and techniques for effective application and dissemination of nutrition knowledge in the community. Prerequisite: Admission to the dietetics major. NUTR 395. Introduction to Patient Care in Dietetics. 2 credits. Offered fall. A study of the concepts of patient care in dietetics, skills needed for Medical Nutrition Therapy and the dietitian’s role on the health care team. Prerequisites: Admission to the dietetics major and NUTR 280. NUTR 446. Experimental Foods (1, 4). 3 credits. Offered spring. An introduction to research in foods. Different techniques of food preparation are studied and evaluated for the most acceptable methods to obtain standard food products. Prerequisites: Admission to the dietetics major; NUTR 340, organic chemistry and statistics. NUTR 455/ KIN 424. Theories and Practices of Weight Management. 3 credits. Offered fall and spring. An examination of the physiological, psychological and environmental theories of obesity. Current trends in obesity research are emphasized. A case study and laboratories are used to provide students with practical experience in constructing a weight management program. Prerequisite: BIO 270, BIO 290, NUTR 280 or permission of the instructor. NUTR 460. Computer Systems for Foods and Nutrition. 3 credits. Offered spring. Introduction to food and nutrition computer systems. Emphasis is placed on the role of computers in nutritional assessment, food service administration, nutrition education and food technology. Prerequisites: NUTR 360 and successful completion of the Tech Level I test. NUTR 482. Nutrition and Metabolism (2, 2). 3 credits. Offered fall. A study of the nutrients, their roles in intermediary metabolism, the effects of genetic errors in metabolism, nutritional deficiencies and means of assessing nutritional status. Agencies and programs concerned with nutrition and health and current trends in nutrition research are emphasized. Prerequisites: Admission to the dietetics major; CHEM 222 and MATH 220. Prerequisite or corequisite: BIO 290. NUTR 484. Clinical Nutrition II (2, 2). 3 credits. Offered spring. A study of the use of diet in preventing illness and as a means of treating disease. Emphasis is given to patient education. Prerequisites: Admission to the dietetics major; NUTR 384 and NUTR 482. NUTR 490. Field Experience in Dietetics. 3 credits. Offered summer. Students participate in field experience relating to their major area of dietetics and their career goals under the coordination of a dietetics faculty member. On-the-job supervision will be provided by the participating hospital dietitians. Prerequisites: Admission to the dietetics major; NUTR 394, NUTR 395. Application for enrollment must be completed through the course instructor in the fall semester prior to the summer in which it will be taken. NUTR 495. Senior Seminar in Dietetics. 2 credits. Offered fall. Students will be introduced to research in dietetics and conduct a senior research project. The Code of Ethics and Standards of Practice of the American Dietetic Association will be investigated, and students will prepare for their postgraduate dietetic internship. Prerequisite: Admission to the dietetics major. NUTR 496. Special Studies in Nutrition/Dietetics. 1-3 credits. Offered fall and spring. This course is designed to give the student in dietetics an opportunity to complete independent study, professional conference participation and/or research under faculty supervision. Prerequisite: Permission of the coordinator of the dietetics program. NUTR 499. Honors. 5 credits. Offered fall and spring. Year course. Persian

Department of Foreign Languages, Literatures and Cultures

PERS 101. Elementary Persian I. 4 credits. Offered fall. The fundamentals of Persian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour’s work a week in the language laboratory. Student will receive no credit for course if he/she has had two or more years of the language in high school. PERS 102. Elementary Persian II. 4 credits. Offered spring. The fundamentals of Persian through a higher level of listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour’s work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. Prerequisite: PERS 101. PERS 231. Intermediate Persian I. 3 credits. Offered fall. A thorough review of first year grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the lower intermediate level. PERS 232. Intermediate Persian II. 3 credits. Offered spring. A thorough review of PERS 231 grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the advanced intermediate level. Prerequisite: PERS 231 or permission of instructor. PERS 490. Special Studies in Persian. 3 credits. Special topics or independent studies in Persian. Philosophy

Department of Philosophy and Religion

GPHIL 101. Introduction to Philosophy. 3 credits. Offered fall and spring. An introduction to the basic problems and concepts of philosophy — the nature of man and the self, ethics, theories of knowledge, philosophy of religion, etc. as revealed in the writings of major philosophers. GPHIL 120. Critical Thinking. 3 credits. Offered fall and spring. An introduction to the techniques for analyzing and evaluating information in everyday experience. The functions of language will be discussed. Techniques for judging the strengths of arguments and the reasonableness of the arguments’ premises will be examined. This course cannot be used to fulfill the B.A. Philosophy requirement. GPHIL 150. Ethical Reasoning. 3 credits. Offered fall and spring. An introduction to the principles and techniques of rational decision making in ethics, including analysis of arguments and fallacies, ethical theories, and applications of moral principles to moral issues. This course cannot be used to fulfill the B.A. Philosophy requirement. PHIL 210. Philosophy Through Film. 3 credits. Offered summer. This course combines feature length films and classic philosophical writings as points of departure for considering perennial philosophical questions such as: What is real? (Metaphysics) How can I know? (Epistemology) What is of value? (Morality). PHIL/REL 218. Philosophy of Religion. 3 credits. Offered once a year. An intensive examination of religion from the standpoint of philosophical thinking with particular emphasis on the way philosophers view such problems as the existence of God, evil, immortality, religious language, etc. PHIL 240. Greek Philosophy in Context. 3 credits. Offered summer. This course will involve exploration of the intellectual world of the Ancient Greeks, with particular emphasis on the philosophical, historical, and literary works produced during the period. The course will include lectures and site visits throughout Greece. PHIL 250. Introduction to Symbolic Logic. 3 credits. Offered fall and spring. An introduction to the languages and techniques of propositional logic and first-order quantification theory. PHIL 262. Problems in Applied Ethics. 3 credits. Ethical theories are used to analyze contemporary moral issues in areas such as business and health care. Course content varies. PHIL 270. Introduction to Ethics. 3 credits. Offered every two years. An introductory study of the basic ethical theories past and present with some application to moral problems. PHIL 285. Philosophy, Art and Literature. 3 credits. Offered every two years. This course will study artistic works (literary or otherwise) for their philosophical content. Related issues in the philosophy of art for example, the nature of tragedy, theories of interpretation may also be considered. PHIL 300. Knowledge and Belief. 3 credits. Offered every year. An extensive examination of theories of knowledge and philosophical problems concerning knowledge and belief. Prerequisites: GPHIL 101 or permission of the instructor. PHIL/ART 305. Seminar in Aesthetics. 3 credits. Offered fall and spring. Readings and discussions in the persistent philosophical problems of the arts, centering on consideration of the work of art, the artist and the audience. Prerequisite: GART 200, GARTH 205, GARTH 206 or GPHIL 101. PHIL 310. Symbolic Logic. 3 credits. The study and application of the principles and techniques of modern deductive logic to natural language. Also, examination of the properties of formal systems and of the logical implications and paradoxes of language. Prerequisite: PHIL 250 or consent of the instructor.

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PHIL 311. Metaphysics. 3 credits. Offered every year.
Examination of central questions regarding the fundamental nature of reality. Possible topics: universals and particulars, possibility and necessity, identity of objects over time and puzzles of material constitution, the problem of free will and determinism, and the nature of time. Prerequisite:
At least one other philosophy course or approval of the instructor.

PHIL/IA 312. Causal Analysis. 3 credits.
Examines causal analysis in national, military, counter- and competitive intelligence. By assessing a factor’s amount and kind of efficacy, students will learn the most reliable methods for distinguishing between relevant/irrelevant events and factors, identifying and excluding pseudo-causes, and anticipating higher order effects of a causal process. Prerequisite: IA 261 or permission of instructor.

PHIL/IA 313. Counterfactual Reasoning. 3 credits.
Examines counterfactual reasoning in national, military, counter- and competitive intelligence. By analyzing alternate scenarios and their consequences, students will learn the most relevant methods for employing creative thinking in generating, developing, and assessing possibilities; substantiating after-action reports, and structuring futures analysis. Prerequisite: IA 261 or permission of instructor.

PHIL 314. Rational Decision Theory. 3 credits.
Explores the fundamental principles of making reasonable choices. The course considers both the conceptual, epistemological and logical insights of these principles, as well as applies them to numerous real-world cases faced by recent decision-makers in areas such as intelligence, information analysis, business or politics. Prerequisite: GPHIL 120 or instructor consent.

