission of the instructor.

## SCM—COLLEGE OF SCIENCE AND MATHEMATICS

### SCM 100 Orientation to the College of Science and Mathematics (2) (CR/NC)

Application of learning strategies, problem-solving methodologies, academic planning and career selection for students in the science and mathematics disciplines. Concurrent enrollment in specific orientation or content course is desirable. Credit-No Credit grading only. 1 lecture, 1 activity.

### SCM 101 Introduction to the Health Professions (1) (CR/NC)

Preparation for a health professions career and examination of various health professions. Emphasis on planning and developing an individual pre-health plan, including academic course selection, obtaining appropriate experiences/activities, and review of the elements of a strong application. Intended for freshmen and sophomores. Credit/No Credit grading only. 1 lecture.

### SCM 150 Supplemental Instruction Discussion (1) (CR/NC)

Facilitated study and discussion of theory, concepts, and applications of content material from selected courses. Credit/No Credit grading only. Total credit limited to 4 units. 1 laboratory. Prerequisite: Concurrent enrollment in the designated section of the associated course.

### SCM 300 Early Field Experience, Science/Mathematics (2) (CR/NC)

A minimum of 20 hours of supervised observation of secondary school science or mathematics classes. These observations will be discussed and evaluated during weekly meetings. Credit/No Credit grading only. 2 lectures.

### SCM 363 Health Professions Internships (2) (CR/NC)

Structured experiences for pre-health students, such as County Health Agency internships designed to promote understanding of social and public purpose of chosen professions, or internships designed to provide observational experiences in a modern clinical setting. *Class Schedule* will list topic selected. Limited space availability. Application process for enrollment. Total credit limited to 12 units; a maximum of 6 units may be applied toward degree requirement. Credit/No Credit grading only. Prerequisite: Sophomore standing; must have been enrolled at Cal Poly for at least two quarters; consent of instructor.

### SCM 451 Ethics in the Sciences (3)

The practice, performance and application of science from the standpoint of ethics. Includes issues involving plagiarism, data handling, fraud, safety and selected applications in specific science careers. Models for the analysis and resolution of ethical dilemmas are presented. 3 seminars. Prerequisite: Junior standing.

## SOC—SOCIOLOGY

### SOC 105 Introduction to Sociology (4) GE D4a

The groups and societies humans build and how these affect our behavior. Special attention is given to the analysis of how factors such as gender, race or ethnicity, income, and occupation interact with the five basic social institutions of society: family, economy, government, religion and education. 4 lectures.

### SOC 106 Social Problems (4)

Order versus conflict theories of social problems; the role of values in the study of these problems; methods of study; proposed solutions including political approaches. Three types of problems investigated: social conflict, structural problems, and deviant behavior. 4 lectures.

### SOC 226 Sociology of the Life Cycle (4)

Change and continuity of the self through the life course. Impact of aging on the physical, emotional, intellectual and social aspects of well-being, and how this knowledge can be applied to enhance the quality of life. 4 lectures.

### SOC 301 Social Work and Social Welfare Institutions (4)

Introduction to the field of social welfare. Development of social work and social welfare services; major issues in social service policy. Scope and diversity of specific programs in the social services. Analysis of current programs and the recipients of welfare services. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 305 Sociology of Social Movements (4)**

Analysis of the causes and impact of social movements, with a focus on the contemporary world. Included are events ranging from riots, lynchings and panics to political, religious and racial social movements. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 306 Sociology of the Family (4)**

Description and analysis of family relationships; role of family in society, effects of society on family economy, structure and change. Other topics include courtship, marriage, parenting, divorce and alternative family forms. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 309 The World System and Its Problems (4) GE D4b**

Analysis of the historical background, structure, and dynamics of the world system; examines such issues as the origins of Third World poverty, colonialism, the changes in the world's dominant economic powers, the fall of communism, the growing economic competition between Europe, North America, and Asia; and possible strategies for the economic development of the Third World. 4 lectures. Prerequisite: Junior standing.

**SOC 310 Self, Organizations and Society (4)**

Analysis of the interactions relating to the development of self. Examination of the reciprocal interactions between biology, personal environment, and society. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 311 Sociology of Gender (4)**

Description and analysis of the impact of gender definitions on men and women in society. Special attention is given to the learning process; the creation and perpetuation of gender stereotypes and the way these affect individual life chances and social structure, explored in the areas of work, education, family and abusive relationships. Focus on media presentation of gender and effects of ethnicity and class. 4 lectures. Prerequisite: Junior standing.

**SOC 313 Urban Sociology (4)**

Description of the context of urban development; analysis of various forces generating urbanization. Investigation of urban models and spational relationships; urban processes; and problems. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 315 Race and Ethnic Relations (4) GE D4b**

Diverse structures of unequal relationships among racial and ethnic groups in several countries. Theories about sources of economic and social discrimination and colonialism. Focus on the concept of ethnicity. Evaluation of methods to restructure race and ethnic relations. International case histories. 4 lectures. Prerequisite: Junior standing.

**SOC 316 American Ethnic Minorities (4) USCP**

Exploration of the issues and problems facing the four major ethnic minorities in American society: Native Americans, Afro-Americans, Hispanics and Asian Americans. Dynamics of intergroup relations focusing on the concepts of ethnocentrism, stereotyping, pluralism and assimilation. Sources and manifestations of economic and social discrimination patterns and how they affect the individual's life course. 4 lectures. Prerequisite: Junior standing.

**SOC 323 Social Stratification (4)**

Social class and the distribution of income, wealth, status and power in society, with emphasis on contemporary United States; social mobility; race, gender, and ethnic inequalities; political power and the nature of welfare; the nature, causes and solutions to poverty. A comparative perspective also taken with a focus on Japan and Europe. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 330 Social Change (4)**

Interpretation of major social trends, movements and changes in the U.S. of the 20<sup>th</sup> Century; the causation, patterns and direction of these changes in continuum with the present; theories of change; and the special impact of technology upon social events. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 350 Social Organization of Modern Japan (4)**

Social and cultural features of modern Japan. Japanese group processes. Investigation of contemporary Japanese institutions: family, education, mass media, industry, politics, including an overview of popular culture. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 351 Women in East Asia (4)**

Traditional roles and status of women in Chinese, Japanese and Korean societies. Changes due to industrialization, the impact of Western ideas and their implications for today's women. 4 seminars. Prerequisite: Junior standing.

**SOC 355 Social Data Collection and Analysis (4)**

The basics of how to do social research. Includes topics on data collection techniques such as surveys, experiments, participant observation, content analysis and the use of existing data. Also includes topics on univariate, bivariate, and multivariate analysis and the use of SPSS for data analysis. 3 lectures, 1 activity. Prerequisite: STAT 221, CSC 110, and two sociology courses.

**SOC 395 Sociology of Complex Organizations (4)**

Bureaucracies and informal organizations from a sociological perspective. Organizational networks within and between organizations, relationship between organizations and their environment, and organizational socialization and career patterns, and gender and race or ethnic differences in organizational patterns. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 402 Crime and Delinquency (4)**

Criminal behavior and juvenile delinquency of the individual and group; special categories including the drug addict, sociopath, sex offender, organized crime, violent youth gang, and white-collar criminal; theories of causation; institutional and other approaches to rehabilitation of criminals and delinquents. 4 lectures. Prerequisite: Junior standing or consent of instructor.

**SOC 412 Criminal Justice (4)**

Approaches to the control and rehabilitation of adult and juvenile offenders; philosophy of treatment strategies; history and analysis of probation, imprisonment, parole and preventive programs. 4 lectures. Prerequisite: SOC 402.

**SOC 413 Methods of Social Work (4)**

Skills, values and knowledge emphasized in social work. The generic perspective. Methods in social case work, group work, community organization, and social action. Alternative models. Settings of social work practice. Discussion of case material and

professional literature. Case work management. Traditional and innovative therapy techniques. 4 seminars. Prerequisite: SOC 301 or consent of instructor.

