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# DEPARTMENT OF PHILOSOPHY (PL)

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Philosophy, as “love of wisdom,” explores the most fundamental questions of human experience, questions concerning the nature of the human person, the existence of God, immortality, freedom, the nature of moral and political values, the question of being, appearance and reality, knowledge and truth. A variety of richly developed and intellectually exciting answers to these questions, and many others, are explored in a systematic and rigorous way by means of a study of the work of outstanding classical and contemporary philosophers.

The study of philosophy enables the student to explore the most vital issues of human life and existence, issues which elude more specialized disciplines; at the same time, because of philosophy’s emphasis on skills in logical clarification, organization of ideas, and detailed argumentation, it helps cultivate the capacity to think and write with clarity, consistency, and informed insight. Philosophy also promotes the ability to recognize and evaluate assumptions and implications, and at the same time frees the thinker from ideology and overspecialization.

It is essential for a liberal education that each student learn to philosophize and to continue to think through the understanding one has of oneself in the world. Thus Rockhurst requires a certain minimum number of philosophy courses and encourages students to take even more. The required core courses in the philosophical mode of inquiry explore the fundamental notions underlying all human existence (PL 1100), and the nature of value and the philosophical basis of moral judgment (PL 3100). These courses contribute to the formation of a broad and coherent outlook, and provide a framework for the development of intellectual habits which foster a life-long integration of knowledge.

Coursework in philosophy is designed to introduce students to a range of profound and stimulating philosophical questions, and to develop the skills necessary for independent thinking. It also provides a broadening perspective for the various areas of specialization in the natural and social sciences, in literature and the arts, and in the various professional programs. A major in philosophy thus provides excellent preparation for a professional career in law, government, business, teaching, the media, higher education, and related areas.

## Major Field of Concentration

**Basic track:** The basic track in the major requires a minimum of three lower-division hours and 18 upper-division hours in philosophy, for a total of 21 philosophy hours. The lower-division philosophy prerequisite is PL 1100. A course in logic (PL 2500 or PL 2600) is strongly recommended, especially for pre-law students. Required upper-division courses are PL 3200 or PL 3770, or approved equivalent; PL 3100; and one course in the history of philosophy (from PL 3400, 3410, 3420, 3430, 3440, or 3450).

**PL 1100. Reality and Human Existence (3)***Fall and Spring semester*

An introduction to the practice of philosophy which distinguishes philosophical understanding from other ways of knowing, through the investigation of ultimate questions about reality, including human reality. The course includes a philosophical examination of appearance and reality; knowledge and truth; and of issues such as freedom, immortality, personal identity, and the meaning of life. (PLI)

**PL 1150. Honors: Reality and Human Existence (3)***Fall semester*

The content and purpose are the same as PL 1100, Reality and Human Existence, though the perspective is broadened and deepened. Prerequisite: Honors status or instructor approval. (PLI)

**PL 2500. Introduction to Logic (3)**

A study of the fundamental types of logic and basic structures of logical reasoning, including argument patterns, deduction (syllogistic and/or symbolic methods), induction, definition, and informal fallacies.

**PL 2600. Formal Logic (3)**

A study of deduction using symbolic methods, including truth tables, first-order propositional logic, and first-order predicate logic, with emphasis on using rules of inference, conditional and indirect methods, and quantification rules to construct proofs.

**PL 3100. Ethical Theory (3)***Fall and Spring semester*

An exploration of those fundamental factors involved in moral decision making and the discovery of ethical principles, in order to achieve a critical and reasoned understanding of the meaning and basis of morality. The course includes a rigorous examination of ethical theory, and a study of the derivation of moral principles and values and their application in ethical decision making. Prerequisites: PL 1100; sophomore standing; junior standing recommended. (PLII)

**PL 3150. Honors: Ethical Theory (3)***Spring semester*

The content and purpose are the same as PL 3100 Ethical Theory, though the perspective is broadened and deepened. Prerequisites: PL 1100 or PL 1150; sophomore standing; Honors status or instructor approval. (PLII)

**PL 3200. Philosophy of God (3)***Fall and Spring semester*

This course will examine various philosophical issues relating to existence and nature of God, with special attention given to the nature of God. Attention will also be given to various conceptions of God in different cultures and religious traditions. Other issues will include: the ontological

argument; a discussion of the traditional attributes of God; God's foreknowledge and human freedom; God and time; God and the nature of morality; God's relationship to the world; and the religious relevance of the "God of philosophy." Prerequisite: PL 1100. (PLII)

**PL 3250. Virtue and Character (3)**

The study of moral virtues is, both in Western culture and also in many Eastern cultures, a primordial philosophical approach to how to live well as a human being. Yet it has been mostly ignored academically in the last century in the West. This course examines the phenomenon of admiration as the origin of moral consciousness, and the historical centrality and the current revival of attention to the study of moral virtue and human character. Prerequisite: PL 1100. (PLII)

**PL 3270. Philosophy of Freedom (3)**

This course examines and clarifies the three basic meanings of freedom (freedom of choice, freedom of self-perfection, and freedom of action), with special emphasis on the issue of freedom and determinism (in regard to freedom of choice) and on the nature, limits, and components of political freedom (a form of freedom of action). Prerequisite: PL 1100. (PLII)

**PL 3300. Philosophy of Death and Dying (3)**

This course examines, through a selection of classical and contemporary texts, the problem of death and dying both from a philosophical and from a practical point of view. Topics covered include philosophical accounts of the meaning of death, and of attitudes toward death; the various ethical problems concerning death raised by recent medical technology; religious, moral, and legal definitions of death; the care of the dying; and the question of immortality, as well as a philosophical exploration of various theories of immortality. Prerequisite: PL 1100. (PLII)

**PL 3400. Ancient Philosophy (3)**

A study of ancient Greek and Roman philosophy, exploring issues such as the origin and nature of the universe; the unity and diversity of being; the development of logic; and the study of morals and politics. Thinkers to be studied may include the pre-Socratic philosophers, Socrates, Plato, Aristotle, and Epicurean, Stoic, and Neoplatonic philosophers. Prerequisite: PL 1100. (PLII)

**PL 3410. Medieval Philosophy (3)**

A study of philosophical thought from the patristic age to the decline of scholasticism. Themes include the relation between logic and reality (the problem of universals), and the attempt to reconcile the rediscovered pagan philosophy with religious belief (on creation, personal immortality, and the nature of God). Texts are chosen from the writings of major figures such as Augustine, Abelard, Anselm, the Jewish and Arab philosophers, Aquinas,

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Bonaventure, Scotus, and Ockham. Prerequisite: PL 1100. (PLII)

**PL 3420. Modern Philosophy** (3)

A study of major issues and figures in 17th and 18th century philosophy, focusing on Continental rationalism (Descartes, Spinoza, and/or Leibniz), British empiricism (Locke, Berkeley, and/or Hume), and the critical philosophy of Kant. Prerequisite: PL 1100. (PLII)

**PL 3430. 19th Century Philosophy** (3)

A study of selected issues and figures in 19th century philosophy. Topics are selected from the works of influential philosophers such as Fichte, Schelling, Hegel, Schopenhauer, Comte, Nietzsche, Kierkegaard, Marx, Mill, Peirce, and James. Prerequisite: PL 1100. (PL II)

**PL 3440. 20th Century Anglo-American Philosophy** (3)

An examination of the work of some of the most influential philosophers in the analytic tradition of 20th century philosophy. Topics are selected from the work of Frege, Russell, Ayer, Wittgenstein, the logical positivists, and ordinary language philosophers, and from recent work in analytic metaphysics and epistemology. Prerequisite: PL 1100. (PLII)

**PL 3450. 20th Century Continental Philosophy** (3)

An examination of the work of some of the most influential philosophers in the Continental tradition of 20th century philosophy, including representative texts from the phenomenological, existentialist, and postmodernist movements. Topics are selected from the work of Husserl, Heidegger, Sartre, Merleau-Ponty, Marcel, Gadamer, Habermas, Derrida, Foucault, and/or other significant philosophers. Prerequisite: PL 1100. (PLII)

