

**6340. Atomic and Molecular Physics II.** 3 hours. Applications of scattering theory. Born approximation, phase shifts, effective range theory; density operator; scattering and transition matrices. Interaction of large and weak EM fields with matter. Laser spectroscopy. Prerequisite(s): PHYS 6330.

**6450-6460. Advanced Solid State Physics.** 3 hours each. A two-course sequence designed to prepare graduate students for research in several areas of current interest in solid state physics. Topics include lattice vibration and phonon spectra; band theory, including calculational schemes, symmetry considerations and application to metals and semiconductors; optical and magnetic properties of solids. Prerequisite(s): PHYS 5510 and 5450, or consent of department.

**6500-6510. Advanced Quantum Theory.** 3 hours each.

**6500.** Dirac and Heisenberg formalisms, second quantization and quantum theory of radiation. Dirac equation and its applications. Prerequisite(s): consent of department.

**6510.** Quantization of Dirac, Klein-Gordon fields, interactions, S-matrix theory, perturbation theory and applications. Prerequisite(s): PHYS 6500 or consent of department.

**6750. Selected Topics in Theoretical Physics.** 3 hours.

Advanced topics selected from areas of theoretical and mathematical physics, including relativity, field theory, elementary particles and the many-body problem. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

**6800. Selected Topics in Solid State Physics.** 3 hours.

Advanced topics selected from specialized areas of solid state physics. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

**6900-6910. Special Problems.** 1–3 hours each. Special problems in experimental or theoretical physics for advanced graduate students. Problem chosen by the student with the approval of the supervising professor.

**6940. Individual Research.** 1–12 hours. To be scheduled by the doctoral candidate engaged in research. May be repeated for credit.

**6950. Doctoral Dissertation.** 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

**5310. Proseminar in Political Theory.** 3 hours. Explores the variety of concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

**5340. Seminar in Political Science Scope and Methods.** 3 hours. Concepts, trends and research design in political science.

**5350. Topics in Political Theory.** 3 hours. Study of selected theorists or themes in political philosophy. Seminar may include works of ancient, medieval or modern theorists, focusing on issues of power and justice, human nature and politics, and the nature of the best political system. Themes might include liberalism and conservatism, ethics and international politics, or American political thought. May be repeated for credit as topics vary.

**5420. Proseminar in Public Administration.** 3 hours.

Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

**5610. Proseminar in Comparative Government.** 3 hours.

Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

**5650. Seminar in Area Studies.** 3 hours. The institutions and processes of the major regional areas of the world: Africa, Asia, Europe, the former Soviet Union, Western Europe, Latin America and the Commonwealth. May be repeated for credit as topics vary.

**5810. Proseminar in International Relations.** 3 hours.

Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

**5820. Seminar in International Relations.** 3 hours. Selected problems and concepts related to the theory and practice of international politics, international law, and organization and foreign policy. May be repeated for credit as topics vary.

**5900-5910. Special Problems.** 1–3 hours each. Conference courses open to advanced students capable of doing independent research under the direction of the instructor. Prerequisite(s): consent of department chair.

**5950. Master's Thesis.** 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

**6000. Research Seminar.** 3 hours. Specialized study and research in the field of political science. May be repeated for credit.

**6100. Political Science Teaching and Research.** 3 hours.

Classroom methods for political science instruction, as well as basic research and job-hunting skills. Pass/no pass. May be repeated for credit as topics vary. Hours may not count toward graduate degree plans.

**6320. Quantitative Political Research Methods.** 3 hours.

Empirical research design and contemporary statistical applications in political science, including an introduction to the use of computers. An undergraduate introductory statistics course would be useful prior to registering for this course.

**6340. Time Series Methods for Political Data.** 3 hours.

Focuses on methods for analyzing dynamic relationships among political variables. Topics include pooled cross-sectional time series designs, ARCH, ECM, State-Space, VAR and Box-Jenkins-Tiao intervention-transfer function models. Emphasis is placed on the application of these methodologies using mainframe and microcomputer programs such as BMDP, MICROCRUNCH, RATS and SPSS PC + TRENDS. Prerequisite(s): PSCI 6320 or consent of instructor.

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## Political Science

### *Political Science, PSCI*

**5020. Proseminar in American Government and Politics.**

3 hours. Concepts, research, analytical methods and literature drawn from the leading scholars in the various areas of the field.

**5050. Seminar in American Government and Politics.**

3 hours. Analysis of pertinent government and political problems confronting the American people on the national, state and local levels. May be repeated for credit as topics vary.

**5220. Proseminar in Public Law.** 3 hours. Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

**5230. Seminar in American Public Law.** 3 hours. The legal framework within which American governmental processes operate; analysis of substantive legal rules and basic processes by which law is made and applied. May be repeated for credit as topics vary.

**6900-6910. Special Problems.** 1–3 hours each. Conference courses for doctoral students. Directed reading and research in fields of special interest. Prerequisite(s): consent of department.

**6930. Individual Research.** 1–12 hours. Independent doctoral research prior to comprehensive examinations. May be repeated for credit. Pass/no pass only. Prerequisite(s): approval of graduate adviser.

