

**4360. Advanced Modern Physics II – Nuclear and Particle Physics.** 3 hours. Comprehensive study of nuclear structure and dynamics; survey of particle physics; properties of the nuclear force; interpretation of experimental data via specific many-body models; interaction of radiation with matter; classification of particles and nuclei; scattering theory; conservation laws and symmetry; and contemporary results. Prerequisite(s): PHYS 4350.

**4420. Physical Optics.** 3 hours. (3;0;1) Huygens' principle and application to geometrical optics; interference phenomena; Fraunhofer and Fresnel diffraction; polarization; electromagnetic theory of light and interaction with matter. Part of the instruction will be in a laboratory setting. Prerequisite(s): PHYS 2220/2240.

**4500. Introduction to Solid-State Physics.** 3 hours. An introduction to the major areas of solid-state physics, including crystal structure and symmetry, lattice vibrations and phonons, thermal properties, energy bands, semiconductors, superconductivity, and magnetic properties. Prerequisite(s): PHYS 3010.

**4550. Modern Classical Dynamics.** 3 hours. Introduction to nonlinear dynamical systems; onset of chaos, phase space portraits, universality of chaos, strange attractors, experimental verification, fluid dynamics and the KAM theorem. Prerequisite(s): PHYS 3220.

**4600. Computer Based Physics.** 3 hours. Symbolic and numerical evaluations of single-variable and multi-variable integrals with a single line of programming. Symbolic evaluation of derivatives. Symbolic manipulation of lists including vectors and matrices. Data analysis. Multidimensional plots. Symbolic derivations. Symbolic and numerical solutions to single and multiple, linear and nonlinear, differential and partial differential equations. Probability densities and Monte Carlo methods. Random walk and classical trajectory simulations. Prerequisite(s): PHYS 2220.

**4610. Topics in Astronomy.** 3 hours. (3;0;1) Selected topics in planetary and stellar astronomy: techniques of astronomical observation and measurement; evolution, composition and properties of our solar system and the universe; history of astronomy. Designed for students seeking secondary physical science/science teacher certification. The recitation hour for PHYS 4610 serves to cover teaching methods in astronomy, including the demonstration of measurement equipment (e.g., spectrometers, digital imaging, telescopes, etc.). Prerequisite(s): consent of department.

**4630. Topics in Astronomy Laboratory.** 1 hour. (0;3) Laboratory sequence for PHYS 4610. Designed for students seeking secondary physical science/science teacher certification. Emphasizes data acquisition (e.g., via astronomical observations), data analysis (e.g., of stellar spectra) for the selected topics covered in PHYS 4610, and includes an overview of how to set up the equipment for the laboratory exercises. Prerequisite(s): credit for or concurrent enrollment in PHYS 4610.

**4700. Procedures and Materials for Science Instruction.** 3 hours. (2;4) Problems, techniques and procedures for classroom and laboratory experiences based on current science education research. Recommended for students who are obtaining secondary teacher certification in a science field. Field experience in the public schools is required. Prerequisite(s): 16 hours of physics, completion of freshman and sophomore science courses required for certification and

consent of department. Does not count as an elective toward a major or minor in physics, except for students seeking certification. (Same as CHEM 4700 and BIOL 4700.)

**4710. Foundations of Theoretical Physics.** 3 hours. Overview of topics in theoretical physics. Symmetry; mechanics: Newton's laws, celestial mechanics, Hamiltonian formalism; electromagnetism: Maxwell's equations, nonlinear optics and classical field theory, quantum optics, lasers, chaotic diffraction; quantum mechanics: measurements and scattering theory; statistical physics: entropy, equilibrium statistical mechanics; and contemporary areas: fractals, chaos and nonlinear dynamics. Topics may vary. Prerequisite(s): PHYS 4210, 4310; PHYS 4110, which may be taken concurrently.

**4900-4910. Special Problems.** 1-3 hours each. Must have the consent of the faculty member prior to enrollment. May be repeated for credit.

**4950. Senior Thesis.** 3-6 hours. (0; 0; 9-18) Individual research on a problem chosen in consultation with a faculty member. Research may be conducted on campus, during an internship off-campus, or as an exchange student in a study abroad program. Prerequisite(s): consent of faculty member.

**4960-4970. Science Institute (Physics).** 1-6 hours each. For students accepted by the university as participants in special institute programs. May be repeated for credit but not to exceed a total of 6 hours in each course.