PHIL 315. Logic and Legal Reasoning. 3 credits.
Application of symbolic logic (first-order logic with identity) to legal language and deductive legal argument. Will include close logical analysis of at least one of the following: Supreme Court brief, Supreme Court decision, Supreme Court oral argument. Prerequisite: PHIL 250 or instructor consent.

PHIL 320. Inductive Logic. 3 credits.
Introduction to inductive logic and philosophical problems it raises. Topics discussed: the traditional problem of induction, the Goodman paradox and the new riddle of induction, the probability calculus and kinds of probability, Mill’s methods of experimental inquiry and the nature of causality, abduction (inference to the best explanation) and confirmation theory.

PHIL 330. Moral Theory. 3 credits. Offered fall and spring.
An examination, at the intermediate level, of both classical and contemporary moral theories. Critical analysis of the normative and meta-ethical issues these theories raise.

PHIL 335. The Individual, the State and Justice. 3 credits. Offered every two years.
Mid-level class in political philosophy. Will read classic and/or contemporary texts in philosophy influential on political thought. Focus may be on views of the justification for and role of the state. Consideration may also be given to the proper relationship of individuals and the state, political freedom autonomy. Prerequisite: GPHIL 101 or approval of the instructor.

PHIL 340. Ancient Greek Philosophy. 3 credits. Offered fall and spring.
This course traces philosophical problems raised by the pre-Socratics, Parmenides, Heraclitus, Pythagoras and the Sophists through their treatment by Plato and Aristotle. Emphasis is placed on selected writings of Plato and Aristotle. Prerequisites: GPHIL 101 and junior standing or permission of the instructor.

PHIL 341. Modern Philosophy. 3 credits. Offered fall and spring.
A selective survey of major issues and thinkers in Western philosophy from Descartes to Kant.

PHIL 342. Medieval Philosophy. 3 credits. Offered every two years.
A survey of the major issues and thinkers of medieval philosophical world with emphasis on the philosophical writings of those within the Western tradition, such as Augustine, Anselm, Aquinas and Scotus. Prerequisite: One other philosophy course or approval of the instructor.

PHIL 344. Existentialism. 3 credits. Offered every year.
An examination of existentialism and its major spokesmen including such authors as Kierkegaard, Nietzsche, Sartre, Camus, Marcel and Heidegger. Prerequisite: GPHIL 101 or permission of the instructor.

PHIL/WMST 350. The Philosophy of Feminism. 3 credits. Offered every two years.
An intermediate-level examination of philosophical problems in feminist theory and feminist contributions to philosophy.

PHIL 367. Topics in Philosophy of Law. 3 credits. Offered every year.
Examination of the philosophical issues raised by the law, including the nature, foundations and limits of the law, theories of its interpretation and the fundamental interest it aims to protect. Prerequisite: PHIL 270, PHIL 262, PHIL 330 or PHIL 335.

PHIL 370. American Philosophy. 3 credits. Offered every two years.
A study of the main philosophical ideas in America, especially pragmatism, with particular emphasis being given to Pierce, James, Royce, Dewey and Whitehead. Prerequisite: GPHIL 101 or permission of the instructor.

PHIL/REL 375. Nineteenth Century Philosophy and Theology. 3 credits. Offered every two years.
A selected study of 19th-century thought, with emphasis on controversies concerning the nature and limits of reason, the ultimate meaning of history, and the inner meaning and social significance of religion. Pertinent thinkers include Hegel, Marx, Schleiermacher, Kierkegaard, Nietzsche and others.

PHIL/REL 377. Hermeneutics. 3 credits. Offered every two years.
This course will examine the main features of hermeneutics with particular emphasis on its contemporary perspectives. Discussion will focus on such themes as human understanding and human finitude, the nature of history and tradition, linguisticity and textuality of experience. Readings may address Gadamer, Ricoeur, Schleiermacher, and Dillthey. Prerequisite: GPHIL 101 or permission of the instructor.

PHIL/REL 385. Buddhist Thought. 3 credits. Offered every year.
Buddhist thought from its origins to the contemporary world in South Asia and East Asia. Emphasis on the understanding of the human condition; analysis of the mind and of the nature of the cosmos; and the expression of Buddhist thought in the fine arts and social activism.

PHIL 390. Special Topics in Philosophy. 3 credits. Offered fall and spring.
Topics for this intermediate-level course may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for Philosophy majors and minors, but any suitably prepared student may take the course with the permission of the instructor. Prerequisite: GPHIL 101 or instructor consent.

PHIL 391. Advanced Special Topics in Philosophy. 3 credits. Offered fall and spring.
Topics for this advanced course may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for Philosophy majors and minors, but any suitably prepared student may take the course with the permission of the instructor. Prerequisite: six hours of philosophy or consent of the instructor. May be repeated for credit. Prerequisite: Six hours of PHIL credits.

PHIL 392. Philosophy of Mind. 3 credits. Offered every two years.
An examination of competing theories of the intrinsic nature of mental states and mental processes, including careful consideration of questions concerning the relation between the mind and the physical world. Prerequisite: GPHIL 101 or approval of the instructor.

PHIL 394. Self and Identity. 3 credits. Offered once every two years.
This course will explore the philosophical aspects of personal identity, with particular emphasis on the metaphysics of the self. Other issues considered may include the nature of the soul, the status of self-knowledge, and the ethical aspects of personhood. Prerequisites: GPHIL 101 or permission of instructor.

PHIL 395. Philosophy and Scientific Inquiry. 3 credits.
An analysis of philosophical problems in science, such as the nature of scientific explanation, theory formation and confirmation of scientific hypotheses. Issues discussed include the role of models in theory formation, the relationships between experience and reasoning in theory construction and confirmation and the roles of paradigms in scientific thought. Prerequisite: GPHIL 101 or permission of the instructor.

PHIL 396. Philosophy of Physics. 3 credits. Offered once every three semesters.
This course examines the philosophical foundations of physics. Some of the philosophical issues explored in the course may include how various theories in physics impact metaphysics, ontology and/or epistemology. Topics may include the nature of space and time, special relativity, general relativity, quantum theory, classical mechanics, thermodynamics and/or cosmology. Prerequisite: GPHIL 101.

PHIL 397. Philosophy of Space and Time. 3 credits.
This course will survey debates about the nature of space and time. Topics may include Zeno’s paradoxes, time travel, relationism vs. substantivalism, classical accounts of space and time, and relativistic spacetime.

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PHIL 398. Philosophy of Quantum Theory. 3 credits.
Quantum theory describes atoms and particles and is one of the most empirically successful physical theories. However, quantum theory seems to have revolutionary conceptual implications for metaphysics and epistemology. This course offers an introduction to philosophical problems raised by quantum theory. Topics may include the measurement problem, quantum entanglement, different interpretations of quantum mechanics, the Einstein-Podolsky-Rosen (EPR) paradox, and Bell’s theorem.

PHIL 420. Philosophy of Language. 3 credits. Offered every two-three years.
An examination of the central issues in contemporary (mainly 20th century) philosophy of language. Potential topics to be covered include meaning, reference, the nature of language and the nature of truth. Potential philosophers to be examined include Mill, Frege, Russell, Kripke, Lewis and Grice. Prerequisite: PHIL 101, PHIL 250 or permission of the instructor.

PHIL 430. Analytic Philosophy. 3 credits.
An examination of the central issues in contemporary (mainly 20th Century) philosophy of language. Potential topics to be covered include meaning, reference, the nature of language, and the nature of truth. Potential philosophers to be examined include Mill, Frege, Russell, Kripke, Lewis and Grice. Prerequisite: PHIL 101, PHIL 250 or one other course in philosophy, or permission of the instructor.

PHIL 440. Advanced Moral Philosophy. 3 credits. Offered every two years.
Class will closely examine recent or historical work in (largely normative) moral philosophy, including at least two of the following: teleology (e.g., virtue theory), deontology, (e.g., Kantianism) and consequentialism (e.g., utilitarianism). Prerequisite: PHIL 101, PHIL 330 or approval of the instructor.

PHIL 445. Advanced Political Philosophy. 3 credits.
In a seminar format we will examine, in depth, questions of political philosophy. These may include: autonomy, democracy, freedom, impartiality, universalism, toleration and the normative priority of individuals and communities. Prerequisite: PHIL 101, PHIL 330 or approval of the instructor.

PHIL 460. Topics in Classical Philosophy. 3 credits.
An advanced study of major issues in or the writings of one or more thinkers in ancient Greece through the Western medieval period. May be repeated for credit with change of topics. Prerequisite: PHIL 340 or permission of instructor.