#### **SOC 421 Social Theory (4)**

Concepts and theories in sociology, anthropology and geography. Development and history of social sciences. Paradigms and sociology of knowledge. Modern and classical perspectives. Importance of theories for understanding of present social arrangements and problems. 4 lectures. Prerequisite: Two sociology courses or consent of instructor.

#### **SOC 431 Population Problems (4)**

Description and analysis of basic population processes of fertility, mortality and migration. Emphasis on understanding significance of today's growth rates for the future, especially in relationship to resources and standards of living. 4 lectures. Prerequisite: SOC 105 or consent of instructor.

#### **SOC 470 Selected Advanced Topics in Sociology (1-4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 8 units. 1 to 4 lectures. Prerequisite: Consent of instructor.

## **SOCS—SOCIAL SCIENCES**

#### **SOCS 200 Special Problems for Undergraduates (1-4)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 3 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

#### **SOCS 400 Special Problems for Advanced Undergraduates (1-4)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 6 units, with a maximum of 3 units per quarter. Prerequisite: Consent of department head.

#### **SOCS 440 Internship (4-8)**

Supervised training, research, and work in public and private organizations. Total credit limited to 18 units. Prerequisite: Senior standing and/or consent of instructor.

#### **SOCS 461, 462 Senior Project (2) (2)**

Selection and completion of a project under faculty supervision. Projects typical of problems which graduates must solve in their fields of employment. Project results are presented in a formal report. Minimum 120 hours total time. Prerequisite: SOCS 366, senior standing or consent of instructor.

#### **SOCS 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

#### **SOCS 487 Cooperative Education Experience (6)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Prerequisite: Sophomore standing and consent of instructor.

#### **SOCS 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

#### **SOCS 497 Cooperative Education Experience (12)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Prerequisite: Sophomore standing and consent of instructor.

## **SPAN—SPANISH**

#### **SPAN 101, 102, 103 Elementary Spanish (4) (4) (4)**

For beginners. Class practice and assigned outside work in pronunciation, sentence structure, reading, writing, and basic conversation using the communicative approach. Laboratory drill required. Language taught in its cultural context. Credit not available for students who have completed SPAN 104. To be taken in numerical sequence. 3 lectures, 1 activity.

#### **SPAN 104 Intensive Elementary Spanish (12)**

Class practice in pronunciation, syntax, reading, writing, and conversation. Offered in summer only. Not open to students with credit in SPAN 101, 102, 103. Laboratory drill required. 9 lectures, 3 activities.

#### **SPAN 111, 112, 113 Elementary Hispanic Language and Culture (4) (4) (4) USCP**

Inductive Spanish grammar with special focus on vocabulary and culture from American agribusiness and the Hispanic cultures of the United States and Latin America. Open to all students with little or no knowledge of Spanish. To be taken in numerical sequence. 3 lectures, 1 activity.

#### **SPAN 121, 122 Fundamentals of Spanish (4) (4)**

Review of Spanish grammar and practice in writing and oral expression within a cultural context. To be taken in numerical sequence. Students with credit in SPAN 123 cannot take SPAN 122. 3 lectures, 1 activity. Prerequisite: SPAN 103 or consent of instructor.

#### **SPAN 123 Spanish for Bilingual Speakers (4)**

Focus on the grammatical, cultural and linguistic needs of Spanish speakers in the United States who have not had formal study of the language. Emphasis on morphological, lexical and cultural understanding of the Spanish language. Designed to prepare students for upper-division Spanish coursework in language and culture. Students with credit in SPAN 122 cannot take SPAN 123. 3 lectures, 1 activity. Prerequisite: SPAN 121, placement exam or consent of instructor.

#### **SPAN 124 Composition in Spanish (4)**

Practice of essay writing in Spanish with particular attention to the process of writing. Analysis of word usage, sentence development and structure, and review of grammar, spelling and accentuation. Practice in writing descriptions, narration, reports, opinions and expositions. 3 lectures, 1 activity. Prerequisite: SPAN 122 or SPAN 123.

**SPAN 204 Intensive Fundamentals of Spanish (8)**

Review of grammar and practice in written and oral expression based on social and cultural values. 6 lectures, 2 activities. Prerequisite: SPAN 103 or SPAN 104 or permission of instructor.

**SPAN 205 Introduction to Spanish Linguistics (4)**

Introduction to the scientific study of language with an overview of the spectrum of both theoretical and applied linguistics including dialectology, morphology, phonetics, phonology, semantics and syntax. 3 lectures, 1 activity. Prerequisite: SPAN 124.

**SPAN 210 Introduction to Research Methods in Spanish (4)**

Methods and techniques of doing research. Critical thinking and library research. Introduction to the most important philosophical and theoretical schools of thought, as seen and applied in the Spanish-speaking world. 3 lectures, 1 activity. Prerequisite: SPAN 124.

**SPAN 233 Introduction to Hispanic Readings (4) GE C1**

Selected readings from major Hispanic authors that show the Hispanic literary tradition from the Middle Ages to the present in both Spain and Latin America. 4 lectures. Prerequisite: SPAN 122 or SPAN 123.

**SPAN 301 Advanced Composition in Spanish (4)**

Oral and written development of structural grammar, syntax, and complex components of Spanish. Vocabulary expansion and idiomatic construction. Written composition. Translations to examine linguistic and semantic differences. 4 lectures. Prerequisite: SPAN 124.

**SPAN 305 Significant Writers in Spanish (4) GE C3**

Critical analysis and oral discussion of poetry, essays, novels and plays by selected Hispanic writers. *Class Schedule* will list topic selected. Total credit limited to 12 units. 4 lectures. Prerequisite: SPAN 233 or equivalent.

**SPAN 340 Chicano/a Authors (4) GE C3 USCP**

Introduction to Chicano/a literary accomplishments to facilitate appreciation of Chicano/a literary aesthetics and increase understanding of Chicano/a cultural values and lifestyles. 4 lectures. Prerequisite: SPAN 233 or equivalent.

**SPAN 402 Advanced Linguistics in Spanish (4)**

The more relevant aspects of Spanish linguistics today. Topics may include morphology, semantics, syntax, phonetics, phonology, theoretical linguistics, history of the language, and teaching methodology and applied linguistics in Spanish. Conducted completely in Spanish. *Class Schedule* will list topic selected. Total credit limited to 8 units. 4 lectures. Prerequisite: SPAN 205.

**SPAN 405 Hispanic Literature in English Translation (4) GE C3**

Selected works to be read by students in the original or in English translation. Critical analysis, interpretation, and comparison of individual works by outstanding Hispanic writers. Lecture in English. *Class Schedule* will list topics selected; some topics may satisfy USCP requirement. Total credit limited to 8 units. 4 lectures. Prerequisite: One literature course or consent of instructor.

**SPAN 410 Advanced Literature in Spanish (4)**

In-depth study of literature in Spanish. Specific genre, literary period, authorial group, or country. Chicano(a)/Latino(a) literature,

Latin American literature, and Spanish literature. Conducted in Spanish. *Class Schedule* will list topic selected. Total credit limited to 8 units. 3 lectures, 1 activity. Prerequisite: SPAN 301 and SPAN 305.

**SPAN 416 Don Quixote (4)**

Intensive reading of Cervantes' novel, *Don Quixote* (Part 1, 1605 and Part 2, 1615) in the context of Cervantes' life and the history and social context of Spanish renaissance and baroque culture. Course taught in Spanish. 4 lectures. Prerequisite: SPAN 233 or equivalent, or consent of instructor.

**SPAN 460 Senior Project (4)**

Selection and completion of a project under faculty mentorship. Projects represent individual, well-defined problems and potential solutions that reflect pertinent scholarly activity in the field of Modern Languages and Literatures. Total credit limited to 8 units. Prerequisite: Senior status and consent of instructor.

**SPAN 470 Selected Advanced Topics (1-4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 8 units. 1 to 4 lectures. Prerequisite: Consent of instructor.

**SPC—SPEECH COMMUNICATION****SPC 125 Critical Thinking (3) (Also listed as ENGL 125 and PHIL 125) GE A2**

Nature of critical thinking. Analysis of inductive and deductive arguments. Practice in the criticism and composing of arguments in English. 3 lectures. Prerequisite: ENGL 114.