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## Political Science

### *Political Science, PSCI*

Students are eligible to take advanced courses after 6 hours of introductory work.

Prerequisites: PSCI 1040 and 1050 are prerequisite to advanced courses in American government and politics, public law, public policy, and international relations (See Fields A, B, D and F in departmental copy). Three hours of political science are prerequisite to advanced courses in political theory and methodology and comparative government and politics (See Fields C and E in departmental copy).

**1040-1050-1060. American Government.** 3 hours each. *PSCI 1040 must be taken to satisfy the requirement of a course emphasizing U.S. and Texas constitutions. PSCI 1050 or PSCI 1060 fulfills the remaining 3 hours of the legislative requirement for 6 hours of government.*

**1040 (GOVT 2301). American Government: Laws and Institutions.** U.S. and Texas constitutions, federalism, local government, institutions, civil rights and civil liberties. *Satisfies legislative requirement of a course emphasizing U.S. and Texas constitutions.*

**1050 (GOVT 2302). American Government: Process and Policies.** Political parties, elections, interest groups, mass media, public opinion and public policy.

**1060. American Government: Topics.** Individually or team-taught courses that explore in depth a substantive aspect of American government or politics. Topics vary and may include (but are not limited to) specific contemporary public issues, institutional simulations, and politics through the arts and literature. May be repeated for credit as topics vary. May be used for duplication only when topic is the same.

**1041-1051. Honors American Government.** 3 hours each. *Fulfills legislative requirement of 6 hours of American government for students in the University Honors Program; 1041 satisfies the requirement of a course emphasizing U.S. and Texas constitutions.*

**1041.** Constitutions of the United States and Texas, federalism and political processes. Prerequisite(s): acceptance to University Honors Program.

**1051.** Organization, powers, processes and functions of national and state governments. Prerequisite(s): PSCI 1041 and acceptance to University Honors Program.

**1085. The American Political and Economic Experience.** 3 hours. Study of the organization, powers, processes and functions of institutions of national and state governments; civil liberties and civil rights; and public policy. Integrated into each political science topic are topics of macroeconomics, which are discussed in the context of American government. Includes principles of economic organization and growth in modern economies; decision-making that affects economic policy and activities, including official appointments to the Federal Reserve; economic issues, including money and banking and monetary and fiscal policy; and discussion of income and business cycles as they relate to various areas, including education, social welfare, and environmental policy. Prerequisite(s): acceptance into the University Honors Program. May be substituted for PSCI 1050/1051 and ECON 1110. *Fulfills 3 hours of the legislative requirement of 6 hours of American government.*

**2300. The Study of Politics.** 4 hours. Concepts, principles and practices of politics. A survey of major topics and issues in political science. Prerequisite(s): PSCI 1040 or PSCI 1050/1060, or consent of department.

**2900. Special Problems.** 1-3 hours.

**3010. American State and Local Government.** 3 hours. Political processes among state and local governments, and similarities and variations in the politics and policies of states.

**3100. Topics in American Government.** 3 hours. Major areas of research and controversy in American politics. Representative topics include political campaigning, minority group politics, and science fiction and politics. May be repeated for credit as topics vary.

**3120. Women and Politics.** 3 hours. Explores aspects of women's political, legal and economic lives in which gender intersects with government; provides overview of issues and important concepts, events and movements concerning them. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**3110. The Legislative Process.** 3 hours. Legislative behavior, representation, selection of legislators, organization and procedures; relationships to other branches of government.

**3130. Interest Groups.** 3 hours. The theory, development, types, operations and effectiveness of interest groups in American politics.

**3160. Mass Media in American Politics.** 3 hours. Mass media's impact upon the political process, institutions and the individual.

**3200. The American Legal System.** 3 hours. Institutions and processes; courts and judicial behavior.

**3210. The U.S. Supreme Court.** 3 hours. Explores varying aspects of the U.S. Supreme Court, including how the Supreme Court selects and decides cases, how justices are appointed to the Supreme Court, how the Supreme Court interacts with other branches of government and interest groups, and how decisions are implemented.

**3300. Introduction to Political Research.** 3 hours. Emphasizes the conceptual and analytical tools necessary for conducting and understanding research in political science. Includes an introduction to statistical analysis and computer use. Prerequisite(s): PSCI 2300.