PHIL 465. Topics in Modern Philosophy. 3 credits.
An advanced study of some of the major issues in or the writings of one or more 17th-, 18th- or 19th-century philosophers. Prerequisite: PHIL 101, PHIL 341, PHIL 375 or permission of instructor. May be repeated for credit when topics vary.

PHIL 466. Kant. 3 credits. Offered every two years.
An examination of the theory of knowledge and the critique of traditional metaphysics set forth in Kant’s Critique of Pure Reason, and of the ethical theory and the moral metaphysics defended in his Groundwork to the Metaphysics of Morals and Critique of Practical Reason. The course may also more briefly explore some related topics, such as Kant’s views on aesthetics and teleology, or the key ideas of important post-Kantian philosophers like Fichte, Schelling or Hegel. Prerequisite: PHIL 341, PHIL/REL 375 or permission of the instructor.

PHIL 468. Phenomenology. 3 credits. Offered once every two years.
A study of phenomenological investigation into the fundamental structures and conditions of conscious experience—meaning-laden, first person experience of objects, of events, of one’s self, of other persons, of one’s world, and so forth. The course will devote special attention to the work of Husserl and of Heidegger. Additional authors may be studied, such as Sartre, Merleau-Ponty or Levinas. Prerequisites: PHIL 341 or PHIL 344 or PHIL 466 or permission of the instructor.

PHIL 470. Topics in Contemporary Continental Philosophy. 3 credits.
Intensive study of one or two major thinkers or themes in 20th-century European philosophy. Possible topics include figures such as Heidegger, Habermas, Foucault or Derrida; or themes such as phenomenology, critical theory, post-structuralism or the critique of Enlightenment ideals. May be repeated for credit.
Prerequisite: PHIL 341, PHIL/REL 375 or permission of the instructor.

PHIL 475. Philosophy Seminar. 3 credits. Offered fall and spring.
Seminar topics may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for seniors majoring in Philosophy, but any suitably prepared student may take this course with the permission of the instructor. Prerequisite: Senior philosophy major or permission of instructor. May be repeated for credit.

PHIL 490. Special Studies in Philosophy. 3 credits. Offered fall and spring.
Designed to give capable students an opportunity to complete independent study in philosophy under faculty supervision.

PHIL 495. Philosophy Course Assistantship. 1-6 credits. Offered fall and spring.
Students participate as course assistants in philosophy. Assistantships provide students with a sense of what it is like to teach a philosophy course by allowing them to work closely with faculty members through different phases of course preparation, presentation and evaluation. Assistantships may also provide opportunities for student assistants to lead discussion and to help metaphysics course in science outside of the classroom. Prerequisites: May be repeated once if assisting a different course, with 6 maximum total credit hours for both courses combined. Only three credit hours can apply to the major or minor.

PHIL 499. Honors. 6 credits. Offered fall and spring.
Year course.

Physics

Department of Physics and Astronomy

PHYS 105. Foundations of Physics. 1 credit. Offered once a year.
An introduction to the study of physics and the physics department. Presentations are given by faculty and students to acquaint the students with the current research opportunities in the department and the application of physics to broad spectrum of topics.

PHYS 140. College Physics I. 3 credits. Offered once a year.
The first semester of a non-calculus sequence in general physics. Topics include principles of mechanics, thermal properties of matter, wave motion and sound. A working knowledge of algebra and trigonometry is required.

PHYS 150. College Physics II. 3 credits. Offered once a year.
The second semester of a non calculus sequence in general physics. Topics include electric charges, circuits, magnetism, optics, atomic and nuclear physics. Prerequisite: PHYS 140 with a grade of “C” or higher.

PHYS 140L-150L. General Physics Laboratories. 1 credit each semester.
These laboratory courses are designed to complement and supplement the PHYS 140-150 and PHYS 240-250 lecture courses. Prerequisite or corequisite for PHYS 140L: PHYS 140 or PHYS 240. Prerequisite for PHYS 150L: PHYS 140L and either PHYS 140 or PHYS 240. Prerequisite or corequisite for PHYS 150L: PHYS 150 or PHYS 250.

PHYS 215. Energy and the Environment. 3 credits. Offered twice a year.
Energy use, sources and trends; fossil fuels, heat-work conversions, thermodynamic restrictions and electric power production; nuclear fission reactors and fusion energy; solar energy and technologies; alternative energy sources; energy storage; energy conservation; issues of waste and safety. Environmental, social and economic aspects will be discussed. Not open to ISAT majors scheduled to take ISAT 212 as part of their degree requirements.
Prerequisites: One course in general physics and one in mathematics.

PHYS 240. University Physics I. 3 credits. Offered once a year.
Kinematics, dynamics, energy and momentum conservation, oscillatory motion, fluid mechanics and waves. Corequisite: MATH 232 or MATH 235.

PHYS 246. Data Acquisition and Analysis Techniques in Physics I. 1 credit.
This laboratory supplement PHYS 240 by establishing the experimental basis of physics. Topics include conception, design and performance of experiments in physics emphasizing data acquisition, analysis of experimental data, and the handling of experimental uncertainties. Prerequisite: PHYS 240.

PHYS 247. Data Acquisition and Analysis Techniques in Physics II. 1 credit.
This laboratory completes the introductory physics lab sequence and is designed to supplement the PHYS 240 and PHYS 250 lecture courses. Topics include conception, design and performance of sophisticated experiments in physics, computer simulation of physical processes, analysis of experimental data, including uncertainty estimation, and error propagation. Prerequisites: PHYS 250 and PHYS 246.

PHYS 250. University Physics II. 3 credits. Offered once a year.
Electric forces, fields and potentials; capacitance, dielectrics, resistance and DC circuits; magnetic fields, induced electric fields, inductance and AC circuits; geometrical optics, interference, diffraction and polarization. Prerequisite: PHYS 240 with a grade of “C” or higher. Corequisites: MATH 236.

PHYS 260. University Physics III. 4 credits. Offered once a year.
Rotational kinematics and rotational dynamics; static equilibrium and elasticity; universal gravitation and orbital mechanics; temperature, heat, heat engines, entropy and kinetic theory; Gauss’ law, electric potential and capacitance; magnetic fields, induced electric fields and induction; displacement current and electromagnetic waves; and the special theory of relativity. Prerequisite: “C” or better in PHYS 250 or PHYS 150. Corequisites: MATH 237 and PHYS 247 or PHYS 150L.

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Prerequisite: PHYS 270

This is the third course in a three-course laboratory sequence. A set of advanced laboratory experiences in which students are introduced to motion and the theory of small oscillations. 

PHYS 346. Advanced Physics Laboratory III. 3 credits. Offered once a year.

This is the third course in a three-course laboratory sequence. A set of advanced laboratory experiences in which students are introduced to experimentation in several areas of physics while gaining experience in experiment design, data analysis, formal report writing and presentations. Prerequisite: PHYS 345.

PHYS 350. Electricity and Magnetism. 3 credits. Offered once a year.

A study of the electrostatic field, the magnetic field, direct and alternating currents and electromagnetic waves. Prerequisites: PHYS 260 and MATH 238.

PHYS 360. Analog Electronics (2, 4). 4 credits. Offered once a year.

DC and AC circuits, spectral and pulse circuit response, semiconductor physics and simple amplifier and oscillator circuits. Prerequisite: PHYS 250 or permission of the instructor.

PHYS/MATH 366E. Computational Solid Mechanics. 3 credits. Offered once a year.

Development and application of mathematical models and computer simulations to investigate problems in solid mechanics, with emphasis on numerical solution of associated boundary value problems. Prerequisites: MATH/PHYS 266, MATH 238 and MATH 248, or consent of instructor.

PHYS 371. Introductory Digital Electronics (2, 4). 2 credits. Offered once a year.

Transistors, integrated circuits, logic families, gates, latches, decoders, multiplexers, multivibrators, counters and displays. Prerequisite: A grade of "C" in PHYS 150 or PHYS 250 or permission of instructor.

PHYS 372. Microcontrollers and Their Applications (2, 4). 2 credits. Offered once a year.

Microcontrollers, their instructions, architecture and applications. Prerequisite: PHYS 371 or consent of instructor.

PHYS 373. Interfacing Microcomputers (2, 4). 2 credits. Offered once a year.

A study of the personal computer and its input/output bus, input/output functions, commercially available devices, proto-tying circuit boards and programs for device control. Prerequisite: PHYS 371.