**PL 3500-3590. Topics in the History of Philosophy** (3)

Study of a particular period or movement, such as pre-Socratic philosophy, Neoplatonism, Renaissance philosophy, etc. Prerequisite: PL 1100. (PLII)

**PL 3500. The Pre-Socratics and Plato** (3)

**PL 3510. The Pre-Socratics.** (3)

**PL 3600. American Philosophy** (3)

A study of the major issues, movements, and figures in American philosophy, including the ways in which American philosophy reflects America's cultural identity. Prerequisite: PL 1100. (PLII)

**PL 3650. Existentialism** (3)

A systematic introduction to the work of major figures of 19th and 20th century existentialism. The main themes covered include the different views of the self which emerge in existentialist thought; the relationship of the self to the world, other people, and God; the nature of human freedom, choice,

anxiety, commitment, and responsibility. These themes are explored through the work of such thinkers as Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, Marcel, Merleau-Ponty, Dostoevski, and Kafka. Prerequisite: PL 1100. (PLII)

**PL 3670. Phenomenology** (3)

An introduction to phenomenological philosophy, beginning with the thought of Husserl and including the development of phenomenology by philosophers such as Heidegger, Scheler, and Merleau-Ponty. Themes include the critique of naturalism and empiricism; intentionality and the description of experience; static (structural) and genetic (temporal) analysis; applications of phenomenological method; and the differences between transcendental and existential phenomenology. Prerequisite: PL 1100. (PLII)

**PL 3700. Postmodernism** (3)

A study of the major themes and conceptualizations to emerge in postmodernist movements of later 20th century thought. The course examines the central movements of postmodernism: structuralism, hermeneutics, critical theory, and deconstructionism, focusing on themes such as the critique of rationality and identity, the nature of signs, issues of textual criticism, the critique of culture, postmodernist accounts of intentionality, and the nature of knowledge, language, and meaning. These issues are examined through a consideration of such thinkers as Heidegger, Gadamer, Habermas, Barth, Foucault, Rorty, and Derrida. Prerequisite: PL 1100. (PLII)

**PL 3750. Philosophy of Art** (3)

An exploration of a variety of central questions in the philosophy of art. Topics covered normally include a philosophical investigation into the nature of art; the nature of aesthetic experience; creativity, and the definition of the artist; kinds of art; art and truth. Some consideration may also be given to such related issues as the artist's relationship to society, and art as a medium for the expression of moral values and of perspectives on the meaning of human life. The issues of the course are explored through a selection of writings from outstanding classical and contemporary thinkers. Prerequisite: PL 1100. (PLII)

**PL 3770. Philosophy of Religion** (3)

A philosophical inquiry into the rationality of religious belief, focusing in particular on two questions: 1) Does God exist? and 2) Is religious belief rational? Discussion of these questions normally involves discussion of the following issues: arguments for the existence and nature of God; the problem of evil; the questions of immortality, religious pluralism, and the relationship between religion and morality; the nature of religious experience; faith vs. reason; religion vs. science; etc. Prerequisite: PL 1100. (PLII)

- PL 3775. Religion and Science** (3)  
This course is concerned with exploring philosophically several key issues which arise out of the historical and contemporary dialogue and debate between religion and science. The course will discuss: the history of the relationship; the nature of religious belief; the role of reason and faith in religion; the rise and challenge of naturalism; a study of various contrasting models of how the relationship might be understood; the origin of, and the order in, the universe; evolution and creation, with special emphasis on current debates. The course concludes by looking at some implications for the nature of the human person. Prerequisite: PL 1100. (PLII)
- PL 3800. Philosophy of Mind** (3)  
An examination of the various explanations of the nature of mind, including an assessment of dualism, materialism, behaviorism, epiphenomenalism, functionalism, mind-brain identity, etc. In order to analyze and evaluate these positions, considerable attention is given to questions regarding consciousness, experience, intellectual knowledge, intentionality, personal identity, human freedom and immortality. "Cognitive science" and other social scientific explanations of mind are also examined, including the question of mind vs. machine, and issues relating to artificial intelligence. Prerequisite: PL 1100. (PLII)
- PL 3810. Philosophy of Time** (3)  
This course takes a wide-ranging approach to the understanding and the experience of time. Course material includes the difference between cyclical and linear (historical) conceptions of time; some philosophical theories about time, including the views of thinkers such as Zeno, Plato, Aristotle, Plotinus, Augustine, Bradley, Kant, Bergson, McTaggart, and Merleau-Ponty; the historical development of time measurement (clocks and calendars); some implications of 20th century scientific theory of time; the relationship between time and culture; and the consciousness of time. Prerequisite: PL 1100. (PLII)
- PL 3840. Philosophy of Technology** (3)  
A philosophical inquiry into the impact of technology on society, culture, and the human person, including epistemological, metaphysical and ethical implications of the human development and use of technology. Since the very existence of technology opens up new possibilities for decision making and action, technology comes into contact with human values and becomes part of the development of human society. And so, this course seeks to provide a philosophical understanding of the role of technology in our lives, and highlights the concerns that face a "technological society." Prerequisite: PL 1100. (PLII)
- PL 3850. Philosophy of Science** (3)  
Philosophical inquiry into natural science, including attention to the history of science and the role of science and technology in contemporary culture. Topics include the nature of scientific theory and explanation; confirmation, falsification, and the testing of theories; the historical development of scientific knowledge; and a variety of positions on the reality of theoretical entities. Students with a proficiency in the German language may consider GR 3490 German Philosophers of Science as a complement to this course. Prerequisite: PL 1100. (PLII)
- PL 3860. Philosophy of Social Science** (3)  
A study of the conceptual foundations of the social and behavioral sciences through a consideration of the philosophical problems raised by the description and explanation of human behavior. Such problems include the prospects of reductionism, presuppositions of research methods, constraints on experimental design, and the logical issues raised by intentionality. Prerequisite: PL 1100. (PLII)
- PL 3870. Philosophy of Mathematics** (3)  
A study of major issues and problems in the philosophy of mathematics, including the reality-status of mathematical entities; the relation between mathematics and logic; mathematical truth; formal systems and their limitations; kinds of infinity; mathematical intuition; proof and methodology. Platonism, foundationalism, and non-foundationalism are examined. Prerequisite: PL 1100. (PLII)
- PL 3900. Metaphysics** (3)  
This course studies those principles and features that are necessary to the intelligibility of whatever is real insofar as it is real. It examines the relationships between being and becoming, the actual and the potential, creativity (freedom) and causal determination, the necessary and the contingent. Texts from major philosophers (historical and/or contemporary) are employed. Prerequisite: PL 1100. (PLII)
- PL 3940. Epistemology** (3)  
A philosophical examination of the origins, nature, and validity of human knowledge. Themes covered normally include the problem of objective knowledge; knowledge and truth; the mind and its relation to extra-mental reality; types of knowledge; and questions about perception, conceptual thinking, identity, language, and meaning. Attention is given to the historical development of these themes in the history of epistemology. The issues of the course are explored through a variety of epistemological writings by outstanding classical and/or contemporary philosophers. Prerequisite: PL 1100. (PLII)