**3310. Political Theory: Socrates to the Eighteenth Century.** 3 hours. Political philosophy of Western civilization from early to modern times; works of Plato, Aristotle, Machiavelli, Hobbes and others. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**3320. Political Theory: Eighteenth Century to the Present.** 3 hours. Political thought since the 18th century; Locke and Rousseau; liberalism and conservatism; doctrines of Western democracy; Marxist communism and socialism; 20th-century nationalism. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**3420. Bureaucracy and Public Policy.** 3 hours. A study of the nature of bureaucracy, its role in policy development and the problem of bureaucratic responsibility. (Same as PADM 3420.)

**3500. Introduction to Peace Studies.** 3 hours. Origins and extent of violence in human relations, foreign and domestic. *Satisfies the Cross-cultural and Global Studies requirement of the University Core Curriculum.*

**3600. Comparative Politics.** 3 hours. Major concepts and approaches to comparative government and politics.

**3700. Area Politics.** 3 hours. Political institutions, processes, problems and policies in distinctive geographic or cultural areas of the world. Frequently offered areas include Africa, Asia, Latin America, the Middle East, the former Soviet Union and Eastern Europe, Western Europe, the Anglo-American democracies, and the Commonwealth of Nations. May be repeated for credit as topics vary.

**3810. International Relations.** 3 hours. Analytical survey of current world politics. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*

**3910. Practicum.** 1-3 hours. Field practicum offered as special problems or organized course. Prerequisite(s): consent of department and chair; PSCI 3110 for national or state legislative internships.

**4020. Urban Politics.** 3 hours. The city in social order; political machinery of central city and suburbs; types of conflicts, policies, leadership and groups; metropolitan government.

**4100. Political Parties.** 3 hours. Development, nature, problems, organization, operation and functions.

**4120. Public Opinion and Participation.** 3 hours. Shaping factors, communication techniques, public opinion, governmental action and democracy.

**4130. American Intergovernmental Relations.** 3 hours. Federal system; constitutional and theoretical bases of federalism; national/state/local government conflict and cooperation; regional arrangements; political centralization; impact upon American traditions; future prospects. (Same as PADM 4130.)

**4140. The Presidency.** 3 hours. Development of power, influence and limitations of the chief executive; selection, office, changing role and problems of control.

**4200-4210. Constitutional Government and Law in the United States.** 3 hours each. Constitution of the United States, work of the Supreme Court, and effects of decisions on national and state government.

