811. **Cellular and Neurophysiology**

Fall, 6(6-0) Interdepartmental with Zoology.

P: BCH 462, PSL 492.

Advanced bioenergetics, transport, regulation of metabolic reactions, specialized cell functions, and neurophysiology.

812. **Advanced Systems Physiology**

Spring, 6(6-0)

P: PSL 811.

Cardiovascular, renal, respiratory, endocrine, reproductive, and gastrointestinal physiology.

825. **Cell Structure and Function**

Spring, 3(3-0) Interdepartmental with Biochemistry and Microbiology, Administered by Biochemistry.

P: BCH 401 or BCH 461.

Molecular basis of structure and function. Cell properties: reproduction, dynamic organization, integration, programmed and integrative information transfer. Original investigations in all five kingdoms.

827. **Advanced Neurobiology**

Fall, 4 credits. Interdepartmental with Pharmacology and Toxicology, and Zoology, Administered by Pharmacology and Toxicology.

Nervous system function at the cellular level: membrane biophysics and potentials, synaptic transmission.

829. **Systems Neuroscience**

Spring of odd-numbered years, 4(4-0) Interdepartmental with Anatomy, and Pharmacology and Toxicology, Administered by Anatomy.

R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Veterinary Medicine.

Anatomy, pharmacology, and physiology of multicellular neural systems. Sensory, motor, autonomic, and chemo-regulatory systems in vertebrate brains.

841. **Advanced Endocrine Physiology and Pharmacology**

Fall, 4(4-0) Interdepartmental with Animal Science, Pharmacology and Toxicology, and Psychology.

P: BCH 461, PSL 432. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Veterinary Medicine.

Basic and advanced concepts of endocrine and reproductive physiology and pharmacology.

850. **Research Topics in Physiology**

Spring, 1 credit.

P: PSL 452, PSL 910. R: Open only to graduate students in Physiology.

Readings, presentations and discussions of selected research literature in physiology.

885. **Vertebrate Neural Systems**

Spring of odd-numbered years, 3(2-2) Interdepartmental with Anatomy, Administered by Anatomy.

Comparative analysis of major component systems of vertebrate brains. Evolution, ontogeny, structure, and function in fish, amphibians, reptiles, birds and mammals.

890. **Readings in Biophysics**

Fall, Spring, Summer, 3 to 8 credits.

A student may earn a maximum of 8 credits in all enrollments for this course.

R: Approval of department.

Individual study of membrane phenomena or other topics in biophysics.

899. **Master's Thesis Research**

Fall, Spring, Summer, 1 to 6 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

901. **Investigating the Lung**

Fall of even-numbered years, 3(3-0) Interdepartmental with Large Animal Clinical Sciences and Pathology. Administered by Large Animal Clinical Sciences.

R: Open only to M.S. and Ph.D. students in Large Animal Clinical Sciences, Small Animal Clinical Sciences, Physiology, and Pathology. Approval of department.


910. **Cellular and Molecular Physiology**

Fall, 4(4-0) P: BCH 802; PSL 432 or PSL 561 or PSL 511; one calculus course. R: Open only to graduate students in Physiology or Pharmacology and Toxicology.

Readings in cell physiology and physiological aspects of molecular biology.

919. **Cardiovascular System**

Fall, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.

R: Approval of department.

Classical and current literature on the physiology of the heart, circulation or microcirculation.

950. **Topics in Physiology**

Fall, Spring, Summer, 1 to 3 credits.

A student may earn a maximum of 9 credits in all enrollments for this course.

R: Approval of department.

Classical and modern concepts in selected areas of physiology.

980. **Problems in Physiology**

Fall, Spring, Summer, 1 to 4 credits.

A student may earn a maximum of 8 credits in all enrollments for this course.

R: Approval of department.

Individual research problems in physiology.

998. **Doctoral Dissertation Research**

Fall, Spring, Summer, 1 to 6 credits.

A student may earn a maximum of 99 credits in all enrollments for this course.

POLITICAL SCIENCE

Department of Political Science

College of Social Science

100. **Introduction to American National Government**

Fall, Spring, Summer, 3(3-0)

The policymaking process in national government, with emphasis on political participation, the presidency, Congress, Supreme Court, bureaucracy, and civil rights and civil liberties.