- PL 4100. The Philosophy of Plato** (3)  
An examination of important philosophical themes as they develop in the dialogues of Plato. Attention is given to how the young Plato, much under the influence of Socrates (the early dialogues), struggles with moral, political and epistemological questions so as to develop in time (the middle and later dialogues) into an original metaphysician and moral thinker in his own right. Specific values issues include Plato's views regarding individual and social justice, the good life, virtue, the common good, beauty and art; metaphysical issues include the nature of reality and knowledge (including Plato's treatment of the world of forms and dialectical understanding), human nature and human destiny. Due to the peculiarities of Plato's writings, some attention is given to contemporary interpretations of the dialogues. Prerequisite: PL 1100. (PLII)
- PL 4120. The Philosophy of Aristotle** (3)  
A study of the influential Greek philosopher known in the Middle Ages as "The Philosopher," and who was called by Dante, "The Master of all who know." This course examines primary texts, some pertaining to Aristotle's theoretical writings (e.g., his logical, physical and metaphysical works) and others to his practical philosophy (e.g., his ethical, political and aesthetic treatises). Some commentators on Aristotle, including contemporary writers, also are consulted, since their work clarifies problems of interpretation in the ancient Greek's philosophy. Special attention is also given to how Aristotle agrees and disagrees with his original teacher, Plato. Prerequisite: PL 1100. (PLII)
- PL 4140. The Philosophy of Aquinas** (3)  
Study of the thought of the thirteenth-century philosopher, known as the "Angelic Doctor." Special attention is paid to historical influences on his thought as well as to developments that distinguish his philosophy from those of his predecessors and his immediate successors (such as Duns Scotus and William of Ockham). Primarily his views on the relation of faith to reason, on metaphysics, and on the philosophy of human knowing are studied. Some consideration is given to his practical philosophy and to his influence on contemporary thinkers. Prerequisite: PL 1100. (PLII)
- PL 4170. The Philosophy of Kant** (3)  
An introduction to the critical philosophy of Immanuel Kant, concentrating on his investigation of the nature and limits of human reason and on his theory of morality, and including attention to the context of his thought, particularly Hume's empiricism and Newtonian physics. Prerequisite: PL 1100. (PLII)
- PL 4180. The Philosophy of Hegel** (3)  
The course examines the method, content, and influence of Hegel's philosophy, with special emphasis on his Phenomenology of Spirit and his System of Logic, as primary texts. Topics include: Hegel's interpretation and development of dialectic; the relationship between Hegel's metaphysics and the philosophy of Kant; the master-slave relationship; the unhappy consciousness; the dialectic of being and nothingness; the realm of absolute spirit; and the nature of the absolute idea. Prerequisite: PL 1100.
- PL 4190. The Philosophy of Marx** (3)  
After a brief summary of pertinent elements in the thought of Hegel, there are textual studies of Karl Marx concentrating on his humanistic, economic, and revolutionary thought. Prerequisite: PL 3100.
- PL 4200. The Philosophy of Nietzsche** (3)  
A seminar course devoted to the critical examination of the primary texts and the philosophical and psychological insights of the brilliant but unsystematic German thinker who influenced Freud, the existentialists, and contemporary postmodernists, and who is being studied more seriously today than ever before. Prerequisite: PL 1100. (PLII)
- PL 4270. The Philosophy of Whitehead** (3)  
A study of the cosmology and metaphysics of Alfred North Whitehead, who was both a theoretical physicist and mathematical logician, and whose process philosophy became one of the major forces in both twentieth-century philosophy and theology. Whitehead stresses the primacy of creativity over determinism, of becoming over being, and of a God in process over an immutable deity. Prerequisite: PL 1100. (PLII)
- PL 4300. The Philosophy of Husserl** (3)  
An introduction to the thought of Edmund Husserl, "the founder of phenomenology." Topics covered include the rejection of psychologism, the techniques of epoche and reduction, the intentionality of consciousness, time-consciousness, the transcendental ego, static and genetic constitution, the life-world, and the place of Husserl in 20th century thought. Prerequisite: PL 1100. (PLII)
- PL 4320. The Philosophy of Heidegger** (3)  
A seminar focusing on the central ideas and issues of Heidegger's earlier and later philosophy. Heidegger's attempt to think through the question of Being leads him to discover that which has been unthought, to describe the phenomenon of truth, and to explore the making-present of Being in the creative act, as well as to describe essential structures of human existence. The course thinks along with Heidegger by studying major sections of Being and Time as well as selected later writings that are significantly different in style and content. Heidegger's influence on later 20th century thought is also considered. Prerequisite: PL 1100. (PLII)

- PL 4340. The Philosophy of Marcel** (3)  
This course involves a systematic, detailed examination of the major themes in several of Marcel's main works. Themes covered include: Marcel's Christian existentialist account of the human person; the distinctions between being and having, problem and mystery, primary and secondary reflection; the "concrete approaches" to human existence; and the philosophical critique of modern culture. Some consideration is also given to Marcel's place in contemporary thought. Prerequisite: PL 1100. (PLII)
- PL 4400-4490. Seminar: Major Philosopher(s)** (3)  
Study of the thought of a single philosopher or pair of philosophers, using primary texts and including attention to the historical background and influence, methodology, distinguishing characteristics, and contemporary relevance of the ideas. Prerequisite: PL 1100. (PLII)
- PL 4400. Descartes** (3)
- PL 4410. The Philosophy of St. Augustine** (3)  
This course will study the life and writings of St. Augustine of Hippo, and his vast contributions to the philosophical understanding of human existence. St. Augustine was a prolific thinker and writer with topics covering the relationship between faith and reason, free will, the soul, immortality, the existence and nature of God, knowledge, truth and wisdom. In particular, this course will explore the neo-platonic influence on St. Augustine's philosophical views, his own development of an authentic Christian philosophy, and his impact on subsequent philosophy—especially medieval scholasticism. Prerequisite: PL 1100. (PLII)
- PL 4500. Ethical Problems** (3)  
An examination of particular moral issues and problems, using ethical theory and including an application of general ethical principles to particular individual and social rights and obligations. Prerequisite: PL 3100. (PLII)
- PL 4550. Business and Ethics** (3)  
An ethical study of business which establishes how a business qualifies as a moral agent, and examines the moral responsibility of business to its employees, its customers, its competition, government, and the environment. The course explores a variety of philosophical perspectives, including their application to case studies. Prerequisite: PL 3100. (PLII)
- PL 4570. Philosophy of Law** (3)  
The treatment of the philosophical bases, presuppositions, and interpretations of society's laws under five headings: law, liberty, justice, responsibility, and punishment. The exploration of each of these topics involves the reading of theoretical essays and excerpts, from both natural law and positivist/utilitarian traditions, and the study of relevant court cases. Readings are selected from such theorists as: Aristotle, Aquinas, Mill, John Austin, H.L.A. Hart, Devlin, Rawls, and Frankena. Landmark cases, such as *Griswold v. Connecticut*, *Furman v. Georgia*, *Roe v. Wade*, and *Brown v. The Board of Education*, are included. Prerequisite: PL 3100. (PLII)
- PL 4600 (PS 4600). Modern Political Philosophy** (3)  
After a brief survey of ancient and medieval political theories, this course examines those political theories developed by major philosophers since the 16th century. It also examines the way in which these theories have influenced political policies and decisions in our day. Prerequisite: PL 3100. (PLII)
- PL 4620 (PS 4620). The Just War and International Ethics** (3)  
The study of theories of international ethics with special attention to the historical development of the theories of the "just war" and its usefulness in our day to examination of the entire spectrum of political relations between countries in such matters as human rights and the various kinds of intervention. Prerequisite: PL 3100. (PLII)
- PL 4640 (PS 4640). Justice within Society** (3)  
Starting with an historical review, the course concentrates on modern and contemporary American and British efforts to think through the problems of justice within a modern Western society. Prerequisite: PL 3100. (PLII)
- PL 4660 (PS 4660). International Distributive Justice** (3)  
A critique of major ethical theories currently employed in public debate to examine problems of international justice, especially in reference to economic goods as distributed between "rich and poor" nations. Prerequisite: PL 3100. (PLII)
- PL 4700. Seminar in Ethics** (3)  
Philosophical study of a selected ethical field, such as bioethics, medical ethics, environmental ethics, professional ethics, ethics in communication, etc. Prerequisite: PL 3100. (PLII)
- PL 4700. Medical Ethics** (3)

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# PHYSICS (PH)

(Department of Mathematics, Computer Science and Physics)

<i>Professor</i>	Robert F. Hegarty, Ph.D.
<i>Associate Professor</i>	Paula A. Shorter, Ph.D. (Chair)
<i>Assistant Professor</i>	Nancy Donaldson, Ph.D.