**SPC 201 Public Speaking (3) GE A3**

Introduction to the principles and types of public speaking. Practical experience in the development, presentation, and critical analysis of speeches to inform, to persuade, and to actuate. Not open to students with credit in SPC 202. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125.

**SPC 202 Principles of Speech Communication (3) GE A3**

Introduction to the fundamentals and principles which underlie effective speech communication. Practical experience in various types of speaking situations: informative speaking, persuasive speaking, and panel discussion. Not open to students with credit in SPC 201. 3 lectures. Prerequisite: ENGL 125 or PHIL 125 or SPC 125.

**SPC 212 Interpersonal Communication (4) (Also listed as PSY 212)**

Introduction to the interaction process in two-person (dyadic) communication settings. Emphasis on the functions of varying messages in the initiation, development, maintenance and termination of personal relationships. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 213 Organizational Communication (4)**

Introduction to communication within the organization and between the organization and its environment. Effects of networks, superior/subordinate message patterns, team building, climate, message flow patterns and distortion on organizational effectiveness. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 217 Small Group Communication (4)**

Basic principles and techniques of small group communication. Survey of the importance of discussion in contemporary society, including study of and practice in informal group discussion, panel discussion, symposium, and forum. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 250 Forensic Activity (1)**

Lower division participation in intercollegiate forensic activities. Any student who wishes to receive academic credit for participation in such activities during the quarter should enroll. Specific assignments will be determined by instructor. Total credit limited to 6 units. 1 activity. Prerequisite: SPC 201 or SPC 202.

**SPC 301 Business and Professional Communication (4)**

Communication skills and functions for all levels of organizational employees. Interviewing, oral briefings, motivational and conference speaking. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 305 Performance of Literature (4)**

Poetry, prose, nonfiction and dramatic literature performed to communicate the levels of meaning within each work to the audience. 4 lectures. Prerequisite: SPC 201 or SPC 202, 3 units of literature.

**SPC 310 Storytelling: The Oral Tradition (4)  
(Also listed as LS 310)**

Techniques for performing traditional folktales and myths in primary and secondary teaching situations. Selection, preparation and presentation of folklore for an audience; lectures on function of folk literature and mythology in modern society. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 312 Communication Theory (4)**

Concepts and theories of the human communication process from a social science perspective. 4 lectures. Prerequisite: PSY 201 or PSY 202.

**SPC 316 Intercultural Communication (4) USCP**

Examination and clarification of cultural aspects of communication within and among ethnic groups. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 320 Nonverbal Communication (4)  
(Also listed as PSY 320)**

Influence of kinesic, proxemic, artifactual, olfactory, paralinguistic and environmental factors in human communication. Theory, research and practice in nonverbal communication. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 321 Advanced Public Speaking (4)**

Further consideration of the principles of public address. Advanced practice in manuscript, extemporaneous, and impromptu speaking. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 322 Persuasion (4)**

Persuasive theory including methods of attention, suggestion, motivation, and adaptation employed to influence feelings, attitude, change and action. Critical analysis of persuasive discourse. 4 lectures. Prerequisite: Completion of GE Area A requirements.

**SPC 325 Argumentation (4)**

Techniques of argumentation, logic and reasoning. Fallacies of reasoning. Experience in and analysis of various forms of formal argument, and evaluation systems. 4 lectures. Prerequisite: Completion of GE Area A requirements.

**SPC 330 Classical Rhetorical Theory (4) GE C3**

Early development of rhetorical theory in Greco-Roman civilization. Analysis of the canons of rhetoric. Rhetorical thought of Sophists, Isocrates, Plato, Aristotle, Cicero and Quintilian. 4 lectures. Prerequisite: Completion of GE Area A requirements.

**SPC 331 Political Advocacy and Contemporary Rhetoric (4)**

Rhetoric's role in contemporary culture. Issues: political advocacy; science, technology and mass persuasion; ethics and rhetoric. Representative theorists: Burke, Weaver, Richards, Toulmin and McLuhan. 4 lectures. Prerequisite: Completion of GE Area A requirements.

**SPC 333 Quantitative Research Methods for the Behavioral Sciences (3) (Also listed as PSY 333)**

Thorough introduction to the quantitative aspects of empirical research. Using SPSS statistical software, students will learn how to choose, conduct, and interpret analyses of research data from different behavioral science disciplines. 2 lectures, 1 activity. Prerequisite: PSY 329 or SOC 333 or SPC 312, and STAT 211 or STAT 217, or consent of instructor.

**SPC 350 Advanced Forensic Activity (2)**

Upper division participation in intercollegiate forensics. Administration and operation of tournaments held annually on campus and in the community. Total credit limited to 6 units. 2 activities. Prerequisite: SPC 250.

**SPC 370 Gender and Communication (4)**

Examination of gender in a variety of communication contexts. Concepts presented will help students understand the theory and practice of communication with members of the same and opposite sex. 4 lectures. Prerequisite: SPC 201/202.

**SPC 375 Health Communication (4)**

Communication in health contexts. Topics include interpersonal communication (e.g., health professional/patient), group and organizational communication (e.g., health-related groups), and mass communication (e.g., persuasive health campaigns). Open to all majors and valuable to laypersons who are consumers of health care, and pre-health professionals. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 380 Media Effects (4)**

Effects of media on the individual. Influence of mediated message producers, production technologies, and message content. Empirical approaches to data collection using experimental and survey techniques. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 385 Mass Media Criticism (4)  
(Also listed as JOUR 385)**

Examines mass media (especially broadcasting) from a rhetorical/critical perspective. Aims to expand students' understanding of media issues, media's role as critic, and the role of criticism. 4 lectures. Prerequisite: SPC 201 or SPC 202.

**SPC 400 Special Problems for Advanced Undergraduates (1–2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units. Prerequisite: Consent of instructor, junior standing.

**SPC 405 Group Performance of Literature (4)**

Examination and experience in the various modes of group performance of literature. Readers Theatre, Chamber Theatre, Story Theatre. Scripting, directing, performing and critiquing of group performance of literature. 4 lectures. Prerequisite: SPC 305 or SPC 310, junior standing.

**SPC 411 Communication Research (4)**

Exploration of communication research strategies and methodologies. Basic methods of designing research in empirical communication studies. 4 lectures. Prerequisite: STAT 130 or STAT 211 or STAT 217, SPC/PSY 333, SPC 312, junior standing. For majors only.

**SPC 413 Advanced Organizational Communication (4)**

Describing and measuring the organization's human message system. Planning and implementing communication training and development for the organization. New functions, careers and opportunities for the communication professional. 4 lectures. Prerequisites: Junior standing, SPC 213 and SPC 301.

**SPC 424 Classroom Communication (4)**

Exploration of classroom communication development. Student-teacher-parent interaction. Communication style, environmental stimuli, dialectal differences and bilingualism, measurement of communication competence. 4 lectures. Prerequisite: Junior standing, Completion of GE Area A requirements.

**SPC 430 Rhetorical Criticism (4)**

Theory and method used in the analysis and evaluation of rhetorical discourse. Study of critical essays. Practice in interpreting and evaluating persuasive discourse. 4 lectures. Prerequisite: Junior standing, SPC 322 or SPC 330.

**SPC 435 Great Speeches (4)**

Selected speakers and speeches from the Greco-Roman era to the present. Analysis and discussion of oratory's role in the shaping of historical events and the development of civilization. 4 lectures. Prerequisite: Junior standing, SPC 322 or SPC 330.

**SPC 450 Internship: Speech Communication (2–4) (CR/NC)**

Supervised practicum and application of principles and theories of communication in organizational settings. Total credit limited to 8 units. Credit/No Credit grading only. Prerequisite: Junior standing, 2.5 GPA, and consent of instructor.

**SPC 460 Undergraduate Seminar (1)**

Discussion and design of individual projects, oral reports on material in current professional writings. 1 seminar. Prerequisite: Senior standing; completion of SPC 312 and SPC 330. For majors only.