140. **Introduction to Comparative Politics**

Fall, Spring, Summer, 3(3-0)

Comparative analysis of political systems in first, second, and third-world countries. Alternative methods for comparative cross-cultural analyses of political systems.

160. **Introduction to International Relations**

Fall, Spring, Summer, 3(3-0)

R: Not open to students with credit in MC 220 or MC 222.


170. **Introduction to Political Philosophy**

Fall, Spring, Summer, 3(3-0)

Basic questions of political philosophy as considered from ancient to modern times. Primary focus on the origins, defense, and radical critiques of modern liberal democracy.

200. **Introduction to Political Science**

Fall, Spring, Summer, 4(4-0)

The science of politics. Theory construction, model building, empirical testing, and inductive inference. Examples from American, international and comparative politics.

201. **Introduction to Methods of Political Analysis**

Fall, Spring, Summer, 4(4-0)

P: PLS 260.

Philosophy of social science. Principles of research design, measurement, hypothesis testing, measures of association, cross tabulations, and regression analysis.

301. **American State Government**

Spring, 3(3-0)


302. **Urban Politics**

Fall, 3(3-0)


304. **Minority Politics**

Fall, 3(3-0)

Minority groups and the political process in the United States. Civil rights movements, political organizations, legal decisions, political participation, and legislative politics.

365. **Environmental Politics**

Fall, 3(3-0)

The impact of political and legal institutions on U.S. environmental policy. Public opinion, environmental interest groups, and the environmental movement. The politics of air and water pollution, toxic wastes, public lands, risk assessment, and environmental justice.

316. **Public Bureaucracy in the Policy Process**

Fall, Spring, 3(3-0)

Role of public bureaucracy in the U.S. Theories of administrative behavior and the impact of hierarchy on policymaking. Relations with the president, Congress, interest groups, and the public. Administrative functions, responsiveness, and ethics.

313. **Public Policy Analysis**

Fall, Spring, Summer, 3(3-0)

R: Not open to students with credit in MC 444.

Political analysis of evaluating the consequences of government decision making. Issues of problem identification, policy adoption, and implementation affecting program evaluation.

320. **The American Judicial Process**

Fall, Spring, 3(3-3)

R: Not open to freshmen or sophomores.

Analysis of the structure and functions of judicial systems. Organization, administration, and politics of judicial bureaucracies. Roles of judges, juries, counsel, litigants, and interest groups in the adjudication process.
321. **American Constitutional Law**
- **Fall, Spring (3-0)**
- P: PLS 100 or approval of department.
- Role of the president in the U.S. political system. Constitutional questions, presidential selection, presidential power, interbranch relations, and presidential policy making.

322. **Comparative Legal Systems**
- **Spring, Summer (3-0)**

323. **American Legislative Process**
- **Spring (3-0)**
- The design of Congress. Rules, structures, and procedures affecting policy making. Impact of regular elections on legislative behavior.

324. **American Executive Process**
- **Fall, Spring (3-0)**
- P: PLS 100 or approval of department.
- Role of the president in the U.S. political system. Constitutional questions, presidential selection, presidential power, interbranch relations, and presidential policy making.

331. **Political Institutions and Governmental Processes in the U.S.**
- **Fall, Spring (3-0)**
- Political institutions, political actors, and policy making processes in selected Asian countries.

333. **Comparative Political Economy**
- **Spring of odd-numbered years (3-0)**
- Origins, structure, and activities of political parties. Role of parties and interest groups in elections and in government. Internal politics of parties and of private associations.

334. **Political Socialization and Public Opinion**
- **Fall, Spring (3-0)**
- Role of public opinion in political systems and its impact on the political process. Group differences, political socialization, development and change of political attitudes and behavior patterns. Methods of studying public opinion.

335. **Comparative Political Economy**
- **Spring of odd-numbered years (3-0)**
- P: EC 201 or EC 202.
- Democratic politics and the linkages among political, social, and economic conceptions of equality in developed and developing countries.

336. **Politics in the Third World**
- **Spring (3-0)**
- P: PLS 140 or approval of department.
- Politics of modernization, democratic and authoritarian regimes, and class and ethnicity in developing countries.

337. **Politics of Japan**
- **Spring (3-0)**
- Political institutions and political processes in Japan. Principal schools of thought on Japanese politics. Parties and elections, bureaucratic power, judicial politics, and industrial policy.