An understanding of physical phenomena is essential in all fields of science, engineering and technology. It follows that one objective of the physics program is to provide students with a competence and base of knowledge sufficient for their specific requirements. Physics, however, is more than the basic science: it is an art whose techniques (including logical and analytical reasoning, careful observation, experimentation and mathematical model-building) can be valuable assets in any field of endeavor.

A second objective, then, is to educate the student in the basic art of formulating and solving problems. Finally, the basic theories of physics provide a way of perceiving the natural world. Thus, the ultimate objective of the study of physics is to provide the student with a way to appreciate the world with greater understanding.

## Major Field of Concentration

The major concentration in physics leading to a Bachelor of Science degree consists of a minimum of 19 upper-division hours of physics and a minimum of 12 hours of upper-division courses in mathematics. Specific physics courses required are: PH 3910, PH 4010, PH 4110, PH 4300, PH 4400, PH 4500, PH 4600, and PH 4960 (a one-credit physics seminar). Specific mathematics courses required are: MT 3530 Numerical Methods, MT 3700 Differential Equations, MT 3710 Applied Analysis, and MT 3810 Linear Algebra. Lower-division prerequisites for this major are PH 2800, PH 2810, PH 2900, PH 2910, MT 1800 Calculus I, MT 1810 Calculus II, MT 2800 Calculus III and a computing course (CS 1080 Principles of Computing, or CS 1110/1120 Introduction to Programming, or proficiency in programming). A grade of C or better is required in each upper-division course counted toward fulfillment of the major requirements. (A grade of C- will not satisfy these requirements.)

Though students majoring in physics will automatically complete, and can apply for, a mathematics minor under the applied mathematics track, physics majors are strongly encouraged to complete a double major in mathematics. This can be accomplished by taking MT 3800 and one additional course in theoretical mathematics. The physics curriculum includes from six to ten elective courses, which give the student great flexibility in pursuing diverse interests. Physics majors are also encouraged to complete PH 3400 (ES 3400), PH 3500 (ES 3500), CH 2610 General Chemistry I and CH 2630 General Chemistry II.

A strength of the physics major lies in the emphasis on mathematics, which allows the student to choose either immediate employment after graduation in a large number of technological fields or graduate study in physics, mathematics, or the various branches of engineering.

## Minor Field of Concentration

A student may earn a minor in physics by completing two three-credit-hour 3000- or 4000-level PH courses, plus two three-credit-hour 4000-level PH courses. A grade of C or better is required in each upper-division course counted toward fulfillment of the minor requirements. (A grade of C- will not satisfy this requirement.)

- PH 1200. The Art of Physics** (3)  
Designed for non-science majors, this course explores the basic scientific viewpoint and develops elementary but effective techniques for formulating and solving vaguely stated problems. In addition, the course surveys the basic phenomenology of physics and some of its applications to chemistry, geology and technology. Prerequisite: high school algebra. Corequisite: PH 1210.
- PH 1210. The Art of Physics Laboratory** (1)  
Selected experiments closely tied with PH 1200. Two hours per week. Laboratory fee. Corequisite: PH 1200.
- PH 1300. Topics in Physics I** (3)  
*Spring semester*  
A one-semester conceptual physics course designed to cover major physics topics in Mechanics, States of Matter, and Waves and Sound through inquiry-based hands-on activities, discussion, and demonstrations. Emphasis will be on conceptual understanding and the applicability of physics to the students' major area of study. Students will be expected to demonstrate conceptual and applied understanding of physics principles through class discourse, written assessment, and the design of a project utilizing physics principles in an application to an area of students' career interests. Recommended: MT 0100 or equivalent. Corequisite: PH 1310. (SCI Lecture & Lab combined)
- PH 1310. Topics in Physics Laboratory I** (1)  
*Spring semester*  
Selected constructivist inquiry laboratory activities to accompany PH 1300. Two hours a week. Laboratory fee. Corequisite: PH 1300. (SCI Lecture & Lab combined)
- PH 1450. Topics in Physics II** (3)  
*Fall semester*  
A one-semester conceptual physics course designed to cover major physics topics in Thermodynamics, Electricity/Magnetism, and Light/Color through inquiry-based hands-on activities, discussion, and demonstrations. Emphasis will be on conceptual understanding and the applicability of physics to the students' major area of study. Students will be expected to demonstrate conceptual and applied understanding of physics principles through class discourse, written assessment, and the design of a project utilizing physics principles in an application to an area of students' career interests. Prerequisite: PH 1300 or permission of instructor. Corequisite: PH 1460.
- PH 1460. Topics in Physics Laboratory II** (1)  
*Fall semester*  
Selected constructivist inquiry laboratory activities to accompany PH 1450. Two hours a week. Laboratory fee. Corequisite: PH 1450.
- PH 1500. Basic Electricity and Electronics** (2)  
Basic electrical concepts including potential, current, resistance, capacitance, inductance, RC circuits, potentiometers and Wheatstone bridges. Basic electronic concepts including semiconductors, diodes, transistors, logic gates and flip-flops. Three lectures and one two-hour laboratory every two weeks. Laboratory fee. Prerequisite: MT 1090 Calculus for Business or MT 1800 Calculus I, or concurrently.
- PH 1600. Introduction to Astronomy** (3)  
*Spring semester*  
A study of the University around us – the planets, stars, and galaxies – and how the process of science has enabled us to discover so much about these distant bodies. Students will learn about what you can see in the night sky, how stars, planets, and galaxies are formed, as well as the latest discoveries on black holes, Big Bang cosmology, dark matter, and life in the Universe. Recommended: MT 0100 or equivalent. Corequisite: PH 1610. (SCI Lecture & Lab combined)
- PH 1610. Introduction to Astronomy Laboratory** (1)  
*Spring semester*  
Lab activities to support the major topics of PH 1600. These include collaborative team projects about the motion of the sky, stars, planets, and galaxies, outside observing with small telescopes (weather permitting), and a field trip to a local observatory. Laboratory fee. Corequisite: PH 1600. (SCI Lecture & Lab combined)
- PH 1800. Introductory Physics I** (3)  
*Fall semester*  
This is a college physics course (non-calculus) which explores physical phenomena and their applications. It is expected that most students would continue their study by taking PH 1900. Recommended: MT 1190. Corequisite: PH 1810. (SCI Lecture & Lab combined)
- PH 1810. Introductory Physics Laboratory I** (1)  
*Fall semester*  
Selected experiments to accompany PH 1800. Two hours per week. Laboratory fee. Corequisite: PH 1800. (SCI Lecture & Lab combined)
- PH 1900. Introductory Physics II** (3)  
*Spring semester*  
This continues the survey begun in PH 1800. Prerequisite: PH 1800. Corequisite: PH 1910. (SCI or SCII Lecture & Lab combined)
- PH 1910. Introductory Physics Laboratory II** (1)  
*Spring semester*  
Selected experiments to accompany PH 1900. Two hours per week. Laboratory fee. Corequisite: PH 1900. (SCI or SCII Lecture & Lab combined)