**SPC 461 Senior Project (3)**

Completion of approved project under faculty supervision. Project results are presented in a formal written report. Minimum 90 hours total time. Prerequisite: SPC 460. For majors only.

**SPC 470 Selected Advanced Topics (1–4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will

list topic selected. Total credit limited to 8 units. 1–4 lectures. Prerequisite: Junior standing, Completion of GE Area A requirements.

**SPC 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 18 units. Credit/No Credit grading only. Prerequisite: SPC 213.

**SS–SOIL SCIENCE****SS 110 Orientation in Soil Science (1) (CR/NC)**

Understanding the depth and breadth of soils as a science. Examine potential career opportunities. Introduction to both student and professional organizations. Credit/No Credit grading only. 1 activity.

**SS 121 Introductory Soil Science (4)****GE F2**

Biological, chemical, physical and genetic soil properties. Interpretation of soils information for agricultural management and production. Proper land use and conservation, soil and water management. 3 lectures, 1 laboratory.

**SS 200 Special Problems for Undergraduates (1–2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

**SS 202 Soil and Water Conservation (3)**

Climate, topography, soils and land use in relation to soil and water losses. Evaluation of soil and water conservation programs and practices. Miscellaneous course fee required—see *Class Schedule*. 3 lectures. Prerequisite: SS 121 or consent of instructor.

**SS 221 Fertilizers and Plant Nutrition (4)**

Plant nutrient requirements. Composition, value, and use of fertilizer materials, conditioners and agricultural minerals. Methods of manufacturing, distributing, and applying fertilizers. 3 lectures, 1 laboratory. Prerequisite: SS 121.

**SS 223 Rocks and Minerals (4)**

Origin, composition, identification and weathering of rocks, minerals, and clays important in the development of soils. Parent materials as related to the nature and properties of soils. 3 lectures, 1 laboratory. Prerequisite: SS 121, CHEM 111 or CHEM 128.

**SS 300 Enterprise Project (2–4) (CR/NC)**

Soil, water, and plant testing for fertilizer recommendations and general diagnostic work. Project participation is voluntary and subject to approval by the enterprise project adviser and the Cal Poly Foundation. Degree credit limited to 12 units. Credit/No Credit grading only. Prerequisite: CHEM 127, SS 221.

**SS 301 Soils Practicum (2) (CR/NC)**

Supervised practice in technical, educational, professional, and operational applications related to soil science. Students participate in faculty-supervised group or individual activities that support educational and professional goals. Credit/No Credit grading only. 2 activities. Prerequisite: SS110 or SS 121.

**SS 310 Urban Soils (4)**

Management and manipulation of soils in urban environments. Measurement and interpretation of morphological, physical and chemical properties. Selection and treatment of soil materials for interior and exterior plantings. 3 lectures, 1 laboratory. Prerequisite: SS 121.

**SS 321 Soil Morphology (4)**

Identification of soil morphological and site properties. Correlation of soil physical and chemical properties with soil taxonomy and land use. Techniques of interpretations for agriculture, forest lands, range lands and urban development. Miscellaneous course fee required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: SS 121.

**SS 322 Soil Fertility (4)**

Investigation and evaluation of the nutrient supplying ability of soils. Conditions and transformations involved in the transfer of mineral nutrients from soils to plants. Effects of cultural treatments on soil fertility. Diagnostic techniques and data interpretation in soil and plant analysis. 3 lectures, 1 laboratory. Prerequisite: SS 221, CHEM 111 or CHEM 128.

**SS 323 Geomorphology (4)**

Recognizing and identifying major landforms and their components by interpretation of aerial photographs and topographic maps, and observations. Emphasis on analyzing common landforms in the western United States for application in soil science, physical geography, hydrology, and geology. 2 lectures, 1 laboratory, 1 activity. Prerequisite: SS 223, SS 321 and GEOL 201; or consent of instructor.

**SS 339 Soil Science Internship (1–12) (CR/NC)**

Selected students will spend up to 12 weeks with an approved firm or agency engaged in work and study related to their major. A detailed written proposal and written interim and final reports required. One unit of credit may be allowed for each full week of internship. Credit/No Credit grading. Prerequisite: Consent of internship instructor.

**SS 345 Soil Interpretations and Management (4)**

Calculate, graph, and interpret physical, chemical, and microbiological data from soils and reports. Apply laboratory results to field conditions. Debate efficacy of soil management and environmental practices considering social, economic and political implications of soil science. 2 lectures, 2 activities. Prerequisite: SS 121, CHEM 129, MATH 119 or MATH 141, PHYS 121 or PHYS 131, or consent of instructor.

**SS 350 Computer Software Applications in Agronomy (2)**

Computer software applications for soil science and agriculture including word processing, data storage and manipulation, statistical analysis of data, graphics preparation and presentations. 1 lecture, 1 laboratory. Prerequisite: AG 250 or CSC 110 or consent of instructor.

**SS 400 Special Problems for Advanced Undergraduates (2–4)**

Individual investigation, research, studies or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

**SS 422 Soil Microbiology and Biochemistry (4)**

Biochemical activities, ecology and environmental implications of soil organisms. Effects on the formation, characteristics, and productivity of soils. Methods of studying soil organisms. 3

lectures, 1 laboratory. Prerequisite: SS 221 and SS 345, BACT 221, CHEM 313, or consent of instructor.

**SS 423 Soil and Water Chemistry (5)**

Chemical processes governing weathering, soil mineral formation and stability, common solubility equilibria. Use of chemical principles to explain surface chemical properties of soils and environmental problems in water and soil chemical systems. Preparation of professional quality reports based on laboratory data and library research. 3 lectures, 1 laboratory, 1 activity. Prerequisite: SS 223, SS 345, CHEM 129, CHEM 212, or CHEM 216, MATH 118 or MATH 141.

**SS 431 Soil Resource Inventory (4)**

Development and production of soil surveys for interpretive purposes. Use of soil taxonomy and land classification systems to evaluate land for best management practices. 2 lectures, 2 laboratories. Prerequisite: SS 223; SS 321.

**SS 432 Soil Physics (5)**

Matter and energy in soils, with emphasis on properties and behavior of solids, water, air, and heat. Applications to agriculture, forestry, range management, engineering, and environmental sciences. Preparation of professional reports based on laboratory data and library research. 3 lectures, 1 laboratory, 1 activity. Prerequisite: SS 121, SS 345, PHYS 121 or PHYS 131, CHEM 129, MATH 118 or MATH 141, or consent of instructor.

**SS 433 Land Use Planning (3)**

Development of plans and practices for management of agricultural, recreational and urban land use by evaluating the soil capabilities through the use of Soil Survey Reports. 2 lectures, 1 laboratory. Prerequisite: SS 121.

**SS 440 Forest and Range Soils (4)**

Ecosystem approach to the chemical, biological, physical and mechanical properties of forest and range soils. Interpretation of specific research findings and their applications to management problems. Preparation of soil management reports similar to those required by various land management organizations. Overnight field trips. Miscellaneous course fee required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: SS 121.

**SS 442 Soil Vadose Zone Remediation (4)**

Redox transformations and removal or immobilization of inorganic pollutants. Microbial degradation and elimination of organic contaminants. Monitoring and predicting management strategies for vadose zone enhancement. Reclamation of disturbed lands. 3 lectures, 1 activity. Prerequisite: CHEM 326, GEOL 201, SS 121 or consent of instructor.

**SS 444 Soil Judging (2)**

Morphological description of soils in the field. Taxonomic determination of classifications and interpretive properties from soil descriptions. Participation in collegiate soil judging contests. Total credit limited to 12 units. 1 lecture, 1 laboratory. Prerequisite: SS 321 or consent of instructor.

**SS 453 Tropical Soils (4)**

Nature and properties of soils occurring in the tropics, their origin, morphology, classification, fertility, management and conservation. Examine social implications in international agriculture. 3 lectures, 1 laboratory. Prerequisite: SS 121, CHEM 111 or CHEM 128.