338. **Politics of Asian**
- **Fall of even-numbered years, Spring of even-numbered years (3-0)**
- Political institutions, political actors, and policy-making processes in selected Asian countries.

339. **Korean Politics**
- **Fall (3-0)**
- Domestic and international politics of North and South Korea. Political issues in the two Koreas: economic development, foreign relations, and reunification.

340. **West European Politics**
- **Fall, Summer (3-0)**
- Governmental institutions and processes, political socialization, and political culture in Western Europe, including Great Britain.

341. **Politics of English Speaking Democracies**
- **Summer (3-0)**
- Given only in London, England.
- Political institutions, political actors, and political culture in Britain, Australia, or Canada.

342. **Politics of the U.S.S.R. and its Successor States**
- **Spring (3-0)**
- Political history, communist ideology, state institutions and political processes in the Soviet Union and its successor states.

343. **International Political Economy**
- **Fall (3-0)**
- P: PLS 160 or MC 220; EC 201 or EC 202.
- Not open to students with credit in MC 221.
- Introduction to the politics of international economics.

344. **Foreign Policy**
- **Spring of odd-numbered years (3-0)**
- PLS 160 or MC 220 or MC 221.
- Theories of foreign policy making. Factors shaping foreign policy in various countries. Current and recurrent problems in foreign policy making.

345. **International Political Conflict**
- **Fall of even-numbered years (3-0)**
- P: PLS 160.
- R: Not open to students with credit in MC 220.
- Conflict, war, and conflict resolution in the international system.

346. **International Organization and Cooperation**
- **Spring (3-0)**
- R: Not open to students with credit in MC 222.

347. **Classical Political Philosophy**
- **Fall, Spring (3-0)**
- Not open to students with credit in MC 270.
- Examination of major themes in classical political philosophy as represented by such Greek and Roman philosophers as Plato, Aristotle, or Cicero.

348. **Modern Political Philosophy**
- **Fall, Spring (3-0)**
- Major themes of modern political philosophy as represented by such thinkers as Machiavelli, Hobbes, Rousseau, Marx, and Nietzsche.

377. **American Political Thought**
- **Fall (3-0)**
- Not open to students with credit in MC 271.
- Major themes of American political thought. Topics may include the founding of the U.S., nationalism, race relations, or progressivism.

380. **Collective Decision Making in Politics**
- **Fall (3-0)**
- PLS 200.
- Formal models of collective decision making in politics. Empirical and experimental tests of formal models. Topics may include game theory, social choice theory, spatial models, principal-agent models, or dynamic models.

381. **Special Topics in Political Science**
- **Fall, Spring (4-0)**
- A student may earn a maximum of 6 credits in all enrollments for this course.
- P: Completion of Tier 1 writing requirement. Open only to juniors or seniors in the Department of Political Science or in the Interdisciplinary Studies in Social Science and seniors or approval of department.
- Issues and problems in contemporary political science.

382. **American Politics and Public Administration**
- **Fall (3-0)**
- P: PLS 200 or PLS 302 or PLS 304 or PLS 305 or PLS 310 or PLS 313 or PLS 320 or PLS 321 or PLS 322 or PLS 323 or PLS 333 or PLS 334 or PLS 335.
- Open only to juniors or seniors in the Department of Political Science. Open to juniors or seniors in the Interdisciplinary Studies in Social Science major with political science as the disciplinary cognate with approval of department. Completion of Tier 1 writing requirement.
- Capstone course in one subfield of either American politics or public administration. Potential topics include legislative behavior, policy analysis, bureaucratic politics, electoral politics, and the determinants of voting behavior.

383. **Moot Court and Legal Research in Federal Law**
- **Spring (4-0)**
- P: PLS 320; PLS 321 or MC 373.
- Open only to seniors in the Interdisciplinary Studies in Social Science and summer. U.S. Supreme Court decisions in federal law. Legal research techniques, and participation in moot court exercises. Possible topics include civil rights and civil liberties.

384. **Comparative Politics**
- **Spring (4-0)**
- P: PLS 320 or PLS 324 or PLS 334 or PLS 351 or PLS 352 or PLS 353 or PLS 354 or PLS 355 or PLS 358 or PLS 357 or PLS 358.
- Open only to juniors or seniors in the Department of Political Science. Open to juniors or seniors in the Interdisciplinary Studies in Social Science major with political science as the disciplinary cognate with approval of department. Completion of Tier 1 Writing Requirement.
- Capstone course in one subfield of comparative politics. Potential topics include political development, urbanization, role of public opinion, human rights, and women in development.