- PH 2800. General Physics I** (3)  
*Fall and Spring semester*  
Principles of Newtonian mechanics and introduction to heat and thermodynamics employing calculus as needed and emphasizing the scientific method and physical reasoning. Prerequisite or concurrent: MT 1800 Calculus I. Corequisite: PH 2810. (SCI Lecture & Lab combined)
- PH 2810. General Physics Laboratory I** (1)  
*Fall and Spring semester*  
Selected experiments to complement PH 2800. Two hours per week. Laboratory fee. Corequisite: PH 2800. (SCI Lecture & Lab combined)
- PH 2900. General Physics II** (3)  
*Fall and Spring semester*  
Principles of classical electricity, magnetism and physical optics, making free use of calculus. Prerequisite: PH 2800. Corequisite: PH 2910. (SCI or SCII Lecture & Lab combined)
- PH 2910. General Physics Laboratory II** (1)  
*Fall and Spring semester*  
Selected experiments to complement PH 2900. Two hours per week. Laboratory fee. Corequisite: PH 2900. (SCI or SCII Lecture & Lab combined)
- PH 3400 (ES 3400). Engineering Thermodynamics** (3)  
*Spring semester*  
Basic thermodynamic laws and relationships from an engineering standpoint. Emphasis on applying thermodynamic principles to the design of engineering systems using basic hardware devices. Lecture three hours a week. Prerequisites: MT 1810 Calculus II, PH 2800 or concurrently.
- PH 3500 (ES 3500). Engineering Statics** (3)  
*Fall semester*  
Basic principles of statics and introduction to strength of materials. Lecture three hours a week. Prerequisites: MT 1800 Calculus I and PH 2800.
- PH 3510 (CH 3510). Physical Chemistry I** (3)  
*Fall semester*  
Basic principles of physical chemistry with emphasis on thermodynamics, equilibria and kinetic theory. Lecture three hours a week. Prerequisites: PH 2900 and MT 1810, or instructor approval.
- PH 3520 (CH 3520). Physical Chemistry Laboratory I** (1)  
*Fall semester*  
Experiments designed to illustrate basic theories in thermodynamics, equilibrium, etc. Laboratory three and a half hours a week. Lab fee. Prerequisite or concurrent: PH 3510 (CH 3510).
- PH 3530 (CH 3530). Physical Chemistry II** (3)  
*Spring semester*  
Basic principles of phase equilibria, electrochemistry, kinetics, introduction to quantum mechanics and molecular structure. Lecture three hours a week. Prerequisite: PH 3510 (CH 3510).
- PH 3540 (CH 3540). Physical Chemistry Laboratory II** (1)  
*Spring semester*  
Experiments designed to illustrate basic theories in electrochemistry, kinetics, spectroscopy, etc. Laboratory three and a half hours a week. Lab fee. Prerequisite or concurrent: PH 3530 (CH 3530).
- PH 3910. Advanced Laboratory I** (2)  
*Fall and Spring semester*  
Basic experiments in mechanics, electronics, optics, resonance phenomena and atomic and nuclear physics. Laboratory four hours a week. Laboratory fee. Prerequisite: PH 2900.
- PH 4010. Advanced Laboratory II** (2)  
*Fall and Spring semester*  
A continuation of PH 3910. Laboratory four hours a week. Laboratory fee. Prerequisite: PH 3910.
- PH 4110. Advanced Laboratory III** (2)  
*Fall and Spring semester*  
A continuation of PH 4010. Laboratory four hours a week. Laboratory fee. Prerequisite: PH 4010.
- PH 4210. Advanced Laboratory IV** (2)  
*Fall and Spring semester*  
A continuation of PH 4110. Laboratory four hours a week. Laboratory fee. Prerequisite: PH 4110.
- PH 4300. Electricity and Magnetism** (3)  
*Fall semester of even-numbered calendar year*  
Elements of vector analysis. Electrostatic fields and potentials, equations of Poisson and Laplace, magnetic fields and the vector potential, electromagnetic induction, Maxwell's equations and plane electromagnetic waves. Electric and magnetic fields in material media. Lecture three hours a week. Prerequisites: PH 2900 and MT 1810 Calculus II.
- PH 4400. Physical Optics** (3)  
*Spring semester of odd-numbered calendar year*  
The nature of light, geometrical optics, optical instrumentation, wave equations, superposition of waves, interference of light, polarization of light, Fraunhofer and Fresnel diffraction, and laser basics. Lecture three hours a week. Prerequisites: PH 2900 and MT 1810 Calculus II.

**PH 4500. Modern Physics (3)***Spring semester of even-numbered calendar year*

“Modern physics” is distinguished from “classical physics” not only by its youth (dating from about 1900) but also by its description of phenomena in startlingly different ways. The basic new theories are relativity and quantum mechanics, which form the basis for the description of “elementary particles,” nuclei, atoms, molecules and matter in its various states. This course begins with a study of special relativity and then turns to quantum theory, describing the empirical discoveries leading to each. Emphasis is placed on the meaning of these theories. Applications of quantum theory to the study of atoms, molecules and solids are studied. Prerequisites: PH 2900 and MT 1810 Calculus II.

**PH 4550. Quantum Mechanics (3)**

This course deals with the Schrodinger equation and its implications: operators, eigenvalues and the interpretation of the wave function. Topics include angular momentum and spin, scattering theory, group theory, perturbation methods and quantum statistics. Prerequisites: PH 4500, PH 4600 and MT 3710 Applied Analysis.

**PH 4600. Classical Mechanics I (3)***Fall semester of odd-numbered calendar year*

The Newtonian formulation of mechanics with applications to simple mechanical systems. Theory of damped oscillations. Dynamics of systems of particles and the conservation laws. Generalized coordinates. Hamilton’s principle and the Lagrangian formulation. Lecture three hours a week. Prerequisite: PH 2800.

**PH 4650. Classical Mechanics II (3)**

Continuation of PH 4600. Topics include Noether’s Theorem and special relativity. Lecture three hours per week. Prerequisite: PH 4600.

**PH 4960 (MT 4960). Physics Seminar (1)**

Expository presentations by junior and senior students on physics topics. Students learn presentation techniques through oral and written reports, poster presentations, and web page creation. Course required for the major. Prerequisite: Junior or senior standing.

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## DEPARTMENT OF POLITICAL SCIENCE (PS)

*Professor* Charles R. Moran, Ph.D. (Chair)

*Professor* Frank J. Smist, Jr., Ph.D.

Political science is the systematic study of the individual’s relationship with government. It investigates the nature and purpose of government, the principles on which it rests, the justification of political authority, the legal and moral aspects of that authority and the nature and development of the great human freedoms. Courses offered deal with these concerns in the American as well as foreign and international political systems.

The approach combines the practical with the theoretical so that contemporary political issues can be better understood. Political science course work is useful for those who are oriented toward elective, appointive and administrative positions at all levels of government as well as for those interested in politics as an avocation. It can also help prepare students for graduate studies in law and the social sciences as well as for business, journalism and broadcasting careers.

### Major Field of Concentration

The major concentration in political science consists of a minimum of 18 semester hours of upper-division work in at least three subfields of the major. The subfields from which choices may be selected are normative theory, American politics, comparative politics, international relations or constitutional law. Also required are 12 semester hours of related upper-division courses chosen under the direction of the major advisor. Lower-division prerequisites for this major concentration are EC 2000 Principles of Macroeconomics and PS 1000 or PS 1100. A grade of C or better is required in each course of the major. (A grade of C- will not satisfy the requirement.)

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## Minor Field of Concentration

The requirements for a minor in political science may be satisfied by successful completion of course work in either PS 1000 or PS 1100 and any four of the following upper-division political science courses: PS 3100, PS 3150, PS 3170, PS 3190, PS 3300, PS 3310, PS 3330, PS 3350, PS 3370, PS 3500, PS 3520, PS 3550, PS 3700 and PS 3750. A grade of C or better is required in each upper-division course of the minor. (A grade of C- will not satisfy the requirement.)