**6940. Practicum.** 3–6 hours. Pre-dissertation independent research, under faculty supervision. May be repeated for credit up to 6 hours. Partially fulfills the tool requirement. Prerequisite(s): must be near completion of course work.

**6950. Doctoral Dissertation.** 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

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## Psychology

### *Psychology, PSYC*

**5010. Psychology of Human Development.** 3 hours. An integrated rather than specialized view of the biophysical, socio-cultural, psychoemotional and intellectual development of human beings in Western culture. Development is viewed as a product of the interaction of genetic endowment with the environment.

**5030. Advanced Research Design.** 4 hours. (3;3) Principles and techniques of analysis of variance and covariance, experimental designs with applications to randomized groups, factorial, Latin-square, trend analysis and other standard schemes. Experience in laboratory techniques, data collection, data analysis and interpretation. Prerequisite(s): PSYC 5700 or equivalent.

**5040. Cultural Aspects of Health: A Behavioral Medicine Approach.** 3 hours. Conceptual frameworks for understanding factors that influence patterns of health (psychological, biological and social) in persons from different cultures. Presents a behavioral medicine perspective of health and disease and illustrates their unique and common elements in sociopolitical and environmental contexts.

**5050. Seminar in Psychology: Current Issues.** 1–4 hours. Issues and topics of current interest to students in the various graduate programs but not covered by course offerings. May be repeated for credit.

**5060. Advanced History and Systems of Psychology.** 3 hours. Philosophical and physiological roots of psychology; traditional historical systems, including structuralism, functionalism, behaviorism, Gestalt and psychoanalysis; relevance to major contemporary systems.

**5070. Medical and Behavioral Disorders.** 4 hours. (3;4) Drawing from the knowledge of diverse disciplines, students acquire an understanding of basic physiological functions, their psychological basis and ecological factors that comprise the matrix of person-environment interaction. A concept of health is offered that integrates mind, body and environment and resulting pathological states when this balance is disrupted. Students learn to interact with medical providers to promote a more integrative view of the person. Prerequisite(s): consent of department.

**5090. Advanced Social Psychology.** 3 hours. A survey of the constructs, methodologies and theories of social psychology including social perception, attitudes, aggression, prejudice, prosocial behavior, conformity, leadership, groups and communication. Prerequisite(s): enrollment in a graduate program in psychology or consent of department.

**5100. Psychopathology of Childhood.** 3 hours. Normal and psychopathological development in children, focusing on intellectual, emotional and behavioral deviations and their recognition, as well as background in their etiology, dynamics and prognosis. Prerequisite(s): PSYC 5010 or its equivalent, or consent of department.

**5121. Sport and Exercise Psychology.** 3 hours. An in-depth study of analysis techniques necessary for scientific investigations in exercise and sport. Emphasis is placed on computer applications, advanced data analysis, techniques and interpretation of resulting analyses. (Same as KINE 5121.)

**5131. Exercise and Health Psychology.** 3 hours. Introduces students to health, leisure and exercise behavior change strategies, and provides knowledge and skills necessary to improve the initiation and adherence of lifetime health and physical activity behaviors among individuals and groups. Offers a comprehensive inquiry into individual behaviors and lifestyles that affect physical and mental health from health promotion, exercise science and psychological perspectives. Topics include enhancement of health, identification of health risk factors, prevention and treatment of disease, improvement of the health care system and shaping of public opinion with regard to health and physical activity. Prerequisite(s): a course in sport psychology or consent of department. (Same as HLTH 5131 or KINE 5131.)

**5171. Social Psychology of Sport.** 3 hours. The effects of social psychological variables on motor behavior. Topics include social facilitation, social reinforcement, organized youth sports, socialization, group dynamics and leadership. (Same as KINE 5171.)

**5181. Applied Sport Psychology.** 3 hours. Psychological techniques and strategies for enhancing athletic performance, including imagery, arousal regulation, attentional control, goal setting and self-talk. Practical issues, ethical considerations and coaching athlete-organization interface are addressed. Prerequisite(s): PSYC 5121. (Same as KINE 5181.)

**5200. Psychology of Women and Gender.** 3 hours. Theories and research on women and gender; psychological, situational, cultural, environmental and biological influences; the influence of gender biases on research methods and interpretation of results; application of theory and research to problems affecting women. Prerequisite(s): minimum of 6 hours of undergraduate psychology.

**5230. Personnel Psychology.** 3 hours. Problems of personnel selection, job analysis, training, discrimination and appropriate statistical strategies. Prerequisite(s): knowledge of correlational statistics.

**5240. Psychological Assessment of Individuals in Organizations.** 4 hours. (3;3) This course provides supervised experience in the application of individual psychological assessment techniques to personnel selection problems in business and industry. Assessment of individuals' skills, abilities and occupationally relevant personality structure, using objective, projective and behavioral measures as well as assessment centers and biographical data procedures. Feedback techniques and ethical issues also are reviewed. Prerequisite(s): enrollment in a graduate program in psychology, PSYC 5420 or equivalent, and concurrent or prior enrollment in PSYC 5230.