**SS 461 Soils Senior Project (1)**

Senior project topic selection and contract development with project adviser. Statement of problems, subproblems, assumptions, objectives, hypothesis, methods of analysis and statistical design. Development of literature review and budget of time and finances. Proper format and presentation of tabular and graphic information. 1 activity. Prerequisite: MATH 118 or MATH 131, STAT 211 or STAT 321 or CRSC 411.

**SS 462 Soils Senior Project (3)**

Implementation of materials and methods. Collection, analysis and interpretation of data. Completion of formal written report under adviser supervision. Minimum 90 hours. Prerequisite: SS 461.

**SS 463 Undergraduate Soils Seminar (2)**

Review of current research, experiments, and problems related to the student's major field of interest. Preparation and presentation of reports on problems or research activities. 2 seminars.

**SS 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1 to 3 lectures. Prerequisite: Consent of instructor.

**SS 471 Selected Advanced Laboratory (1–3)**

Directed group laboratory study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1 to 3 laboratories. Prerequisite: Consent of instructor.

**SS 500 Individual Study in Soil Science (1–6)**

Advanced independent study planned and completed under the direction of a member of the Soil Science faculty. Total credit limited to 6 units. Prerequisite: Consent of department head, graduate adviser and supervising faculty member.

**SS 501 Research Planning (3)**

Problem solving and research planning for agriculture, natural resources and related sciences. Preparation of study plans which identify problems, review appropriate literature, formulate objectives, develop methods and provide for presentation and interpretation of results. 3 lectures. Prerequisite: Graduate standing or consent of instructor.

**SS 508 Landscape Management for Erosion Control (3)**

Techniques for the development of soil erosion control and the dispersal of surface runoff water on urban, industrial, recreational and dwelling sites. Land grading ordinances and their limitations. Miscellaneous course fee required—see *Class Schedule*. 3 lectures. Prerequisite: Introductory soils course and graduate standing, or consent of instructor.

**SS 522 Advanced Soil Fertility (3)**

Current research frontiers in soil fertility. Evaluating soil testing philosophy, theories and interpretation. Optimizing soil conditions for maximizing crop production. Consequences of environmental pollution, trace elements and organic amendments. Chemical reactions including solubility and chelate equilibria, adsorption phenomena, nutrient mobility, soil mineralogy and weathering. Use of foliar fertilization. Radioisotopes in soil fertility. 3 lectures. Pre-requisite: SS 322, graduate standing or consent of instructor.

**SS 581 Graduate Seminar in Soils (3)**

Current research, experiments and problems related to soil science. Total credit limited to 3 units. 3 seminars. Prerequisite: Graduate standing or consent of instructor.

**SS 582 Advanced Land Management (3)**

Development of plans and practices for the management of crop, range, and wood land. 2 seminars, 1 laboratory. Prerequisite: Graduate standing, SS 433.

**SS 599 Thesis (1–6)**

Individual research in soil science under faculty supervision, leading to a scholarly written presentation exhibiting originality, clarity, critical and independent thinking, proper analysis of data, appropriate organization and format, and accurate and thorough documentation. Six units required for the M.S. degree. Prerequisite: Graduate standing and consent of instructor.

**STAT–STATISTICS****STAT 100 Orientation to Statistics (1) (CR/NC)**

Intended for new statistics majors. Overview of the statistics profession, career opportunities in statistics, and an introduction to the discipline of statistics and the nature of statistical reasoning. Credit/No Credit grading only. 1 lecture.

**STAT 130 Introduction to Statistical Reasoning (4) GE B2**

Survey of statistical ideas and philosophy. Emphasis on concepts rather than in-depth coverage of statistical methods. Topics include sampling, experimentation, data exploration, chance phenomena, and methods of statistical inference. Credit not allowed for students with a previous statistics course. 4 lectures. Prerequisite: Satisfactory completion of ELM requirement.

**STAT 200 Special Problems for Undergraduates (1–2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

**STAT 211 Elementary Probability and Statistics (3) GE B2**

Classification of statistical data. Calculation and uses of various averages, measures of variability, elementary probability. Binomial and normal distributions. Random sampling, confidence intervals. Introduction to hypothesis testing. 3 lectures. Not open to students with credit in STAT 210. Prerequisite: Intermediate algebra, appropriate score on ELM.

**STAT 212 Statistical Methods (3) GE B2**

Tests of hypotheses, and confidence intervals on common parameters. Linear regression and correlation, multiple regression. Analysis of variance and enumerative data. Nonparametric methods. 3 lectures. Prerequisite: One class in introductory statistics other than STAT 217/STAT 218/STAT 221.

**STAT 217 Applied Statistics for the Liberal Arts (4) GE B2**

Sampling and experimentation, descriptive statistics, confidence intervals, two-sample hypothesis tests for means and proportions, Chi-square tests, linear and multiple regression, analysis of variance. Not open to students with credit in STAT 218 or STAT 221 or STAT 251. 4 lectures. Prerequisite: Intermediate algebra, appropriate score on ELM.

**STAT 218 Applied Statistics for the Life Sciences (4) GE B2**

Descriptive statistics, confidence intervals, parametric and nonparametric one- and two-sample tests. Applications of

statistics to the life sciences. Use of a statistical computer package. Not open to students with credit in STAT 217 or STAT 221 or STAT 251. 4 lectures. Prerequisite: Intermediate algebra, appropriate score on ELM.

**STAT 221 Introduction to Probability and Statistics (5) GE B2**

Data classification, descriptive statistics, elementary probability. Binomial and normal distributions. Random sampling, confidence intervals and hypothesis testing on common parameters. Introduction to regression and correlation, analysis of variance, contingency table analysis. 5 lectures. Prerequisite: Intermediate algebra, appropriate score on ELM. Not open to students with credit in STAT 217 or STAT 218.

**STAT 251 Statistical Inference for Management I (4) GE B2**

Descriptive statistics. Probability and counting rules. Random variables and probability distributions. Sampling distributions. Large sample point and interval estimation of population parameters. Large sample hypothesis tests for population means and proportions. 4 lectures. Prerequisite: MATH 221 or equivalent or passing score on precalculus MAPE.

**STAT 252 Statistical Inference for Management II (5) GE B2**

Small sample confidence intervals and hypothesis tests. Introduction to ANOVA, regression, correlation, multiple regression, time series, and forecasting. Statistical Quality Control. Enumerative data analysis. SPSS used throughout course. 5 lectures. Prerequisite: STAT 251 with a minimum grade of C- and CSC 20 or one course in computer programming.

**STAT 312 Statistical Methods for Engineers (4) GE B2**

Descriptive and graphical methods. Discrete and continuous probability distributions. One and two sample confidence intervals and hypothesis testing. Single factor analysis of variance. Quality control. Introduction to regression and to experimental design. Use of computer to solve problems. 4 lectures. Prerequisite: MATH 142.

**STAT 313 Applied Experimental Design and Regression Models (4) GE B2**

Analysis of variance and regression analysis for students not majoring in statistics or mathematics. Includes one-way classification, randomized blocks, Latin squares, factorial designs, multiple regression, diagnostics, and model comparison. 4 lectures. Prerequisite: STAT 212, STAT 217, STAT 218, or STAT 221.

**STAT 321 Probability and Statistics for Engineers and Scientists (4) GE B2**

Tabular and graphical methods for data summary, numerical summary measures, probability concepts and properties, discrete and continuous probability distributions, expected values, statistics and their sampling distributions, point estimation, confidence intervals for a mean and proportion. Use of MINITAB computer package. 4 lectures. Prerequisite: MATH 142.

**STAT 322 Statistical Analysis for Engineers and Scientists (4) GE B2**

Confidence intervals, hypothesis testing, one and two-factor analysis of variance, simple linear regression, nonlinear and multiple regression, chi-square tests, introduction to statistical quality control. 4 lectures. Prerequisite: STAT 321.

**STAT 323 Design and Analysis of Experiments I (4) GE B2**

Principles, construction and analysis of experimental designs. Includes completely randomized, randomized complete block, Latin squares, Graeco Latin squares, factorial, and nested designs. Fixed and random effects, expected mean squares, multiple comparisons, and analysis of covariance. 4 lectures. Prerequisite: STAT 322.