385. **International Relations**
- **Spring (4-40)**
- P: PLS 361 or PLS 362 or PLS 363 or PLS 364.
- Open only to juniors and seniors in the Department of Political Science. Open to juniors and seniors in the Interdisciplinary Studies in Social Science as the disciplinary cognate with approval of department. Completion of Tier 1 writing requirement.
- Capstone course in one subfield of international relations. Potential topics include international conflict, foreign policy, dispute resolutions, and international political economy.
490. Political Thought (W) Fall of odd-numbered years, Spring of even-numbered years. Open only to juniors and seniors in Department of Political Science. Open to juniors and seniors in Interdisciplinary Studies in Social Science with political science as the disciplinary cognate with approval of department. Completion of Tier I writing requirement. Capstone course in one area of political thought. Potential topics include liberty, justice, equality, Aristotle, Plato, Locke, Hobbes, and Mill.

490H. Honors Internship Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Supervised participation in research or teaching.

491H. Senior Honors Thesis Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Supervised field work in several areas of study. It may involve internships with non-profit organizations or public agencies, or participation in survey research, political campaigns, or petition drives.

495. Independent Study Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Individual research and reading supervised by a faculty member.

800. Proseminar: Political Theory and Research Methods Fall (3-0) Issues in the accumulation of knowledge about political phenomena. Approaches to the verification of hypotheses. Alternative theoretical conceptions in study of politics.

801. Quantitative Techniques in Public Policy and Political Science I Fall (3-0) R: Open only to graduate students in Political Science, Political Science-Urban Studies, or Public Administration or approval of department. Foundations of research methodology. Applications of data in public policy and political science. Individual research projects.

802. Quantitative Techniques in Public Policy and Political Science II Spring (3-6) R: Open only to graduate students in Political Science, Political Science-Urban Studies, or Public Administration or approval of department. Linear and nonlinear models applied to public policy and political science data. Individualized research projects.

810. Proseminar in Public Administration Fall (3-0) Expertise and bureaucratic power. Relations with political institutions. Role of public employees, the politics of administrative processes, and administrative ethics.

811. Proseminar in Policy Analysis Spring (3-0) R: Open only to graduate students in Public Administration or approval of department. Survey of the literature on public policy analysis. Decisionmaking, hierarchy, control, participation, and the political context of public organization.

812. Theories of Administrative Organization Fall (3-0) R: Open only to graduate students in Public Administration or approval of department. Survey of the literature on public policy analysis. Decisionmaking, hierarchy, control, participation, and the political context of public organization.

811. Politics of Public Finance Spring (3-0) R: Open only to graduate students in Public Administration or approval of department. Survey of the literature on public policy analysis. Decisionmaking, hierarchy, control, participation, and the political context of public organization.

820. Proseminar in American Politics Fall (3-0) A student may earn a maximum of 6 credits in all enrollments for this course. The major subfields of American politics. Political behavior within institutions and mass political behavior.


823. State Policies Toward Business Fall (3-0) R: Open only to graduate students in Public Administration or approval of department. Survey of the literature on public policy analysis. Decisionmaking, hierarchy, control, participation, and the political context of public organization.
850. Proseminar in Comparative Politics
Spring, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Research literature in a subfield of comparative politics. Method, approaches, and purposes.

851. Development Administration
Fall of even-numbered years. 3(3-0) Design and organization of policies, programs, and projects for socioeconomic development in poor countries. Effects of politics and culture on organizational performance. Public management process from planning to evaluation.

852. Comparative Public Administration
Fall of odd-numbered years. 3(3-0) Administrative systems in industrialized countries. Historical origins, personnel recruitment, bureaucracy-parliament interactions, planning and market regulation, public spending, and public outcomes.

853. Political Economy of Development Policy
Spring of odd-numbered years, 3(3-0) Introduction to the political economy of Third World development. Decision making and economic policy.

854. Comparative Political Institutions
Spring, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Political institutions from a comparative perspective. Topics may include electoral systems, political parties, presidential vs. parliamentary systems, representation, federalism, and constitutional engineering.