**PS 1000. Introduction to Politics** (3)

An exposure to the fundamental tools for understanding political life. The purpose and scope of politics, methods of analysis and alternative ways of organizing the political process are studied. (SRI)

**PS 1100. American Federal and State Government** (3)

An introductory survey of the origin, principles, powers and limitations of the American federal and state governments. Recent presidential and congressional campaigns and elections are studied to gain insight on the political process as well as major issues now facing the federal government. (SRI)

**PS 3100. The American Presidency** (3)

A study of the evolution of the American presidency with emphasis on the constitutional and political roles as well as personalities of presidents in guiding domestic and foreign policy. Particular attention is focused on the administrations of Franklin D. Roosevelt and his successors. (SRII or SRI)

**PS 3150. The Congress** (3)

A study of the evolution of the U.S. Congress as a political institution. The legislative process is examined as well as the constitutional and political roles of the Congress. Special attention is given to how the reforms of the 1970's have shaped Congress today as well as what political scientists have recently had to say about the Congress. (SRII or SRI)

**PS 3170 (GS 3170). Political Leadership** (3)

Although political leadership is the principal focus of the course, leadership is also considered in a wider context. What is a leader? What are the qualities that are necessary to be an effective leader? How can leaders build credibility? How important are the qualities of character and competence? What constitutes "successful" leadership? Particular attention is given to the following leaders: Jesus Christ, Theodore Roosevelt, Woodrow Wilson, Mahatma Gandhi, Lyndon Johnson, and Dr. Martin Luther King Jr. (SRII or SRI)

**PS 3190. Political Parties and Voter Behavior** (3)

A study of the development, organization, functions and activities of major and minor political parties, interest groups, and voting behavior in the United States at the federal, state and local levels. The focus is primarily on the response of the

parties, interest groups and citizens to contemporary political problems. (SRII or SRI)

**PS 3300 (GS 3300). Western European Politics** (3)

A comparative study of the political institutions of Great Britain, France and Germany with particular emphasis on current problems. (SRII or SRI)

**PS 3310 (GS 3310). Eastern European-Russian Politics** (3)

A comparative study of the political institutions of the former communist states in Eastern Europe and Russia with particular emphasis on current problems stemming from the dramatic changes which began in 1989.

**PS 3330 (GS 3330). The U.S. and the Pacific Rim** (3)

The course is a comparative study of U.S. relations with the countries of East Asia (China, Japan, Korea and the Russian Far East) and Southeast Asia (Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam). Besides looking at political practices and institutions, the course also examines how U.S. relations with these countries have been affected by geographical, historical, economic and cultural factors. (SRII or SRI)

**PS 3350 (GS 3350). Latin American Politics** (3)

A comparative study of the political practices and institutions of major Latin American states with a major emphasis on the unique historic and cultural milieu. Particular emphasis is placed on current domestic and foreign policy issues. (SRII or SRI)

**PS 3360 (GS 3360). Mexican Culture and Politics** (3)

An interdisciplinary study of Mexico focusing on its unique history, culture, politics and economy. Particular emphasis is placed on current domestic and foreign policy issues and Mexico's developing bilateral relationships with the United States.

**PS 3370 (GS 3370). Middle Eastern Politics** (3)

A comparative study of the political institutions of selected Middle Eastern states with particular emphasis on the Arab-Israeli conflict and the politics of oil. (SRII or SRI)

**PS 3410. Ancient and Medieval Political Theory** (3)

The history of Western political thought from the early Greeks to the Renaissance. Special emphasis on Plato, Aristotle, Roman law, Aquinas and

Machiavelli in terms of their contributions to contemporary political and legal thinking.

**PS 3500 (GS 3500). U.S. Intelligence Operations** (3)

A study of the evolution of U.S. intelligence operations and national security policy from Pearl Harbor to the present post-Cold War world. Special attention is devoted to the roles of the CIA, FBI, and National Security Agency and the degree to which the dilemmas raised between the public's right to know in a democracy and the government's right to protect the national security can be reconciled. (SRII or SRI)

**PS 3510 (GS 3510). Politics in Fiction and Film** (3)

A study of how politics is depicted in fiction and films. Students read works of fiction and view films that touch upon politics and the political process from both an American and international perspective. (SRII or SRI)

**PS 3520 (GS 3520). U.S. Foreign Policy** (3)

This course initially focuses on the historical experiences and values shaping the foreign policy of the U.S. The role played by the major branches of the federal government as well as non-government actors then is studied. The course concludes with an analysis of U.S. policy toward selected countries and regions of the world. (SRII or SRI)

**PS 3550 (GS 3550). International Relations and Organizations** (3)

A study of the underlying forces influencing international affairs and the power positions of states with particular attention to the role of the United Nations and other international organizations. (SRII or SRI)

**PS 3580 (GS 3580). Politics and Religion** (3)

A study of the impact of religion on the political processes of selected nation-states as well as in the international arena. The political dimensions of Christianity, Judaism, Islam, Hinduism, and Buddhism are considered.

**PS 3700. The Constitution** (3)

A study of the main features of the U.S. Constitution and the practical significance of its most important provisions as interpreted by the Supreme Court.

**PS 3720. The Supreme Court** (3)

A study of the relationship between the Court and Federal and State governments. Following an examination of the Court's interaction with Congress, the President and the States, the course concludes by looking at the pressures Congress and the President bring to bear on the Court. (SRII or SRI)

**PS 3750. Civil Rights** (3)

A study of civil rights issues (freedom of expression, press, religion, etc.) by examining Supreme Court decisions of these constitutional questions.

**PS 3860 (CT 3860). Media and Politics** (3)

A study of the growing importance of mass media in American politics and their interaction with the formal and informal elements of the decision-making process. (SRII or SRI)

**PS 3870. The Depiction of the Post-Cold War U.S. Presidency in Film and Fiction** (1-3)

The course examines how the U.S. Presidency is being depicted in film and fiction in the post-Cold War world. The model of the Presidency set forth in the 1950s by Clinton Rossiter is evaluated and contrasted with post-Cold War movies and fictional accounts of the U.S. Presidency. After viewing movies and reading fictional accounts of post-Cold War U.S. Presidency, Rossiter's model is revisited and updated.

**PS 3880. The Legacy of John Fitzgerald Kennedy** (3)

A study of the presidency and political legacy of John F. Kennedy. Particular attention is given to the Bay of Pigs, the Cuban Missile Crisis, and the Kennedy assassination. The writings of historians and political scientists about the Kennedy Administration are examined along with how scholarly thinking has evolved down through the years. (SRII)

**PS 4600 (PL 4600). Modern Political Philosophy** (3)

After a brief survey of ancient and medieval political theories, this course examines those political theories developed by major philosophers since the 16th century. It also examines the ways in which these theories have influenced political policies and decisions in our day. Prerequisite: PL 3100.

**PS 4620 (PL 4620). The Just War and International Ethics** (3)

The study of theories of international ethics with special attention to the historical development of the theories of the "just war" and its usefulness in our day to examination of the entire spectrum of political relations between countries in such matters as human rights and the various kinds of intervention. Prerequisite: PL 3100.

**PS 4640 (PL 4640). Justice within Society** (3)

Starting with an historical review, the course concentrates on modern and contemporary American and British efforts to think through the problems of justice within a modern Western society. Prerequisite: PL 3100.

**PS 4660 (PL 4660). International Distributive Justice** (3)

A critique of major ethical theories currently employed in public debate to examine problems of international justice, especially in reference to economic goods as distributed between "rich and poor" nations. Prerequisite: PL 3100.

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**PS 4670 (GS 4670). Democracy: Theory and Practice** (3)

This course examines what “democracy” is and what it means. Different theories about democracy are identified. Each of these theories is compared and contrasted in terms of both citizenship and education. A key component of this course is a practicum or field experience that enables course members to integrate theoretical reflection on citizen education with some practical public work in helping young citizens to educate themselves about the public world. (SRII or SRI)

**PS 4700 (GS 4700). Honors: Seminar on Leadership** (3)

This seminar will use the tools and methods available to the political scientist to examine leadership

and specific leaders. The life and career of Winston Churchill will be considered and evaluated. There will be a service learning dimension as well. This course is limited to honors students. Prerequisite: Junior standing and honors program. (SRII or SRI)

**PS 4900 (GS 4900). The United States and the Post-Cold War World** (3)

This course examines the end of the Cold War and the issues and responsibilities that confront the United States and the American people in the post-Cold War world. Special attention is given to developments in the republics of the former Soviet Union and the triangular relationship between the United States, Europe, and the Pacific Rim. (SRII or SRI)

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## DEPARTMENT OF PSYCHOLOGY (PY)

<i>Associate Professor</i>	Steven W. Brown, Ph.D. Renee L. Michael, Ph.D. (Chair) William Sturgill, Ph.D. Katherine M. Nicolai, Ph.D. Jennifer Oliver, Ph.D. Paul D. Scott, Ph.D.
<i>Assistant Professor</i>	Risa Stein, Ph.D.