**STAT 324 Applied Regression Analysis (4) GE B2**

Simple linear regression and associated special topics, multiple linear regression, indicator variables, influence diagnostics, assumption analysis, selection of "best subset", nonstandard regression models, logistic regression, nonlinear regression models. 4 lectures. Prerequisite: STAT 252 or STAT 313 or STAT 322.

**STAT 330 Statistical Uses of Computers (4)**

Techniques available to the statistician for efficient use of computers to perform statistical computations and to analyze large amounts of data. Use of SAS throughout the course. Includes data preparation, report writing, and basic statistical methods. 4 lectures. Prerequisite: STAT 212 or STAT 252 or STAT 313 or STAT 322.

**STAT 400 Special Problems for Advanced Undergraduates (1-2)**

Individual investigation, research, studies or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

**STAT 416 Statistical Analysis of Time Series (4)**

Time series components, descriptive smoothing methods, regression models for time series data, forecasting via exponential smoothing, evaluation of forecasts, autocorrelation, ARIMA models and Box-Jenkins methods, combining forecasts, frequency domain analysis, filtering. 4 lectures. Prerequisite: STAT 252 or STAT 322.

**STAT 418 Analysis of Cross-Classified Data (4)**

Discrete multivariate statistics, including analysis of cross-classified data, log-linear models for multidimensional contingency tables, goodness of fit statistics, measures of association, model selection, and hypothesis testing. 4 lectures. Prerequisite: Two courses in statistics and MATH 206.

**STAT 419 Applied Multivariate Statistics (4)**

Continuous multivariate statistics. Multivariate linear model, principal components and factor analysis, discriminant analysis, clustering, and canonical correlation. Use of Minitab and SAS throughout the course. 4 lectures. Prerequisite: Two courses in statistics and MATH 206, or consent of instructor.

**STAT 421 Sampling Techniques (4)**

Planning, execution, and analysis of sampling from finite populations. Sampling designs, including simple random, stratified, systematic, cluster and two-stage cluster. Estimation procedures and sample size calculations. Post-stratification techniques. Estimating population size. 4 lectures. Prerequisite: One of the following: STAT 212, STAT 217, STAT 218, STAT 221, STAT 252, STAT 322, or STAT 512.

**STAT 423 Design and Analysis of Experiments II (4)**

Continuation of STAT 323.  $2^k$  factorial designs,  $3^k$  factorial designs, balanced and partially balanced incomplete block designs, nested designs, split-plot designs, response surface methodology,

confounding, repeated measures, and other design approaches. 4 lectures. Prerequisite: STAT 323.

**STAT 425 Probability Theory (4)**

Basic probability theory, combinatorial methods, stochastic independence, conditional and marginal probability, probability models for random phenomena, random variables, probability distributions, distributions of functions of random variables, mathematical expectation, covariance and correlation, conditional expectation. 4 lectures. Prerequisite: STAT 321, MATH 241.

**STAT 426 Estimation and Sampling Theory (4)**

Properties of statistics obtained from samples. Sample mean properties, convergence in probability, law of large numbers, and central limit theorem. Selected probability distributions. Theory of estimation. Sampling distribution of estimators. Introduction to hypothesis testing. 4 lectures. Prerequisite: STAT 425.

**STAT 427 Mathematical Statistics (4)**

The theory of hypothesis testing and its applications. Nonparametric methods. Linear statistical models including linear regression, and analysis of variance. The general linear model, full-rank models, constrained models, and tests of linear hypotheses. 4 lectures. Prerequisite: STAT 426.

**STAT 430 Statistical Computing (4)**

Design and use of statistical software in programming statistical applications; object oriented statistical languages; random number generation; Monte Carlo methods including resampling (bootstrap and jack-knife), randomization tests, and simulation; exploratory data analysis using linked, Trellis, and dynamic graphics; smoothing algorithms; and regression trees. 4 lectures. Prerequisite: STAT 322, STAT 330, and STAT 323 or STAT 324.

**STAT 461, 462 Senior Project (2) (2)**

Selection and completion of a project under faculty supervision. Projects typical of problems which graduates must solve in their fields of employment. Project results are presented in a formal report. Minimum 120 hours total time.

**STAT 463 Undergraduate Seminar (2) (CR/NC)**

Reports and discussions by students through seminar methods, based on topics of interest to persons preparing for a career in statistics. Offered only on a Credit/No Credit basis. 2 seminars. Prerequisite: Junior standing.

**STAT 470 Selected Advanced Topics (1-4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 8 units. 1-4 lectures. Prerequisite: Consent of instructor.

**STAT 485 Cooperative Education Experience (6) (CR/NC)**

Part-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**STAT 495 Cooperative Education Experience (12) (CR/NC)**

Full-time work experience in business, industry, government, and other areas of student career interest. Positions are paid and usually require relocation and registration in course for two consecutive quarters. Formal report and evaluation by work supervisor

required. Total credit limited to 16 units. Credit/No Credit grading only. Prerequisite: Sophomore standing and consent of instructor.

**STAT 512 Statistical Methods (4)**

Statistical methods in research for graduate students not majoring in mathematical sciences. Probability distributions, confidence intervals, hypothesis testing, contingency tables, linear regression and correlation, multiple regression, analysis of variance. Use of computer packages. 4 seminars. Prerequisite: Graduate standing and intermediate algebra or equivalent.

**STAT 513 Applied Experimental Design and Regression Models (4)**

Applications of statistics for graduate students not majoring in mathematics. Analysis of variance including the one-way classification, randomized blocks, Latin squares, and factorial designs. Introduction to multiple regression and to analysis of covariance. Use of computer software in the solution of statistical problems. 4 lectures. Not open to students with credit in STAT 313. Prerequisite: One of the following: STAT 512, STAT 212, STAT 217, STAT 218, STAT 221, STAT 252, or equivalent.

**STAT 542 Statistical Methods for Engineers (4)**

Descriptive and graphical methods. Discrete and continuous probability distributions. One and two sample confidence intervals and hypothesis testing. Single factor analysis of variance. Quality control. Introduction to regression and to experimental design. Use of computer to solve problems. 4 lectures. Prerequisite: MATH 142 and graduate standing.

## TH-THEATRE

**TH 210 Introduction to Theatre (3)**

**GE C2**

Play production process and approach to the theatre including theatrical terminology, methods, dramatic literature, aesthetics and technology. 3 lectures.

**TH 310 Women's Theatre (3)**

**GE C3**

Examination of a variety of female theatre artists from the Greeks to the present and the socio-political contexts from which they emerged. Emphasis on 20th century playwriting and evolving visions of women. Glaspell, Hansberry, Hellman, Henley, McCullers, and Shange covered. 3 lectures. Prerequisite: TH 210.

**TH 320 Black Theatre (3)**

**GE C3 USCP**

Examination of African-American theatre artists from the 17th-20th century, and the socio-political contexts from which they emerged. Particular emphasis on 20th century African-American plays and playwrights: Hansberry, Baldwin, Shange, Baraka, Gordone and Wilson. 3 lectures Prerequisite: TH 210.

**TH 327, 328 Theatre History and Literature (3) (3)**

**GE C3**

History of theatre in the Western world and representative plays from the Greeks through the French Seventeenth Century, and from Eighteenth Century England to the present. 3 lectures. Prerequisite: TH 210 or consent of instructor.

**TH 330 Stagecraft (3)**

Sound, costume construction, stage lighting, make-up, and construction and painting of stage scenery. Total credit limited to 9 units. Prerequisite: Consent of instructor.

**TH 340 Acting (3)**

Basic acting techniques, improvisation, characterization, pantomime and movement. 2 lectures, 1 activity. Prerequisite: Consent of instructor.

**TH 342 Directing (3)**

Script analysis, motivation and blocking of action, preparation of the prompt book. Direction of one-act plays. 1 lecture, 2 activities. Prerequisite: Junior standing and consent of instructor.

**TH 345 Rehearsal and Performance (3)**

Preparation of a play for public presentation, including acting, stage management, publicity and house management. Admission to course by audition only. Total credit limited to 9 units. 3 laboratories.