PHYS 380. Thermodynamics and Statistical Mechanics. 3 credits.

A treatment of the thermal properties of matter from both macroscopic and microscopic viewpoints. Topics include the laws of thermodynamics, heat, work, internal energy, entropy, elementary statistical concepts, ensembles, classical and quantum statistics and kinetic theory. Approximately equal attention will be given to thermodynamics and statistical mechanics. Prerequisites: PHYS 270.

PHYS/MATS 381. Materials Characterization (Lab). 3 credits.

A review of the common analytical techniques used in materials science related industries today, including the evaluation of electrical, optical, structural and mechanical properties. Typical techniques may include Hall Effect, scanning probe microscopy, scanning electron microscopy, ellipsometry and x-ray diffraction. Prerequisite: PHYS/MATS 275, ISAT/MATS 431 or GEOL/MATS 385.

PHYS 390. Computer Applications in Physics. 3 credits. Offered once a year.

Applications of automatic computation in the study of various physical systems. Problems are taken from mechanics of particles and continua, electromagnetism, optics, quantum physics, thermodynamics and transport physics. Prerequisites: MATH/CS 248, PHYS 240, PHYS 250 and six additional credit hours in major courses in physics, excluding PHYS 360, PHYS 371 and PHYS 372.

PHYS 391-392. Seminar. 1 credit per year. Offered once a year.

Participation in the department seminar program. Prerequisites: Junior or senior standing and permission of the instructor.

PHYS 397. Topics in Physics. 1-4 credits each semester. Offered once a year.

Topics in physics at intermediate level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. Prerequisite: Permission of the instructor.

PHYS/ASTR 398. Independent Study in Physics or Astronomy. 1-3 credits, repeatable to 4 credits. Offered on demand.

An individual project related to some aspect of physics or astronomy. Must be under the guidance of a faculty adviser. A student may not earn more than a total of four credits for PHYS 398 and ASTR 398.

PHYS 420. Modern Optics. 3 credits. Offered on demand.

A study of the kinematic properties and physical nature of light including reflection, refraction, interference, diffraction, polarization, coherence and holography. Prerequisite: PHYS 240, PHYS 270 and MATH 237.

PHYS 446. Electricity and Magnetism II. 3 credits. Offered on demand.

A continuation of PHYS 350. Emphasis will be placed on the solutions of Maxwell's equations in the presence of matter, on solving boundary-value problems and on the theory of electromagnetic radiation. Prerequisite: PHYS 350.

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PHYS/Chem 455. Lasers and Their Applications to Physical Sciences (2, 3). 3 credits. Offered once a year.

An introduction to both the theoretical and practical aspects of lasers and their applications in the physical sciences. Prerequisite: PHYS 270, CHEM 331 or permission of the instructor.

PHYS 460. Quantum Mechanics. 3 credits. Offered once a year.

Principles and applications of quantum mechanics. Topics include wave packets and the uncertainty principle, the Schroedinger equation, one-dimensional potentials, operators and eigenvectors, three-dimensional motion and angular momentum and the hydrogen atom. Prerequisite: PHYS 340.

PHYS 491-492. Physics Assessment and Seminar. 1 credit per year.

Offered once a year.

Principal course activities are participation in the departmental assessment program and attendance at departmental seminars. Prerequisite: PHYS 392.

PHYS 494. Internship in Physics. 1-6 credits. Offered on demand.

Students participate in research or applied physics outside of the university. A proposal must be approved prior to registration, and a final paper will be completed. Prerequisites: Physics major with a minimum of 12 physics credit hours and permission of the department head and the instructor.

PHYS 497. Topics in Physics. 1-4 credits each semester. Offered on demand.

Topics in physics at the advanced level. May be repeated for credit when course content changes. Topics selected may determine prerequisites. Students should consult instructor prior to enrolling for course. Prerequisite: Permission of the instructor.

PHYS/Astr 498R. Undergraduate Research in Physics or Astronomy. 1-4 credits, repeatable to 6 credits. Offered on demand.

Research in a selected area of physics as arranged with a faculty research adviser. A student may not earn more than a total of six credits for PHYS 498R and ASTR 498R. Prerequisite: Proposal for study must be approved prior to registration.

PHYS 499. Honors. 6 credits, (Year course, 3 credits each semester). Offered on demand.

Participation in this course must be approved during the second semester of the junior year.

Political Science

Department of Political Science

GPOSC 200. Global Politics. 3 credits. Offered fall, spring and summer.

An exploration of political, social and economic issues and structures existing within and between states in the contemporary global community. Students are introduced to alternative approaches to analyzing these issues in diverse political settings.

GPOSC 201. Introduction to Western Political Theory. 3 credits. Offered fall and spring.

A general survey of Western political theory from Plato to Marx, order and freedom.

GPOSC 225. U.S. Government. 4 credits. Offered fall, spring and summer.

An examination of institutions, processes and intellectual concepts, which structure American political activity. The interaction of the political system with the changing American society and America's changing role in world affairs are also treated. The course provides an introduction to quantitative methodological approaches.

GPOSC 230. International Relations. 3 credits. Offered fall, spring and summer.

A survey of the field of international relations including consideration of the elements of national power, foreign policy, diplomacy, propaganda, foreign aid, war, international law and international organization.

GPOSC 240. Comparative Politics. 3 credits. Offered fall and spring.

A comparative study of selected political systems. Emphasis is on the structure of government, the political process and the conditions which either promote or constrain political change and stability.

GPOSC 295. Research Methods. 4 credits. Offered fall, spring and summer.

Students learn how to conduct original research from theory formulation through data collection and hypothesis testing. Special emphasis on research and computer literacy. Prerequisite: MATH 220.

GPOSC 300. Politics and Film. 3 credits. Offered summer.

This course examines the relationship between politics and film, broadly construed. The ability of film to inform and promote agendas on key political issues, and the way in which films reflect the world of ideas and political culture in which they are created will be explored in substantive areas that may include: social and political change, human rights and justice, the portrayal of political processes and institutions, and foreign policy.

GPOSC 301W. The Washington Semester Experience. 3 credits. Offered fall and spring.

A study of the manner in which the policy making process is conducted on the federal level. The function of political and governmental institutions in establishing public policy is examined through readings and observation. Prerequisite: Enrollment in the Washington Semester program.

GPOSC 320. State and Local Government. 3 credits. Offered fall, spring and summer.

A study of state and local government in the United States with particular focus on Virginia. Emphasis is placed on an understanding of the framework, functions and problems of state and local governments.

GPOSC 310. Political Theory: Ancient to Early Modern. 3 credits. Offered every other year.

A study of political theory from Plato and Aristotle through Machiavelli with analysis of such political concepts as the nature of the state, political obligation, natural law and Utopian societies.

GPOSC 315. Political Theory: Early Modern to the 19th Century. 3 credits. Offered every other year.

A study of political theory from Hobbes and Locke to Hegel, Green and other 19th century thinkers. The course will examine such ideas as freedom, political obligation, justice, progress, ethics, and politics and the relationship between the individual and the human polity.

GPOSC 316. Contemporary Political Theory. 3 credits. Offered every other year.

An examination of political thinkers and their ideas from the end of the 19th century to the present. Special emphasis will be placed on the writings of Hannah Arendt, Jurgen Habermas, John Rawls and other contemporary thinkers who continue to engage in the pursuit of political inquiry.

GPOSC 321. Political Theory and Ideology. 3 credits. Offered every other year.

A study of the relationship between normative political theory and ideology, emphasizing the philosophic foundations of modern political thought and its relationship to the emergence of various ideological positions in the 19th and 20th centuries. Includes a study of liberalism, conservatism, socialism, anarchism, nationalism, fascism, feminism, environmentalism and others.

GPOSC 325. Constitutional Law. 3 credits. Offered once a year.

A study of the legal aspects of the American democratic system. The development of the Constitution will be explored and case studies used to portray important events and changes.

GPOSC 326. Civil Rights. 3 credits. Offered once a year.

An examination of the judicial interpretation of civil rights in America with emphasis on freedom of speech, due process of law and equal protection under the 14th Amendment.

GPOSC 330. American Political Thought. 3 credits. Offered fall and spring.

A study of the development and significance of political ideas that have influenced American society and government.

GPOSC/JUST 331. Human Rights in Theory and Practice. 3 credits. Offered once a year.

This course will explore the nature and value of human rights by investigating some major debates over their status and meaning and by examining some of the ways people have tried to secure human rights in practice. Prerequisites: JUST, POSC and INTA majors only. For JUST majors: JUST 200.