855. Agrarian Politics in the Third World
Fall of even-numbered years, 3(3-0) Rural development in developing countries. The sociology and political economy of rural societies in the Third World. Policies for promoting agricultural development.

857. Parties and Elections
Spring of even-numbered years, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Origin, organization, and behavior of political parties in advanced industrial societies. Structure and transformation of party systems. Role of issues and elections in party systems. Parties in developing societies.

860. Proseminar in International Relations
Fall of even-numbered years, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Theoretical perspectives and analytical approaches to a subfield of international relations.

861. International Political Economy
Fall of odd-numbered years, 3(3-0) P: EC 349 or approval of department. Politics of the international economy. Trade issues. International finance. North-South interactions.

870. Proseminar in Political Thought
Fall of even-numbered years, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Study of a major political thinker.

880. Proseminar in Formal Theory
Spring, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Formal models in understanding politics. Topics may include game theory, spatial modeling, social choice theory, public choice theory, and dynamic modeling. Theoretical issues and research applications.

881. Decision Theory for Public Managers
Fall, 3(3-0) R: Open only to graduate students in Public Administration or Political Science, or approval of department. Techniques for improving individual decision making in complex and uncertain public sector environments. Theoretical issues and practical applications.

884. Proseminar in Political Institutions and Public Choice
Fall, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Theories of political institutions, with particular emphasis on the U.S. Possible topics include models of rational action in electoral, legislative, and bureaucratic institutions and problems of majority rule, collective action, and social welfare.

890. Data Management in Social Science Research
Fall, Summer, 2(1-2) R: Open only to graduate students in the College of Social Science. Data-handling software for social science data. Internet data literacy: locating and retrieving data. Data concepts, codebooks, and limitations of data in the social sciences.

894. Field Experience Practicum
Fall, Spring, 3(3-0) R: Approval of department. Internships in government, private, and government-related agencies or other approved organizations.

895. Degree Project Seminar
Spring, 3(3-0) R: Open only to graduate students in Public Administration. Research project integrating theory, field experiences, and independent research in public policy and public administration.

900. Research Seminar in Political Methodology
Spring, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Advanced topics in political methodology. Individual research projects.

902. Research Seminar in Evaluation Research
Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 802. Methods and techniques for evaluating the policies and programs of public and non-profit organizations. Individual research projects.

903. Policy Analysis Practicum
Fall, Spring, 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 811. R: Approval of department. Field experience in public policy analysis. Work with faculty and public personnel to define and analyze a current public problem.

910. Research Seminar in Public Policy and Public Administration
Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 810 or PLS 811. Specialized topics in public administration or public policy.

920. Research Seminar in American Politics
Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 820. Intensive study of one subfield of American politics. Critical evaluation of the literature.

950. Research Seminar in Comparative Politics
Fall of odd-numbered years, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 850. Intensive study of one subfield of comparative politics. Critical evaluation of the literature.

960. Research Seminar in International Politics
Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 860. Intensive study of one subfield of international politics. Critical evaluation of the literature.

970. Research Seminar in Political Thought
Spring of odd-numbered years, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 870. Intensive study of one subfield of political philosophy.

980. Research Seminar in Formal Theory
Fall of odd-numbered years, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: PLS 880. Intensive study of one formal modeling technique used in political science research.

993. Readings in Political Science
Fall, Spring, Summer, 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Supervised reading in a subfield of political science, public administration, or public policy.

999. Doctoral Dissertation Research
Fall, Spring, Summer, 1 to 12 credits. A student may earn a maximum of 50 credits in all enrollments for this course. R: Open only to doctoral students in Political Science or Political Science-Urban Studies.

PORTUGUESE

PRT

Department of Romance and Classical Languages

College of Arts and Letters

101. Elementary Portuguese I
Fall, 4(4-1) R: No previous experience in Portuguese or approval of department. Practice in using and understanding Portuguese to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.

102. Elementary Portuguese II
Spring, 4(4-1) P: PRT 101 or approval of department. Further practice in using and understanding Portuguese to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.

201. Second-Year Portuguese I
Fall, 4(4-0) P: PRT 101 or approval of department. Intermediate level review and development of oral comprehension, speaking, reading, and writing skills. Topics in the cultures of the Portuguese-speaking world.