**TH 350 Advanced Playwriting (3)**

Examines dramatic structure, techniques of dialogue, and means of characterization in variety of plays. Relates dramatic writing to technical, design, directorial and acting demands. Composition of monologues, scenes and one-act play; works read and critiqued in class. 3 seminars. Prerequisite: TH 210, ENGL 114 and ENGL 215 or ENGL 218.

**TH 380 Children's Drama (3)**

Techniques for teaching performance skills to children; group activities culminate in performance for elementary students. 1 seminar, 2 activities. Prerequisite: Any GE Area C2 or C3 course and sophomore standing.

**TH 400 Special Problems for Advanced Undergraduates (1–2)**

Individual investigation, research, or project centering around theatre. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of department head.

**TH 430 Introduction to Stage Design: Scenery (3)**

Theories and contemporary practices in stage scenic design. Script analysis and production concept through shop plans, renderings and models, property plots. Drafting and design projects. 1 seminar, 2 activities. Prerequisite: Consent of instructor.

**TH 432 Introduction to Stage Design: Costume (3)**

Adapting historic and contemporary fashion for the stage. Script analysis for costume detail. Contemporary professional practices. Design projects. 1 seminar, 2 activities. Prerequisite: Consent of instructor.

**TH 434 Introduction to Stage Design: Lighting and Sound (3)**

Lighting and sound design for the stage, dance concerts and exhibitions. From script analysis, exhibition proposal, through the rendering of production lighting and sound plots. Light and color. Contemporary instrumentation and controls. Production analysis. Practical execution in performance situations. 1 seminar, 2 activities. Prerequisite: Consent of instructor.

**TH 440 Advanced Acting (3)**

Introduction to the technical aspects of nonrealistic acting through analysis and studio performance of scenes from a Shakespearean tragedy and a 17th century French farce. 3 lectures. Prerequisite: TH 340.

**TH 460 Senior Project (4)**

Selection and completion of a project under faculty supervision. Examples include: A formal report, an original play, producing a creative work, conceiving and completing a theatrical design, or a combination of these or similar assignments. Prerequisite: Consent of department head.

**TH 470 Selected Advanced Topics (1–3)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. *Class Schedule* will list topic selected. Total credit limited to 6 units. 1 to 3 lectures. Prerequisite: Consent of instructor.

**TH 471 Selected Advanced Laboratory (1–3)**

Directed group laboratory study of selected topics for theatre students. *Class Schedule* will list topics selected. Total credit limited to 6 units. 1–3 laboratories. Prerequisite: Consent of instructor.

**VGSC–VEGETABLE SCIENCE****VGSC 202 Enterprise Project (2–4) (CR/NC)**

Beginning field experience in production and marketing of a vegetable crop, under faculty supervision. Project participation is subject to approval by the department head and the Cal Poly Foundation. Degree credit limited to 4 units. Credit/No Credit grading only. 1 lecture, variable practicum. Prerequisite: CRSC 201, or consent of instructor.

**VGSC 230 Introduction to Vegetable Science (4) GE F2**

Environmental and cultural principles involved in the production of California vegetable crops; temperature, daylength and fertility effects on production and yield, use of plastic mulches and row covers, use of transplants, and pests and diseases affecting vegetables. Harvest principles, precooling methods and packaging. Survey of vegetable production for other than crop science majors. Miscellaneous course fee required—see *Class Schedule*. 3 lectures, 1 laboratory.

**VGSC 232 California Vegetable Production (4)**

History, botany, growth characteristics and climatic adaptation, pests, and harvesting methods for the most important vegetable crops grown in California. Use of transplants, plastic mulches and row covers in vegetable production. Current topics in agriculture important to the vegetable industry. Field trip to a major California vegetable production area required. Survey of vegetable production for crop science majors. Miscellaneous course fee may be required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: CRSC 133.

**VGSC 250 Vegetable Science for the Urban Gardener (3)**

Seedbed preparation, mulching, composting, manures and fertilizers, transplanting, seeding, irrigation and pest control in an urban garden. Merits of organic, low-input and conventional vegetable production, including organic methods of pest control. Instructional plots may be grown completely organically. Miscellaneous course fee may be required—see *Class Schedule*. 2 lectures, 1 laboratory.

**VGSC 402 Enterprise Project Management (2–4) (CR/NC)**

Advanced experience in the production of vegetable crops. Development of a plan for field operations, a marketing plan, and a budget. Management decision-making. Project participation is subject to approval by the department head and the Cal Poly Foundation. Degree credit limited to 4 units. Credit/No Credit grading only. 1 lecture, variable practicum. Prerequisite: VGSC 202, and consent of instructor.

**VGSC 421 Postharvest Technology of Horticultural Crops (4) (Also listed as FRSC 421)**

Respiration, respiratory constituents, ripening, and chilling injury; harvesting methods and procedures; current handling and

packaging techniques; precooling and refrigeration; modified and controlled atmosphere storage; relative humidity; and transportation of horticultural crops. Field trip to major California production areas required plus local grower visits. Miscellaneous course fee may be required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: One production class in either fruits, vegetables or ornamentals, or consent of instructor.

#### **VGSC 423 Advanced Vegetable Science (4)**

Studies of production systems utilizing the most advanced cultural practices including integrated management of all inputs and pests. Field trip to desert vegetable production regions required. Miscellaneous course fee may be required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: VGSC 232.

#### **VGSC 424 Vegetable Crop Management (4)**

Vegetable production systems from an organizational viewpoint. Management, organization and general commercial operations, including planning, budgeting, and managing personnel. Field trip to a major California vegetable production area required. Miscellaneous course fee may be required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: VGSC 232 or consent of instructor.

#### **VGSC 521 Advanced Crop Production (4)** (Also listed as CRSC 521)

Production and management of crops under intensive and extensive cultural systems and low-input agriculture. Interaction between growth factors at various levels of production and interaction of cultural practices and plant requirements. Miscellaneous course fee may be required—see *Class Schedule*. 3 lectures, 1 laboratory. Prerequisite: Graduate standing and consent of instructor.

## **VS—VETERINARY SCIENCE**

#### **VS 200 Special Problems for Undergraduates (2–3)**

Individual investigation, research, studies or surveys of selected problems. Total credit limited to 4 units, with a maximum of 3 units per quarter. Prerequisite: Consent of instructor.

#### **VS 203 Animal Parasitology (3)**

Identification, life cycles, prevention and control of the common external and internal parasites causing economic loss in livestock. 3 lectures. Prerequisite: BIO 101 and BIO 105, or BIO 151.

#### **VS 223 Anatomy and Physiology of Farm Animals (4)**

Comprehensive overview of the principal systems of farm animals using an integrative, systemic approach to learning the homeostasis of mammalian organisms so the information can be applied to their daily care and management. 3 lectures, 1 laboratory. Prerequisite: BIO 101 and BIO 105, or BIO 151.

#### **VS 312 Production Medicine (3)**

Basic disease concepts. Fundamentals of immunology and therapeutics. Disease prevention principles, infectious and non-infectious. Pre-harvest food safety and milk and meat quality assurance. Herd health management programs for production efficiency and product quality. 3 lectures. Prerequisite: ASCI 141, ASCI 142, ASCI 143, ASCI 144, and VS 223.

#### **VS 320 Zoonoses and Veterinary Public Health Concerns (4)**

Public health concerns including: animal and bird diseases which may be transmitted to people; pre-harvest food safety and handling

concerns; and environmental public health hazards. 3 lectures, 1 activity. Prerequisite: BIO 101 and BIO 105, or BIO 151.

#### **VS 400 Special Problems for Advanced Undergraduates (2–4)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 4 units per quarter. Prerequisite: Consent of instructor.

#### **VS 438 Systemic Animal Physiology (4)**

Homeostatic relationships of organ systems. Cardiovascular, respiratory, urogenital and neuro-endocrinological functions. 3 lectures, 1 laboratory. Prerequisite: VS 223, CHEM 313 or CHEM 371.