GPOSC 335. Comparative Politics for Teachers. 3 credits. Offered fall and spring.

This course examines the core themes, concepts and debates in the subfield of comparative politics and how they apply to politics in selected countries around the world. The course emphasizes those themes and cases of greatest use to students pursuing careers in education and explores approaches to teaching this content in a variety of classroom settings.

GPOSC 337. Politics of Russia and the Former Soviet Union. 3 credits. Offered every other year.

The course involves comparative analysis of the development and dynamics of political regimes in Russia and the Former Soviet Union. Attention is given to pre-communist, communist and post-communist politics and to explaining political and economic trends since 1991.

GPOSC 340. Political Development in the Third World. 3 credits. Offered once a year.

A comparative study of the processes of political development in the developing nations of the Middle East, Africa, Asia and Latin America. Attention is given to the special problems confronting these nations and their implications for the global systems.

GPOSC 344. Politics of the European Union. 3 credits. Offered fall and spring.

The course offers an in-depth consideration of the political development of the European Union, the EU policy-making process and contemporary issues that confront European leaders and citizens.

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POSC 345. Politics of Western Europe. 3 credits. Offered once a year.
This course involves comparative analysis of the development and dynamics of political regimes in western Europe. Attention is given to political institutions, political participation, public policy, and political and economic trends since 1945.

POSC 346. Politics of Central and Eastern Europe. 3 credits. Offered once a year.
This course involves comparative analysis of the development and dynamics of political regimes in central and eastern Europe. Attention is given to pre-communist, communist, and post-communist politics and to explaining political and economic trends since 1989.

POSC 347. Comparative Public Policy. 3 Credits. Offered every other year.
A study of public policy formation and implementation in selected advanced industrial and Third World nations.

POSC 348. The Politics of Cultural Pluralism. 3 credits. Offered once a year.
This course examines the various manifestations of cultural pluralism, a situation that occurs when multiple ethnic, religious, and/or linguistic groups coexist within a single state. The course considers different institutional and policy approaches to coping with cultural pluralism.

POSC 349. Comparative Political Behavior. 3 credits.
This course familiarizes students with the theoretical and empirical study of political behavior cross-nationally.

POSC 350. Latin American Politics. 3 credits. Offered once a year.
A comparative study of the political institutions, processes and current issues in the Latin American states and an analysis of their importance in regional and global relations.

POSC 351. Topics in American Politics. 3 credits.
In-depth exploration of specialized topics in the area of American politics. The topic for each semester will be announced on MyMadison.

POSC 353. African Politics. 3 credits. Offered once a year.
A comparative study of the institutions and social, economic, and global processes that affect contemporary African states. Political developments explored include the construction and transformation of post-colonial states, ethnic conflict, economic crisis and reform, and regime change.

POSC 354. Politics of the Middle East. 3 credits. Offered once a year.
This course involves comparative analysis of political institutions, social dynamics and economic processes in the contemporary Middle East. The course also focuses on the ways that global developments affect and are affected by Middle Eastern states and peoples.

POSC 358. Public Policymaking. 3 credits.
Study of policymaking institutions and policy processes that convert societal demands through policy into benefits. By considering the impact of institutional and ideational arrangements on policy outcomes, the course provides a framework with which to analyze public policy formation in contemporary America. Prerequisites: GPOSC 225 or permission of instructor.

POSC 361. Topics in International Relations. 3 credits.
In-depth exploration of specialized topics in the area of international relations. The topic for each semester will be announced on MyMadison.

POSC 362. Political Behavior. 3 credits. Offered once a year.
A study of how citizens acquire politically relevant attitudes and how these attitudes influence their political behavior. The effects of the mass media on voting behavior are also considered. Emphasis is placed on U.S. voting behavior, but behavior in other nations is also covered. Prerequisites: GPOSC 225.

POSC 365. American Political Campaigning. 3 credits. Offered once a year.
Study of modern day political campaigning with emphasis on campaign structure, strategy and the relationship between candidates and political consultants.

The course assesses the consequences of the changing nature of political campaigns for democracy in the United States. Prerequisite: GPOSC 225.

POSC 367. U.S. Immigration Politics and Policy. 3 credits. Offered once a year.
An examination of how conceptions of national identity, nativism and assimilation influence public opinion toward immigrants and shape immigration policy in the United States. The perspectives of native-born residents, immigrants and policymakers are considered. The course discusses immigration as a social and political issue, reviews the historical evolution of U.S. immigration policy and public opinion trends, and explores how contemporary immigrants adapt to life in the United States.

POSC 368. Interest Groups and Public Policy. 3 credits. Offered every other year.
An analysis of the activities of interest groups in the American system of government with emphasis on their goals and effectiveness in shaping public policy. Prerequisite: GPOSC 225.

POSC 369. Political Parties and Elections. 3 credits. Offered once a year.
A study of national political parties and elections. Attention is given to the origin and evolution of the major and important minor parties, nomination and election process, presidential campaign, role and practical working of political parties, influence of public opinion and pressure groups and responsibilities of the individual voter. Prerequisite: GPOSC 225.

POSC 370. U.S. Foreign Policy. 3 credits. Offered fall and spring.
An investigational and/or processes for making foreign policy, underlying premises influencing specific policies and substance of American foreign policy. Prerequisite: POSC 230.

POSC 371. Topics in Comparative Politics. 3 credits.
In-depth exploration of specialized topics in the area of comparative politics. The topic for each semester will be announced on MyMadison.

POSC/JUST 372. Ethics and International Politics. 3 credits.
This course investigates the significance of ethical questions in the theory and practice of contemporary international politics, introducing a variety of normative approaches that shape the issues of peace and conflict, morality and justice in global affairs. Practical case studies will also be used to address issues of policy relevance, with particular attention paid to the American experience. Prerequisites: JUST, POSC and INTA majors only. For JUST majors: JUST 235.

POSC 380. The U.S. Presidency. 3 credits. Offered once a year.
A study of the institution of the American presidency focusing on the sources, bases and character of the power required by the president for effective executive action. Relationships of the presidency to foreign affairs, Congress, the public, party structure and the administrative establishment will also be considered. Prerequisite: GPOSC 225.

POSC 381. Topics in Political Theory. 3 credits.
In-depth exploration of specialized topics in the area of political theory. The topic for each semester will be announced on MyMadison.

POSC 382. The Role of Religion in American Politics. 3 credits. Offered every other year.
An examination of the role religion has played and continues to play in American politics. Besides providing an overview of how religion has influenced electoral, legislative, and judicial outcomes, the course will provide an in-depth examination of particular aspects of religion's role in political life. Prerequisite: GPOSC 225 or permission of instructor.

POSC 383. Women and Politics. 3 credits.
A study of the role and impact of women in United States politics and society, with emphasis on political movements, electoral politics and public policy.

POSC 384. Minority Group Politics. 3 credits. Offered every other year.
This course examines the role of minority groups in American politics. Attention is given to five groups (African-Americans, Asian-Americans, Native Americans, Latinos and women) that for reasons of race or gender have faced institutional discrimination and political domination in the United States.

POSC 385. The U.S. Congress. 3 credits. Offered once a year.
Study of the legislative process will concentrate on the operation of Congress with regard to such matters as its rules and procedure; relationships to the presidency, the bureaucracy, pressure groups and the courts; and a discussion of its current problems. Prerequisite: GPOSC 225.

POSC 386. The U.S. Judiciary. 3 credits. Offered once a year.
An investigation of the American court system. The course focuses on the role of the judiciary in American politics, the difference between judicial and executive branches in bureaucratic decision-making processes, the selection of judges, the decisions made by judges and other actors interacting with the courts, and the impact of court decisions on American society.

POSC 391. Topics in Public Policy. 3 credits.
In-depth exploration of specialized topics in the area of public policy. The topic for each semester will be announced on MyMadison.

POSC/JUST 392. Peace Studies. 3 credits. Offered once a year.
A study of the evolution, theory and practice of peace studies. The course will also be considered. Prerequisite: GPOSC 225.

POSC 395. International Law. 3 credits. Offered once a year.
A study of the evolution and role of contemporary international organizations in international exchange and interaction. Case study and other forms of political analysis will be used.

POSC 396. International Organizations. 3 credits. Offered every other year.
A comparative study of the political institutions, processes and current issues in the Latin American states and an analysis of their importance in regional and global relations.