- 4200. Constitutional Law: Discrimination and the Powers of the Government.** Decisions of the United States Supreme Court; scope of legislative, executive and judicial power; presidential power in war and foreign affairs; clash of national and state power; economic liberties and property rights; racial and gender discrimination.
- 4210. Constitutional Law: Rights and Liberties.** Decisions of the United States Supreme Court; freedom of religion, speech and press; rights of criminal defendants; right to privacy.
- 4220. Jurisprudence.** 3 hours. Law in the modern state, meaning and objects, sources and growth, and conceptions of rights and justice. Prerequisite(s): 3 hours in public law.
- 4320. American Political Theory.** 3 hours. American political thought since Colonial beginnings.
- 4330. Topics in Political Theory.** 3 hours. This course addresses either the work of selected theorists, such as Plato, Thucydides, Machiavelli, Locke or Marx, or themes, such as morality and politics, liberalism and authoritarianism. May be repeated for credit as topics vary.
- 4450. Public Policy Analysis.** 3 hours. Policy making, impact of public policy and factors that place specific problems on the public agenda. (Same as PADM 4450.)
- 4490. Topics in Public Policy.** 3 hours. Analysis of the making, implementation and evaluation of major policy issues in the United States. Representative topics include aging, defense, civil rights, economic growth, education, environment, health care and poverty. May be repeated for credit as topics vary. Prerequisite(s): PSCI 1040, PSCI 1050 and PSCI 2300 or its equivalent.
- 4520. International Human Rights.** 3 hours. Consideration of the concept and role of human rights in international affairs. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*
- 4630. The Military in Politics.** 3 hours. Involvement of the world's military forces in domestic politics, government and policy making, especially in the non-Western nations of Africa, Asia, Latin America and the Middle East. Topics include civil-military relations, military forces as interest groups, military intervention and the coup d'état, and military performance in government.
- 4640. Revolution and Political Violence.** 3 hours. Causes and consequences of revolution and other forms of political violence in nations.
- 4650. Comparative Public Policy.** 3 hours. Public policy and policy making in Westernized democratic nations. Analysis and evaluation of public policies. Introduction to cross-national policy study techniques.
- 4660. Democracy and Democratization.** 3 hours. Explores democracy's nature, causes of democratization, the spread of democracy in the world, and problems of consolidation of democracy. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*
- 4700. Topics in Comparative Politics.** 3 hours. Major areas of research and controversy in the politics of contemporary nations. Representative topics include political socialization, peasant movements, political recruitment and judicial politics. May be repeated for credit as topics vary.
- 4710. Middle East Politics: Critical Issues.** 3 hours. Overview of Middle Eastern regional politics. Attention is given to such issues as legitimacy, authority, identity, military, democracy and religious fundamentalism. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*
- 4720. Ethnicity in World Politics.** 3 hours. Consideration of the concepts of ethnicity and nationalism as divisive elements in world affairs. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*
- 4800. The Politics of International Organization.** 3 hours. The formation of policy at the international level on questions of military security, the environment, the international economy, economic development through the United Nations and related agencies, and the place of the multinational corporation in world affairs.
- 4810. International Law.** 3 hours. Theoretical and political foundations of the law among nations; formation, change, application and enforcement of law; modern trends. Prerequisite(s): PSCI 3200 or 3810, or consent of instructor.
- 4820. Contemporary International Problems.** 3 hours. Major contemporary problems and conflicts confronting the international system. Prerequisite(s): consent of instructor. May be repeated for credit as topics vary.
- 4821. International Conflict.** 3 hours. Examines the forces that promote conflict and peace within the international system, including change over time. Students survey the scholarly literature on war to learn what leading research can explain about international conflict.
- 4822. International Conflict Management.** 3 hours. Examination of the idea of international conflict management, focusing on the forms it can take and the conditions under which it can be successful.
- 4823. International Criminal Tribunals and War Crimes.** 3 hours. Examines international war crimes, such as Rwanda and the former Yugoslavia, including the causes and consequences of such conflicts. Efforts to establish institutions of international justice, including the International Criminal Tribunal for the former Yugoslavia and the International Criminal Tribunal for Rwanda. Students explore international legal issues associated with such courts.
- 4824. Islam, Democracy and Human Rights.** 3 hours. Surveys Islamic political thought in order to understand basic Islamic concepts and doctrines, such as role of religion in politics, rights and duties of the individual and community, and the nature of government. Course includes an examination of 19th- and 20th-century liberal and conservative Islamic thinkers and their efforts to reinterpret Islam to meet the challenges of modernization. Study of contemporary debates within Islam, such as democracy and human rights.
- 4825. Conflict and Peacemaking in the Middle East.** 3 hours. Examines conflict in the Middle East at regional, national and sub-national levels from several ideological perspectives. Students examine specific conflicts and efforts to secure peace in the region.
- 4830. American Foreign Policy.** 3 hours. Principles and bases on which American foreign policy rests; machinery and personnel for policy formulation.
- 4840. Major Problems of American Foreign Policy.** 3 hours. Recent policies, decision making, implementation and coordination.
- 4850. Critical Issues in World Politics.** 3 hours. Examination of major issues in world politics, including potential for war, religious fundamentalism, morality, weapons of mass destruction, and diminishing resources. *Satisfies the Cross-cultural, Diversity and Global Studies requirement of the University Core Curriculum.*

**4860. International Political Economy.** 3 hours.

A study of the politics of economic issues in international affairs, including the creation, maintenance and decay of international cooperation in trade; monetary and financial relations among Western countries; the roles of state and non-state participants; conflict and cooperation in East-West and North-South international economic relations; and an examination of the imperialist and world systems approaches to international affairs.

**4900-4910. Special Problems.** 1-3 hours each.

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## Psychology

**Psychology, PSYC****1000. Psychology of Learning and Success.** 3 hours.

Examines psychological factors that underlie learning and success in higher education, with an emphasis on introducing students to applicable strategies and theories. Topics covered include information processing and memory, strategic learning, self-regulation, goal setting and motivation, multiple intelligences and learning styles, and critical thinking.