## **WS—WOMEN'S STUDIES**

#### **WS 301 Introduction to Women's Studies (4) USCP**

Introduction to theories and research on sex differentiation, stratification, and gender role development. How historical, political, and cultural factors (e.g., race, class) have affected women's lives as well as how women have shaped their social and cultural environments. 4 lectures. Prerequisite: ENGL 114, ENGL 125 or PHIL 125 or SPC 125, and upper division standing.

#### **WS 316 Women as Subject and Object in Art History (4)** (Also listed as ART 316)

Exploration of the role of women in the visual arts. Women as artists, women as portrayed in art, and feminist theory as it applies to the study of the visual arts and art history. 4 lectures. Prerequisite: ART 111, ART 112 or consent of instructor.

#### **WS 400 Special Problems for Advanced Undergraduates (1–2)**

Individual investigation, research studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: WS 301; WS 401 or WS 411 or HIST 434 or HIST 435 or PSY 314; and consent of Women's Studies director.

#### **WS 401 Seminar in Women's Studies (4)**

Intensive study of a selected topic in Women's Studies (such as women and work, women and the law, women in the arts). The topic will be listed in the *Class Schedule*. Field experience may be required as appropriate. May be repeated for up to 8 units. 3 seminars and a research project. Prerequisite: WS 301 or consent of instructor and upper division standing.

#### **WS 411 Women in Cross-Cultural Perspective (4) GE D4b**

Similarities and differences in women's lives internationally. Cultural influences such as class, ethnicity, and religion on women's status. Global feminism, reproductive rights, women's labor, women in development, women's politics. 4 lectures. Prerequisite: WS 301.

#### **WS 434 American Women's History to 1870 (4)** (Also listed as HIST 434)

Female ideology and experience from the colonial period through the American Civil War. Use of a variety of sources, including women's own writing, in order to understand the history of women as it both reflects and shapes American culture and society. 3 lectures and research project. Prerequisite: Junior standing or consent of instructor.

**WS 435 American Women's History from 1870 (4)**  
(Also listed as HIST 435) **USCP**

The female past in the modern period of U.S. history. Considers how transformations in gender roles are reflective of other significant changes in American culture and society. Emphasis on class, race, and ethnic variations in women's experience. 3 lectures and research project. Prerequisite: Junior standing or consent of instructor.

## ZOO—ZOOLOGY

**ZOO 240 Human Anatomy and Physiology I (5)** **GE B1b**

Structural and functional organization of the skeletal, muscular, and nervous systems. Includes discussion of molecular, cellular, and organ system levels of organization. Activities emphasize histology, cadaver anatomy, physiology of muscle contraction, nerve impulse initiation and conduction, sensory and motor functions. 3 lectures, 2 activities. Prerequisite: BIO 111 or BIO 115 or BIO 151, CHEM 111 or CHEM 127, sophomore standing.

**ZOO 241 Human Anatomy and Physiology II (5)** **GE B1b**

Structural and functional organization of the circulatory, respiratory, digestive, excretory, and reproductive systems. Emphasizes cellular, tissue, and organ system integration of anatomical and physiological mechanisms. Laboratory includes histology, cadaver anatomy, and experiments emphasizing physiological regulation involved in the above systems. 3 lectures, 2 activities. Prerequisite: BIO 111 or BIO 115 or BIO 151, CHEM 111 or CHEM 127, sophomore standing.

**ZOO 320 Fishery Resource Management (4)**

Methods of sampling, capturing and examination of fish populations with emphasis upon game fish. Aspects of management for maximum yield of fish for recreation purposes. Biopolitics of management. 4 lectures. Prerequisite: Course in ecology or consent of instructor.

**ZOO 321 Mammalogy (4)** **GE B1b**

Biology and economic importance of mammals. Classification and identification of mammals, with emphasis on California species. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 322 Ichthyology (4)** **GE B1b**

Phylogeny, anatomy, functional morphology, physiology, and ecology of marine and freshwater fishes. Special reference to local and economically important species. Laboratory emphasis on taxonomy of California species, especially marine groups. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 323 Ornithology (4)** **GE B1b**

Classification and identification of birds, with emphasis on California species. Anatomy, physiology, ecology and behavior. Saturday field trips required. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 329 Vertebrate Field Zoology (4)** **GE B1b**

Identification and natural history of terrestrial vertebrates, with emphasis on field studies and local species. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 335 General Entomology (4)**

Introduction to the study of insects. Structure, major orders and families of insects, life histories, medical and economic importance. Insect collection required. 2 lectures, 2 laboratories.

**ZOO 336 Invertebrate Zoology (4)** **GE B1b**

Invertebrate groups of animals with emphasis on taxonomy, morphology, distribution and economic importance. 2 lectures, 2 laboratories, and fieldwork. Prerequisite: BIO 153 or consent of instructor.

**ZOO 340 Human Muscle Anatomy (1)**

Functional organization of the human muscular system, utilizing cadavers and human preparations. All major muscle groups. 1 laboratory. Prerequisite or concurrent: ZOO 240; sophomore standing.

**ZOO 341 Herpetology (4)** **GE B1b**

Living and extinct reptiles and amphibians; an adaptive approach to their diversity, biology, and classification. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 405 Vertebrate Development (5)**

Events and mechanisms of embryonic development, including fertilization, morphogenesis, cell differentiation, and organogenesis, with emphasis on vertebrates. 3 lectures, 2 laboratories. Prerequisite: BIO 153, and BIO 303 or BIO 351.

**ZOO 421 Immature Stages of Insects (4)**

Identification, biology, and economic importance of preimaginal insect forms. 2 lectures, 2 laboratories. Prerequisite: ZOO 335 or consent of instructor.

**ZOO 422 Functional Histology (4)**

Functional microscopic anatomy of principal tissues and organs of vertebrates. Structural studies to determine mechanisms underlying physiological processes. 2 lectures, 2 laboratories. Prerequisite: BIO 153.

**ZOO 423 Fisheries Science and Resource Conservation (4)**

Basic approaches in scientific investigation of marine and freshwater fisheries. Includes methodologies and quantitative strategies for study of finfish and invertebrates, user-group conflict issues, regional/global controversies in fisheries, species identification, lab/field protocols, general statistical procedures, and computer simulations. 3 lectures, 1 laboratory. Prerequisite: BIO 153. Recommended: ZOO 322.

**ZOO 425 Parasitology (4)**

External and internal parasites of man and animals. Life history. Parasite-host relationships. Control and recognition of species of clinical importance. 2 lectures, 2 laboratories. Prerequisite: BIO 153 and MCRO 221 or MCRO 224.

**ZOO 426 Immunology and Serology (4)**

Nature of beneficial and harmful immune reactions. Theory and techniques of serological methods in diagnosing disease. Designed for preparing laboratory technologists. 2 lectures, 2 laboratories. Prerequisite: Consent of instructor.

**ZOO 428 Hematology (4)**

Formation, composition, function and destruction of blood in health and disease. Methods for examination of blood. Designed for preparing laboratory technologists. 2 lectures, 2 laboratories. Prerequisite: BIO 115 or BIO 153, and consent of instructor. Recommended: ZOO 426.

**ZOO 436 Functional Invertebrate Zoology (4)**

Comparative study of the functions of organ systems of the invertebrate groups of organisms. Emphasis on strategies utilized

in accomplishing the function of the organ systems in adapting to different environmental demands. 2 lectures, 2 laboratories.

Prerequisite: ZOO 336 or consent of instructor.

**ZOO 437 Animal Behavior (4)**

Behavioral adaptations of animals to their environment and way of life. Analysis of behavior patterns, use of patterns in clarifying evolutionary and ecological relationships. 3 lectures, 1 laboratory.

Prerequisite: BIO 153. Recommended: BIO 325.

**ZOO 530 Behavioral Ecology (3)**

Function and evolution of behavioral phenomena as they relate to ecological phenomena. Topics include habitat selection, spacing mechanisms, reproductive strategies, feeding strategies, agonistic, parasitic, and altruistic behavior; migration, and comparative social systems. 3 seminars. Prerequisite: Graduate standing, BIO 325 or BOT 326, ZOO 437. Recommended: BIO 414.