POSC 397. Topics in Comparative Politics. 3 credits.
In-depth exploration of specialized topics in the area of comparative politics. The topic for each semester will be announced on MyMadison.

POSC 399. Special Topic. 1-3 credits. Offered once a year.
In-depth exploration of specialized topics in the area of public policy. The course for each semester will be announced on MyMadison.

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in the larger context of world politics. Emphasis on the ways in which the changing patterns of political power influence the processes and effectiveness of such organizations.

**POSC 397. The Politics of International Economic Relations.** 3 credits.
Offered every other year.
A study of the political dynamics and implications of international economic relations.

**POSC 398. Simulations.** 3 credits.
Application of concepts and insights learned in the classroom to contemporary policy problems and practical activities. The topic of this course will vary from offering to offering. The exact courses required will vary with the subject matter of the simulation.

**POSC 430. International Security and Conflict Management.** 3 credits.
Offered once a year.
This course examines major threats to international security in the post-Cold War world. Topics include the changing global security environment, proliferation of weapons of mass destruction, terrorism and ethnic conflict. The effectiveness of economic sanctions, deterrence, international organizations, preventative war and other tools in dealing with these threats in critically examined.

**POSC 435. International Terrorism.** 3 credits.
Systematic study of political terrorism with emphasis upon the destabilizing effect that it has upon the international community.

**POSC 458. International Political Analysis.** 3 credits. Offered once a year.
An examination of techniques and principles for the analysis of future political conditions and future government decisions.

**POSC/SOC/SMAD 472. Media and Politics.** 3 credits. Offered fall and spring.
A study of the media’s role in political campaigns, concentrating on past/present election, the media’s role in covering political parties and coverage of the governing process. Discussion of electronic and print will occur. Topics to be examined include campaign videos, C-SPAN, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

**POSC 490. Senior Tutorial in Political Science.** 4 credits. Offered fall, spring and summer.
A research-oriented tutorial designed to integrate student’s prior knowledge and strengthen lifelong learning skills. Course may be offered in multiple sessions (POSC 490A, POSC 490B, etc.). Prerequisites: Senior standing and permission of the instructor.

**POSC 492. Senior Seminar in Political Science.** 4 credits. Offered fall and spring.
This research-oriented senior seminar provides an overview of the discipline of political science and the different approaches to research in the field. A major research project will strengthen the research, information access and lifelong learning capacities of the student. Fulfills the College of Arts and Letters writing-intensive requirement for the major. Prerequisites: Senior standing and POSC 295.

**POSC 495. Internship in Political Science.** 4 credits. Offered fall, spring and summer.
Provides students with opportunities for experiential learning in a legislative, policy making, campaign, constituency, interest group or criminal justice organization. A research paper related to the internship and a presentation based on the experience are required. Prerequisites: Junior or senior standing, 15 credits of political science, public administration or political communication and permission of the instructor.

**POSC 495W. Washington Semester Internship in Political Science.** 6 credits. Offered fall and spring.
Provides Washington Semester participants with opportunities for experiential learning in a Washington, D.C., based legislative, policy making, campaign, constituency, interest group or criminal justice organization. Requirements include 360 work hours, a research paper related to the internship, a career report, a daily log and regular meetings with faculty-in-residence. Prerequisites: Junior or senior standing, 15 credits of political science, public administration or political communication, and successful application to Washington Semester program.

**POSC 498. Research in Political Science.** 1 credit. Offered fall, spring and summer.
Research in a selected area of political science as arranged with a faculty sponsor. Research outline must be approved by faculty sponsor and department head the semester before registration. Course may be repeated. Prerequisites: a Political Science, International Affairs, or Public Policy and Administration GPA of 2.5 or greater.

**POSC 499. Honors.** 6 credits. Offered fall and spring.
Year course.

*No more than four credit hours can be counted toward the political science major.*

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**Portuguese**

**Department of Foreign Languages, Literatures and Cultures**

**PORT 101. Elementary Portuguese I.** 4 credits. Offered fall.
The fundamentals of Portuguese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. Requires one hour’s work a week in the language laboratory. Students will receive no credit for the course if he/she has had two or more years of the language in high school.

**PORT 102. Elementary Portuguese II.** 4 credits. Offered spring.
The fundamentals of Portuguese through a higher level of listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. Requires one hour’s work a week in the language laboratory. If student has had two or more years of the language in high school, he/she will not receive credit for the course. Prerequisite: PORT 101.

**PORT 231. Intermediate Portuguese I.** 3 credits. Offered fall.
A thorough review of first year grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the lower intermediate level Portuguese. Prerequisite: PORT 102 or permission of instructor.

**PORT 232. Intermediate Portuguese II.** 3 credits. Offered spring.
A thorough review of PORT 231 grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the advance intermediate level. Prerequisite: PORT 231 or permission of instructor.

**PORT 300. Portuguese Grammar and Communication.** 3 credits. Offered fall.
Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Portuguese. Fulfills the College of Arts and Letters writing-intensive requirement for possible International Affairs majors and/or IBUS majors. Prerequisite: PORT 232 or permission of instructor.

**PORT 320. Portuguese Oral and Written Communication.** 3 credits.
Offered spring.
Intensive training in the use of modern, everyday Portuguese with emphasis on conversation and composition. Readings in Portuguese will provide a context for discussion and writing. Prerequisite: PORT 300.

**PORT 490. Special Topics in Portuguese.** 3 credits.
Special topics or independent studies in Portuguese.

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**Psychology**

**Department of Psychology**

**PSYC 100. Interpersonal Skills for Resident Advisers.** 1 credit.
Designed to give resident adviser trainees understanding of interpersonal relations. Cannot be used as a psychology major elective. Prerequisite: Limited to students selected as resident advisers.

**GPSYC 101. General Psychology.** 3 credits. Offered fall and spring.
A study of the nervous system, sensation, perception, consciousness, learning, memory, language, intelligence, motivation, emotion, life span development, personality, psychopathology, psychotherapy, social psychology and the scientific method.

**GPSYC 122. The Science of Vision and Audition.** 3 credits.
A study of human interaction with light and sound waves. Topics include physiological and perceptual mechanisms for processing light and sound, along with connections to real-world applications (e.g., human factors and careers within vision science and audition). Includes activities designed to provide students with in-depth, hands-on experience with course topics.

**GPSYC 160. Life Span Human Development.** 3 credits. Offered fall and spring.
An introduction to human development. Emphasis is on life span processes within physical, emotional, cognitive, psychosexual, social, personality and moral development.

**PSYC 180. Introduction to Behavior Analysis.** 3 credits.
Students will learn the fundamental principles, procedures and concepts of behavior analysis, how they can be used to explain behavior and how interventions based on these principles can be used to improve their own lives and the lives of others.

**PSYC 200. Topics in Psychology.** 1-3 credits.
Exploration of an important psychological topic. The topics for each semester will be announced on MyMadison and the departmental website. Prerequisite: GPSYC 101.
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Offered fall and spring.
This course provides an introduction to statistical techniques used by psychologists in measuring behavior. Fundamental measures and theory of descriptive and inferential statistics will be discussed. The use of computers for data analysis will be introduced. Prerequisites: MATH 120, MATH 205, MATH 220, MATH 221 or MATH 231 with a grade of "C-" or better.

PSYC 211. Psychological Research Methods (3.2). 4 credits.
Offered fall and spring.
This course provides an introduction to the application of scientific methodology to investigate psychological phenomena. Through lecture and laboratory, attention is given to choosing research questions, developing hypotheses, designing and conducting research, describing, analyzing and evaluating data and effectively communicating research findings. Prerequisites: PSYC 101 and PSYC 210.

PSYC 212-213. Psychological Research Design and Data Analysis I-II. 4 credits each semester.
The PSYC 212-213 course sequence introduces the logic of pursuing a scientific approach in psychology and covers descriptive, correlational, experimental and quasi-experimental approaches. It also covers the statistical tools associated with these methods (namely, descriptive statistics, correlation, regression, t-tests and ANOVA), and it introduces the basics of inferential statistics and hypothesis testing. Prerequisite for PSYC 212: PSYC 101 and MATH 205, MATH 220, MATH 231, or MATH 235 with a grade of "C-" or better. Prerequisite for PSYC 213: PSYC 212 with a grade of "C-" or better.

PSYC 220. Psychology and Culture. 3 credits.
The study of human psychology is incomplete without taking into account the cultural, historical and social factors involved in human functioning. This course considers the ethnic and cultural variations that exist in human behavior, thought and action. Prerequisite: PSYC 101.