**1630 (PSYC 2301). General Psychology I.** 3 hours. Nature of psychology with emphases on the study of personality development, decision making, reactions to frustration, mental health, and how the individual interacts with and is influenced by others. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**1650. General Psychology II.** 3 hours. Nature of psychology with emphases on the physiological basis of behavior and psychological processes, including learning, motivation, perception and emotion. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

**2317. Quantitative Methods in Psychology.** 4 hours. (3;1) Techniques appropriate for treatment of psychological data; frequency distributions, percentiles, measures of central tendency and variability, normal curve function, simple correlational analyses, and applications of sampling theory. Laboratory offers practice in quantitative methodology and an introduction to the computer statistical program SPSS.

**2480 (PSYC 2315). Psychology of Adjustment.** 3 hours. Processes involved in adjustment of individuals to their personal and social environments; role of conflict, frustration and healthy and pathological strategies of adjustment.

**2580. Health Psychology.** 3 hours. Examines psychological, physiological, social and behavioral factors as they influence and are influenced by physical health. Health psychology is concerned with the acquisition and maintenance of health through behavior change strategies, the prevention and/or treatment of illnesses, the role of psychosocial and stress factors in the development of physical illness, and the formulation of health care policy. *Satisfies the Wellness requirement of the University Core Curriculum.*

**2600 (PSYC 2302). Psychology of Interpersonal Behavior.** 3 hours. (2;2) Relevant variables underlying interpersonal relationships, and current research methods and findings. Skills in developing effective interpersonal relationships in such contexts as friendships, dating, marriage, family, business and industry. Includes the use of recording devices, role playing and self-observation procedures.

**2650 (PSYC 2319). Group Psychology.** 3 hours. Psychological factors in propaganda, social control, mob action, leadership, group functioning, measurement of public opinion, social status, sources of attitudes.

**2900. Special Problems.** 1-3 hours.**2950. Experimental Methods in Psychology.** 4 hours. (4;3)

Basic experimental procedures and designs, laboratory apparatus, and treatment of experimental data. Experiments and experimental reports required of each student. Prerequisite(s): PSYC 2317 or consent of department.

**3480. Psychology of Adult Development and Aging.**

3 hours. Personality, cognitive, social and sensory-perceptual aspects of development from early adulthood through death. Emphasis on the development of a comprehensive understanding of the adult portion of the life span. (Same as AGER 3480.)

**3490. Psychological Dynamics of Women.** 3 hours.

Comparison of personality and cultural factors associated with gender. (Same as WMST 3520.)

**3520. Introduction to Industrial Organizational**

**Psychology.** 3 hours. Personnel and organizational psychology; selection and testing procedures, test validation, and theories of organization, leadership and job performance. Prerequisite(s): PSYC 3610 or equivalent.

**3530. Psychology of the Offender.** 3 hours. Psychological processes related to the legal offender; dynamics involved in such activities as sexual deviancy, drug abuse, personal assault, including murder, and non-assaultive crimes; meaning of classification from courtroom to prisons and in release. (Same as CJUS 3530.)

**3620. Developmental Psychology.** 3 hours. Basic theories and research in life-span developmental psychology; parent-child relations, identification, peer relations, self-concept, language learning, perceptual and cognitive development.

**3630. Introduction to Psychological Measurement.** 3 hours. Fundamental approaches, theories of psychological tests and testing; correlation, reliability, validity and methods of test construction. Prerequisite(s): PSYC 3610 or equivalent.

**3640. Psychological Factors in Marital Adjustment.** 3 hours. Physiological, psychological and economic factors involved in marital adjustment; practical education for marriage and parenthood.

**3700. Ecological Psychology.** 3 hours. Effects of changing ecological conditions, such as the increased use of chemicals, the processing of foods, and the contamination of water and air on human behavior.

**4000. Abuse in Adult Relationships.** 3 hours. A general survey of current research on psychological, interpersonal and situational factors involved in physical and emotional abuse in dating, cohabiting and marital relationships. The interdisciplinary body of research is covered from a psychological perspective. Prerequisite(s): PSYC 3650 or equivalent.

**4020. Psychology of Death and Dying.** 3 hours. Concepts and attitudes concerning death and dying from a psychological perspective; current research on death and dying; development of insights and understanding to prepare the student to interact effectively with people who are terminally ill and their family members. Prerequisite(s): advanced standing and consent of department. (Same as AGER 4020.)

**4110. Interviewing for Paraprofessionals in Psychology.**

3 hours. Introduction to the interviewing process in mental health service settings. Includes purposes, objectives, goals, types and skills of interviewing via lectures, plus taped and live demonstrations. Prerequisite(s): PSYC 4610.