Psychology applies the scientific process to obtain reliable knowledge about the behaviors and cognitions of organisms (especially human beings). Courses aim to foster scientific thinking and to promote application of research methodologies to understand how and why organisms do what they do. Students are exposed to several theoretical perspectives for understanding and explaining behavior, and to a variety of techniques for addressing individual human problems.

The psychology curriculum strives to prepare students for (1) graduate study in psychology and for (2) success in other professional fields, such as business, law, allied health, medicine, and education, in which psychological knowledge is necessary or desirable. Regardless of major, students frequently select courses in psychology as part of their liberal education so as to obtain a more mature understanding of themselves and other human beings.

### Major Field of Concentration

The psychology major requires a minimum of 18 hours of credit in upper-division (i.e., PY 3xxx or PY 4xxx) courses in psychology. The four psychology-major base courses which are required for the major are (1) PY 1000 (or PY 1100), (2) PY 2100, (3) PY 3100 or PY 3110, and (4) PY 4100 or PY 4960. The psychology major also requires a minimum of two courses from each of the following two groups of courses: Group A: PY 3200, PY 3250, PY 3300, PY 3350, PY 4200, PY 4300, PY 4320 or PY 4350; and Group B: PY 3400 (or PY 3410 or PYED 3430 or PY 3440), PY 3500, PY 3550, PY 4400 or PY 4500.

A grade of C or better is required in all upper-division courses counted toward fulfillment of the major requirements. (A grade of C- will not satisfy the requirement.)

Students are strongly encouraged to complete PY 2100 and PY 3100 (or PY 3110) during the sophomore year. Other courses should be selected on the basis of interest and in consultation with the department.

The major advisor should be consulted about the selection of the 12 semester hours of upper-division coursework in related areas of study.

### Minor Field of Concentration

The psychology minor can be fulfilled by completing the first three curriculum requirements of the psychology-major base along with one course from each group (A and B) and one additional upper-division course. A grade of C or better is required in all upper-division courses counted toward fulfillment of the minor requirements. (A grade of C- will not satisfy the requirement.)

#### **PY 1000. Introduction to Psychology** (3) *Fall and Spring semester*

An introduction to the scientific study of behavior and human cognitive processes. Emphasis is on basic concepts and principles, as well as on methods of research. Topics include biological bases of behavior, sensation, perception, learning, memory, motivation, emotions, growth and development, personality, abnormal behavior, psychotherapy and social behavior. (SRI)

#### **PY 1100. Honors Introduction to Psychology** (4) *Spring semester*

Psychology is introduced as the science that concerns itself with how and why organisms, especially humans, do what they do. The course integrates science with humanities to embellish understanding human thought and action. Illustrative laboratory exercises pattern the development of reliable information in the field. Topics focus on the general areas of action, cognition, social behavior, development, and individual differences with special emphasis on critical thinking. (Three hours lecture, one hour lab.) (SRI)

#### **PY 2100. Introduction to Statistics for the Behavioral Sciences** (3) *Fall and Spring semester*

Basic concepts of statistical analysis are applied to empirical questions from psychology, social sciences and life science to foster the scientific perspective, to incite critical thinking, and to produce better consumers of information. This course focuses on basic descriptive concepts (e.g., central tendency, variability) and techniques (e.g., correlation, regression), basic issues in hypothesis testing (e.g., probability, decision errors), and basic parametric techniques (e.g., z-test, t-test, one- and two-factor ANOVAs).

#### **PY 2600. Personal Growth and Wellness** (3)

The dynamics of personal adjustment and potential for growth are viewed through the study of healthy personality. Self-control strategies, stress manage-

ment, relaxation, problem-solving, interpersonal communication and self-awareness are some of the topics to be covered experientially. Emphasis is on small group work. This is designed for both psychology majors and non-majors.

#### **PYED 3010. Educational Psychology** (3)

Students consider psychological theories of learning and relate them to classroom practice. Particular attention is paid to the changing needs of learners from the early childhood through adolescent periods of development. Students are introduced to educational research, standardized testing, classroom management, motivation, and writing learning objectives. Classroom observations are required. Prerequisite: PY 1000.

#### **PYED 3020. Psychology and Education of the Exceptional Child** (3)

This course provides an introduction to special education populations and examines the effect of different handicapping conditions on learning. Methods of diagnosis and adaptation/accommodation of instructional methods are presented through case studies, observations and empirical research. Though the major focus of the course is on disabilities, attention is given to the needs of the gifted student as well. Classroom observations of diverse populations are required. Fulfills state certification requirements for teacher education. Prerequisite: PY 1000.

#### **PY 3100. Experimental Methods in Psychology** (3) *Spring semester*

The fundamentals of empirical research are explored through experimental methods used in psychology. The student is introduced to a variety of research designs, experimental control techniques, and statistical procedures used primarily in laboratory research settings. Emphasis is given to the process of using theoretical constructs to guide empirical research. Students conduct research projects and write reports in APA style. Prerequisite: PY 2100.

- PY 3110. Research Methods in Psychology** (3)  
*Fall and Spring semester*  
The fundamentals of empirical research design are explored through non-experimental methods used in psychology. The student is introduced to a variety of research methodologies (e.g., naturalistic observation, survey, quasi-experimental design) that are used primarily outside the laboratory. The student is introduced to various descriptive, correlational techniques that have broad application in psychology and other empirical sciences. Students conduct research projects and write reports in APA style. Prerequisite: PY 2100.
- PY 3200. Psychological Assessment** (3)  
This course examines psychological assessment in clinical, educational, business and other settings. Procedures for administering, scoring, and interpreting test performance are studied, as are psychological theories underlying specific tests and methods of constructing and evaluating tests. Students practice the skills underlying effective use of assessment procedures. Lab fee. Prerequisites: PY 1000 and PY 2100.
- PY 3250. Psychology of Learning** (3)  
Investigates how human beings and other organisms come to behave in new ways. Major topics include biological influences on learning, classical and operant conditioning, punishment, behavior therapy, cognitive learning, and techniques of instruction. Important features of the course include the research methods used to address empirical questions and the evaluation of theoretical predictions in the context of research findings. There is also an emphasis on applying research findings to behavioral problems and the enhancement of learning in academic settings. Prerequisite: PY 1000.
- PY 3300. Behavioral Neuroscience** (3)  
Investigates the biological bases of behavior. Unit One focuses on understanding basic neural structures and processes as well as basic brain anatomy and function. Unit Two explores the neurological underpinnings of basic human functions, such as language, emotion, memory, and sexual differentiation. Unit Three examines a variety of brain dysfunctions, including disorders of perception, memory, movement, emotion, and thought. Prerequisite: PY 1000.
- PY 3350. Psychology of Perception** (3)  
This course examines how humans and other organisms gather information about the world around them. Although primary emphasis is on vision and audition, the structure and function of all ten senses are examined. This course explores how knowledge, motivation, context, expectation, and the sensory organ all interact with stimulating energies to achieve perception. Many in-class demonstrations and laboratory experiences illustrate perceptual phenomena. Prerequisite: PY 1000.
- PY 3400. Developmental Psychology** (3)  
*Fall and Spring semester*  
Focuses on human growth and development throughout the life span. Examines research methods and theories of development. Considers the physical, social, emotional, and cognitive domains of human development as affected by biological and environmental influences. Prerequisite: PY 1000. (SRII or SRI)
- PY 3410. Child Development** (3)  
This course focuses on human development from conception to puberty. The main goal of the course is to provide students with an in-depth understanding of typical changes during childhood that are based on fundamental principles of development. Interactions between physical, cognitive, social, and emotional aspects of development are examined. Emphasis is placed on theory and research as sources of knowledge. Prerequisite: PY 1000.
- PYED 3430 Adolescent Psychology** (3)  
The developmental tasks of adolescence are explored, including puberty, identity formation, the influence of peers, schools, self-esteem, and problem behaviors. Cognitive, physical, emotional, and social development are examined. Emphasis is placed on theory and research as sources of knowledge. Current educational applications are investigated. Prerequisites: PY 1000 and sophomore standing (or consent of instructor).
- PY 3440. Adult Development and Aging** (3)  
The developmental tasks of adulthood, including intimacy, identity, work and family, are considered in this course. The physical, social, cognitive and emotional aspects of the aging process are considered. Emphasis is placed on theory and research as sources of knowledge. Prerequisite: PY 1000 and sophomore standing.
- PY 3500. Personality** (3)  
After a consideration of the characteristics of scientific theories, this course examines the efforts of significant historical and contemporary theorists to explain the development, dynamics and determinants of personality. The usefulness of particular personality theories is evaluated within the framework of empirical research. Prerequisites: PY 1000 and 6 hours of upper-division psychology. (SRII or SRI)
- PY 3550. Abnormal Behavior** (3)  
*Fall and Spring semester*  
An introduction to the various forms of maladjustment including anxiety, affective disorders, schizophrenia, dissociative processes, personality disorders, and child and adolescent psychopathologies. Disorders are considered from several perspectives including psychodynamic, behavioral, cognitive, humanistic-existential, family systems and biological. Prerequisite: PY 1000. (SRII or SRI)