PSYC 235. Psychology of Adjustment. 3 credits.
A study of the process and dynamics of the well-integrated personality and the practical application of adjustment theories and behavior change techniques to enhance personal awareness and self-development.

PSYC 250. Introduction to Abnormal Psychology. 3 credits. Offered fall and spring.
An introduction to the field of abnormal psychology for the non-psychology major. This course will examine methods of defining psychological normality and abnormality and the classification, causes and treatment of abnormal behavior. This course cannot be used for psychology major credit. Students may not earn credit for both PSYC 250 and 335. Prerequisite: PSYC 101 or PSYC 160.

PSYC/JUST 255. Abnormal Psychology for Law Enforcement Personnel. 3 credits.
This course for students interested in becoming law enforcement professionals critically examines psychological normality and abnormality. The course focuses on description and causes of abnormal behavior likely to be encountered by law enforcement professionals, and on intervention options for police officers. May not be taken by psychology majors or students who have completed PSYC 250 or PSYC 335. Prerequisites: PSYC 101 and JUST 200.

PSYC 270. Foundations of Learning and Cognition for Education. 3 credits.
This course introduces fundamental principles of cognition and learning as applied to educational practice. It provides a foundation for understanding multiple perspectives and levels of analysis applied to individual learning in educational settings. Prerequisites: PSYC 101 or PSYC 160, PSYC 275.

PSYC 304. Death and Dying: Thanatology. 3 credits.
An examination of research and theory regarding the abilities and behaviors of women and the changing roles of women. Consideration is given to biological, developmental and societal determinants of sex and gender. Prerequisites: PSYC 101 and junior status.

PSYC 306. Health Psychology. 3 credits.
This course deals with personality and its relation to health and illness behaviors. Topics include psychological factors involved in control and helplessness, conflict management, cardiovascular disorders, cancer, pain, substance abuse and other psychophysically related factors. Prerequisites: PSYC 101 and junior status.

PSYC 310. The Psychology of Women and Gender. 3 credits.
An examination of research and theory regarding the abilities and behaviors of women and the changing roles of women. Consideration is given to biological, developmental and societal determinants of sex and gender. Prerequisites: PSYC 101 and junior status.

PSYC 312. Forensic Psychology. 3 credits.
The application of psychological principles and techniques to the law, the criminal justice system, law enforcement and criminal behavior. Prerequisites: PSYC 101 or PSYC 160.

PSYC/JUST 314. Police Psychology. 3 credits.
This course explores the role of psychology in various aspects of police work and examines how psychological research and methods can assist police departments and police officers in reaching law-enforcement goals. Prerequisites: PSYC 101 and JUST 200.

PSYC/JUST 316. Human Development and Crime. 3 credits.
This course examines how psychological research and theory shed light on the development of criminal careers, the factors that protect children and adolescents from becoming criminals, how being a victim of crime influences well being, and the efficacy of rehabilitation. Special attention will be paid to the knowledge base on delinquency and childhood/adolescent victimization. Prerequisite: PSYC 101.

PSYC 320. Diversity Issues in Psychology. 3 credits.
This course addresses issues of diversity and neglected populations in psychology with attention to gender, sexual orientation, race, ethnicity, disability, chronic illness, SES, age and level of indigenous influence. Particular cultural stressors associated with each group or demographic are discussed and attention is given to the issue of privilege. Prerequisites: PSYC 101 and junior status.

PSYC 326. Leadership and Personal Growth. 3 credits.
The purpose of this course is to foster the understanding and practical application of leadership, through the use of affective and cognitive approaches. There is a strong emphasis on personal growth as it relates to leadership concepts. Aspects of developmental, cognitive, humanistic, and personality psychological theories are included. This course also builds on concepts and issues from Industrial/Organizational psychology. Prerequisites: PSYC 101 and senior standing or permission of instructor.

PSYC 328. The Psychology of Leadership. 3 credits.
This course focuses on psychological components of leadership behavior and its importance to various situations in culture and society. Students will explore the potential impact of leaders and their influence on individuals and society. Various existential, behavioral and motivational topics related to leadership studies will be explored. Service learning will also be a core component of the course. Prerequisites: PSYC 101 and junior standing.

PSYC/SOCI/KIN 329. Psychological and Sociological Aspects of Sport. 3 credits.
A study of the psychological and sociological implications of sport and the effect of sport on the United States and other cultures.

PSYC 330. Psychology of Personality. 3 credits.
Essential elements of leading theories of personality with an emphasis on implications of these theories for human behavior. Prerequisite: PSYC 211 or PSYC 213.
PSYC 335. Abnormal Psychology. 3 credits. Offered fall and spring.
This course for the psychology major critically examines psychological normality and abnormality and the classification, causes and treatment of abnormal behavior. Students learn classification and diagnosis, explore social and multicultural issues relating to diagnosis and discuss research in the field. Students may not earn credit for both PSYC 250 and PSYC 335. Prerequisites: PSYC 211 or PSYC 213.

PSYC 345. Social Psychology. 3 credits. Offered fall and spring.
The study of how an individual's behavior, feelings and thoughts are influenced by other people. Topics include attitude formation and change, social perception, attraction, altruistic and antisocial behavior, conformity, leadership and group dynamics, and applications of social psychology to other fields. Prerequisite: PSYC 211 or PSYC 213.

PSYC 365. Developmental Psychology. 3 credits. Offered fall and spring.
Psychological aspects of growth, development and behavior from birth through adolescence. Prerequisite: PSYC 211 or PSYC 213.

PSYC 375. Sensation and Perception. 3 credits. Offered fall and spring.
Explores the nature and development of human sensory capabilities and processing, and how these affect perception of the environment. A potential list of the variety of systems reviewed includes hearing, vision, smell, taste, and touch/pain, as well as phenomena such as the perception of balance. Prerequisite: PSYC 211 or PSYC 213.

PSYC 380. Cognitive Psychology. 3 credits. Offered fall and spring.
This course explores the nature and development of human attention, memory, language and thinking processes. An information processing approach to the study of human cognition is emphasized. Prerequisite: PSYC 211 or PSYC 213.

PSYC 385. Biopsychology. 3 credits. Offered fall and spring.
A survey of the neurological and chemical mechanisms which control behavior. This course examines the brain and how it processes sensation, perception, cognition, movement, motivation, learning, memory and other behavioral processes of interest to psychologists. Prerequisite: PSYC 211 or PSYC 213.

PSYC 390. Psychology of Learning. 3 credits. Offered fall and spring.
Basic principles of learning and conditioning with a consideration of extinction, reinforcement, generalization, discrimination, transfer, concept formation and verbal learning. Prerequisite: PSYC 211 or PSYC 213.

PSYC/BIO 395. Comparative Animal Behavior. 3 credits.
This course covers aspects of the development, function and evolution of the behavior of nonhuman animals. Topics include interspecies communication, feeding, aggression, territoriality, reproductive behavior and social behavior. Prerequisite: PSYC 211 or PSYC 213.

PSYC 400. Advanced Topics in Psychology. 1-3 credits.
Exploration of a significant psychological topic in depth. The topics for each semester will be announced on MyMadison and on the departmental website. Prerequisites: At least one SS content course and one NS content course.

PSYC 401. Peer Advising. 2 credits. Offered fall and spring.
Supervised practicum in academic and career development and peer counseling. May be taken twice for up to four credit hours toward the psychology major. Prerequisites: PSYC 302, at least one SS content course and one NS content course, and permission of the course coordinator.

PSYC 402. Independent Study in Psychology. 1-4 credits. Offered fall and spring.
An opportunity to apply classroom learning to practical problems and to expand the scope of knowledge in psychology to areas not emphasized in the course work we offer. May include research, service learning, internship, directed research, serving as a teaching assistant or a combination of these activities. Prerequisites: PSYC 211 or PSYC 213. A written plan approved by the project supervisor and department head must be submitted prior to registration.

PSYC 410. Industrial/Organizational Psychology. 3 credits.
This course is a survey of the applications of psychological principles in business and industry. Emphasis is on topics such as research and methods, personnel decisions and training, satisfaction, motivation, leadership, communication and organizational influences on behavior. Other topics of current interest will also be covered. Prerequisites: At least one SS content course and one NS content course.

PSYC 412. Psychology of Motivation. 3 credits.
This course is an advanced study of the motives that underlie behavior. Students explore pertinent theories representative of the biological, behavioral, cognitive and social perspectives on motivation. Includes an examination of historical context as well as a study of applied motivational approaches. Prerequisites: At least one SS content course and one NS content course.