**PY 3600. Psychology of Sexual Behavior** (3)*Spring semester*

A psychological perspective on human sexuality and patterns of behavior. Sexual functioning, gender identity, sexual disorders and treatment are considered. The role of personality, attitudes and emotional factors are emphasized. Prerequisite: PY 1000. (SRII or SRI)

**PY 3700. Health Psychology** (3)

Health psychology is one of the most rapidly expanding areas in the field of psychology. This course will discuss the role psychological factors play in physical problems. The role of psychological treatments for individuals with psychophysiological disorders will be discussed. This course will also address the role of the health psychologist in the health care system and topics such as chronic pain, obesity, nicotine addiction. Prerequisite: PY 1000.

**PY 3990. Research Experience I** (1-3)

Research Experience I is designed to introduce students to the research process by participating in faculty sponsored research. Activities as a member of this team may include reading literature relevant to the topic, data collection or data entry and attending research meetings. Students contract with a faculty mentor to determine their level of participation in the research process. Three hours of participation per week are required to earn one hour of college credit and the student must have a minimum overall GPA of 3.0 to participate. Students can earn a maximum of three credit hours. Prerequisite: PY 1000, minimum 3.0 cumulative GPA, and instructor approval.

**PY 4100. History and Systems in Psychology** (3)

The intellectual history of contemporary psychology is traced in light of positions taken on a number of fundamental philosophical and psychological questions. The course delineates psychology's emergence as a science and a discipline separate from physiology and philosophy and chronicles its liberation from all-encompassing theoretical systems into the less restrictive organizing constructions found today. While the focus is on the historical development of a science, psychology's history as an applied profession is examined too. Prerequisites: At least nine hours of upper-division credit in psychology.

**PY 4200. Psychology of Motivation** (3)

Why do human beings and other organisms behave as they do? Answers are sought by examining the construct of motivation from biological, learning, cognitive and social perspectives. The course begins with some of the "simple" motives that human beings share with other animals and then considers the complex ways in which the functioning of biological systems interacts with learning, cognition and language. Major topics include hunger, sex,

emotion, goal theory, attribution theory and social influence. Emphasis is placed on the unique importance of language in structuring human motivation and emotion. Prerequisite: PY 1000.

**PY 4300. Cognition** (3)

Cognition is the scientific exploration of mental life, both of its phenomena and of their conditions. Phenomena of memory are explored extensively as are the neurophysiological, experiential, and effortful conditions affecting them. Also explored are phenomena of attention, perception, conceptual structure, thinking, imagery and creativity, and conscious and unconscious influences on all these. The language and methodologies of cognitive science are important for all students planning to go on in psychology. Prerequisites: PY 1000 or PY 1100, PY 3100 or PY 3110.

**PY 4320. Cognitive Development.** (3)

The goal of this course is to better understand cognitive psychology by making use of developmental research. To accomplish this goal important themes that are discussed include innate qualities of human cognition, the patterns of change found in cognition, the study of possible universal forms of cognition, and different methods for examining cognitive change. To become acquainted fully with these issues, students read and critique original source material. Prerequisites: PY 3400 or permission of instructor.

**PY 4350. Psychology of Language.** (3)

The study of language is approached from a cognitive perspective. Hence, the course seeks to understand the knowledge speakers and listeners require to use language, the cognitive processes involved in ordinary language use, and how these interact within environmental and biological constraints to account for linguistic performance. Principal topics include comprehension, production, and acquisition of language, speech perception, conversational interaction, and the biological foundations of language. The course also explores topics like reading, sign language, cultural influences on language, and language and pathology. Prerequisites: PY 1000 or PY 1100, PY 3100 or PY 3110.

**PY 4400. Social Psychology** (3)

The scientific study of the manner in which the behavior, emotions or thoughts of the individual can be influenced or determined by the behavior or characteristics of others. Topics include methods of research, social perception, attitude formation and change, aggression, attraction, persuasion, conformity and interpersonal communication. Prerequisite: PY 1000 and 6 hours of upper-division psychology. (SRII)

**PY 4500. Theories of Counseling and Psychotherapy** (3)

This course addresses development of basic

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counseling skills and an appreciation of the counseling process and pitfalls. Emphasis is on listening, effective questioning, interpretation, and selection of appropriate therapeutic approaches. Students review and practice therapeutic strategies from behavioral, cognitive, psychodynamic, humanistic, and family systems paradigms. Prerequisite: PY 1000.

**PY 4600. Psychology of Gender (3)**

The study of the manner in which gender is socially constructed, and the ways in which gender identity is socialized and acquired. Additional topics include: physical health and reproduction, psychological well-being, relationship issues, career and work issues, psychological abilities, media influences, issues concerned with aging, and the role of political movements all in relationship to gender. Prerequisite: PY 1000.

**PY 4960. Psychology Seminar (3)**

*Fall and Spring semester*

A senior-level experience emphasizing independent research. Students present research in a public format. Each seminar is centered on an organizing theme or topic selected by the instructor. Prerequisites: Senior standing, PY major, PY 3100 or 3110.

**PY 4970. Practicum in Psychology (2-3)**

Practicum in Psychology provides students with opportunities to observe and participate in the work of psychologists, counselors and other professionals in a variety of mental health, forensic/legal,

and business/industry settings. The 3-credit practicum requires 150 on-site hours and the 2-credit practicum requires 100 on-site hours. In addition to daily logs and journals, completion of a paper that integrates empirical research and practical experience is required. Interested students must consult with the Practicum instructor before enrolling. Prerequisite: Declared major or minor in psychology; junior or senior standing; 2.5 overall GPA; instructor approval.

**PY 4990. Research Experience II (1-3)**

Research Experience II is designed to expose students to the broadest range of research activity possible. The student will plan, conduct and analyze data from a research project in collaboration with a faculty mentor. Students contract with a faculty member to determine their specific research activities which may extend over multiple semesters. It is required that a level II research experience culminate in an APA style research paper, a poster presentation, or an oral presentation at a student conference. Three hours of participation per week are required to earn one hour of college credit. The student must have a minimum of 36 credit hours, an overall GPA of 3.0 and either PY 3100 or PY 3110 with a minimum grade of B to enroll. Students can earn a maximum of nine credit hours. Prerequisite: Minimum 36 credit hours; minimum 3.0 cumulative GPA; PY 3110 or PY 3100 with B or better; instructor approval.

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