PSYC 420. Advanced Psychological Statistics. 3 credits.
This course presents advanced univariate and multivariate statistical techniques that psychology students need for reading research articles and conducting psychological research. Prerequisites: At least one SS content course and one NS content course.

PSYC 425. School Psychology. 3 credits.
Applications of psychological principles to school settings, including roles and activities of school psychologists, standards, trends and issues of treatment and evaluation. Prerequisites: At least one SS content course and one NS content course.

PSYC 427. Tests and Measurements. 3 credits.
Standardized psychological tests of mental ability, achievement, aptitude and personality with a review of statistical procedures necessary for interpretation of test results. Prerequisites: At least one SS content course and one NS content course.

PSYC 428. Educational Psychology. 3 credits.
The application of the basic psychological principles of development, learning, cognition, measurement and social interactions to education settings. This course examines how psychological theory and research impacts the teaching of reading, writing, science and mathematics. Students may not count both PSYC 270 and PSYC 428 for psychology major credit. Prerequisites: At least one SS content course and one NS content course.

PSYC 430. Clinical Psychology. 3 credits. Offered fall.
An introduction to the field of clinical psychology including a review of the major theoretical models, psychometrics, psychiatric diagnosis and treatment strategies. Prerequisites: PSYC 335 and one NS content course.

PSYC 435. Community Psychology. 3 credits. Offered spring.
Focus on emerging trends and models in the application of psychology to community, stress prevention programs, human resources and change. Prerequisites: At least one SS content course and one NS content course.

PSYC 440. Counseling Psychology. 3 credits. Offered fall and spring.
A basic counseling skills course designed for students interested in human service and mental health fields and for students from related disciplines who want to acquire counseling skills. Prerequisites: At least one SS content course and one NS content course.

PSYC 442. Introduction to Small Group Process. 3 credits.
This course is designed to acquaint students with the theories, ethics, skills and processes of small groups. A major requirement will be participation in a group experience. Prerequisites: At least one SS content course and one NS content course.

PSYC 450. Psychology of Child Abuse and Neglect. 3 credits. Offered fall and spring.
Review of current psychological literature on child abuse and neglect including identification, etiology, treatment, prevention and legal aspects. Family violence issues are also discussed. Prerequisites: At least one SS content course and one NS content course.

PSYC 452. Child Psychopathology. 3 credits. Offered fall and spring.
The causes, symptoms and classification of childhood psychological disorders. Prerequisite: PSYC 335 or PSYC 365 (both recommended).

PSYC 460. Community Psychology within Developing Societies. 3 credits.
This course will apply psychology to a critical examination of developing societies around the world. Topics include sociocultural and international contexts, privilege, power, oppression, terrorism, population growth and diversity. Consideration is given to developmental and societal determinants of prejudice, discrimination and inequity. Prerequisites: At least one SS content course and one NS content course.

PSYC 465. Black/African Psychology. 3 credits.
This course will help students view psychology and psychological research from a different viewpoint. Students will study Afrocentric theories of development and pathology as well as methodologies emerging from these theories and philosophies. This course will facilitate student understanding of the psychology of Americans of African descent. Prerequisites: At least one SS content course and one NS content course.

PSYC 475. Psychology of Adulthood. 3 credits.
The physical, social and psychological factors faced by adults and their progression through the life span. Prerequisites: At least one SS content course and one NS content course.

http://www.jmu.edu/catalog/12
Public Policy and Administration

**Department of Political Science**

**PPA 200. Introduction to Public Policy.** 3 credits. Offered fall and spring.
This course introduces students to the nature, dynamics and substance of public policy. Selected policy issues in the United States will be examined through the use of case studies. Foreign and global influences on U.S. policy-making will also be analyzed. Issues will vary across course sections and over time.

**PPA 265. Public Administration.** 3 credits. Offered fall and spring.
An introductory survey of the principles, functions and processes of public administration with specific emphasis on the political aspects and environment of bureaucracies and the how and why of policy-making within an administrative system. Organizational structure, personnel, budgeting, public relations and government values, traditions and objectives are analyzed. Prerequisite: GPOS 229.

**PPA 325. Regional Planning and Organization.** 3 credits.
Study of trends and issues in the public planning process with focus on regional planning and organization, the relationship of planners and the planning board to their committees.

**PPA 359. Policy Analysis.** 3 credits. Offered each fall.
Study of public policy analysis. Delivers to students rational and alternative techniques for analyzing public policy while providing them opportunities to develop analytical skills.

**PPA 381. Budgetary Process.** 3 credits. Offered fall and spring.
An examination of the political planning and strategies of Congress and federal agencies in the budgetary process; politics of budgetary reform; state and local budgetary politics; and intergovernmental impacts on budgeting. Prerequisite: Junior standing.

**PPA 412. Seminar in Intergovernmental Relations.** 3 credits. Offered once a year.
Study of the relations between the several levels of government in the United States. Political, fiscal, legal, regulatory and administrative relations as they have evolved within federal and state constitutional frameworks will be examined. Prerequisite: Junior standing.

**PPA 415. Legal Environment of Public Administration.** 3 credits. Offered fall and spring.
Examination of the basic constitutional framework of American public administration. Examines legal constraints imposed on public administrators by law and judicial oversight. Emphasis placed on legal issues affecting public employees. Also examines the basics of public procurement law.

**PPA 420. Public Management.** 3 credits. Offered fall and spring.
Study of the management of public agencies from the executive viewpoint. Management control of public agencies will be explored including establishment of goals, policies, organizational structure and output of services. Case studies illustrate administrative behavior and managerial operations in local, regional, state and federal agencies. Does not count as part of the political science major. Fulfills the College of Arts and Letters writing-intensive requirement for the major. Prerequisite: Junior standing.

**PPA 480. Regionalism and Urban Policy.** 3 credits. Offered once a year.
A study of the problems of urbanization and inter-jurisdictional externalities from a regional perspective. Regionalism will be examined as an approach to generating public policy to solve these problems. Prerequisite: PPA 200.

**PPA 461. Education and Social Policy.** 3 credits. Offered every other year.
A study of the development and implementation of education policy in the United States at the national, state, and local levels. Students will be introduced to major issues in contemporary education policy and the evaluation of alternative policies advanced by subgroups of the population. Educational equity and its links to social and economic goals will be examined. Prerequisite: PPA 200.

**PPA 462. Social Welfare and Local Government Policy.** 3 credits. Offered every other year.
A study of the interaction of social welfare policy and local governance in theory and in practice. Students examine state and local government and community-based responses to urban problems from a policy and management perspective. Particular attention is paid to interagency and community collaboration as a way to enhance social service delivery. Prerequisite: PPA 200.

**PPA 483. Emerging Issues in Public Policy and Administration.** 3 credits.
The course will examine an area of new or emerging interest in the profession of public administration. The course may be repeated for credit with a change in the subject matter. Prerequisite: Permission of the instructor.

**PPA 484. Environmental Regulatory Policy and Politics.** 3 credits. Offered once a year.
A study of environmental politics and the policies that environmental advocates have produced. Topics include the dynamics of policy construction, various substantive policy issues and the prospects for environmental justice and sustainability. Prerequisite: PPA 200.

**PPA 490. Special Studies in Public Policy and Administration.** 3 credits. Offered every other year.
Designed to give capable students in public administration an opportunity to complete independent study under faculty supervision. Prerequisites: Permission of the instructor and department head.

**PPA 492. Senior Seminar in Public Policy.** 4 credits. Offered each spring.
This research-oriented seminar provides an overview of public policy studies and the different approaches to research in the field. A major research project will strengthen the research, information access and lifelong learning capacities of the students. Fulfills the College of Arts and Letters writing-intensive requirement for the major. Prerequisites: Senior standing, POSC 295 and PPA 359.

**PPA 496. * Internship in Public Management.** 4 credits. Offered fall, spring, and summer.
Provides students with opportunities for experiential learning in a governmental or nonprofit organization. A research paper and a presentation based on the experience are required. Prerequisites: Junior or senior standing, 15 hours of public policy and administration and permission of the instructor.

* No more than four semester hours (in any combination of internships) can be counted toward the major.

Reading Education

**College of Education**

**READ 240. Children's Literature.** 3 credits.
The study of a variety of children's literature and the practices, principles and procedures for selecting and evaluating works for children, giving consideration to their motivational and developmental effects. Prerequisite: Completion of Cluster One.