PES 4220* Major World Crops 3(3) Examines the distribution, adaptation, production, and utilization of major agronomic crops of the world. Emphasizes crops important to U.S. agriculture. Specific crops discussed in more detail include corn, wheat, rice, sorghum, soybeans, cotton, tobacco, and peanuts. Preq: PES 1040 and PES 2020.


PES (AGR) 4260* Cropping Systems Analysis 3(2) Application of agronomic and economic principles in solving problems related to the production and marketing of agronomic crops. Major part of the course is a case study in which detailed analysis of a farm, agribusiness, or environmental situation is made with students making formal written and oral presentations of results. Preq: PES 1040 and Junior standing; and AGRB 2020 or ECON 2000 or ECON 2110. Coreq: PES 4261. May also be offered as AGRB 4260.

PES (AGR) 4261* Cropping Systems Analysis Laboratory 0(2) Non-credit laboratory to accompany PES 4260. Coreq: PES 4260. May also be offered as AGRB 4261.

PES (HORT) 4330* Landscape and Turf Weed Management 3(2) Weed management strategies that include cultural, biological, and chemical methods are studied for landscape and turfgrass areas. Problem-solving skills and herbicide characteristics are emphasized. Coreq: PES 4331. May also be offered as HORT 4330.

PES (HORT) 4331* Landscape and Turf Weed Management Laboratory 0(2) Non-credit laboratory to accompany PES 4330. Coreq: PES 4330. May also be offered as HORT 4331.

PES 4450* Regulatory Issues and Policies 2(2) Introduction to regulations of plant agriculture. Emphasizes risk assessment, patenting biotechnology inventions, and ethical issues. Includes survey of state and governmental agencies with responsibilities to avoid risk to humans, non-target organisms, and preservation of food safety, agricultural resources, and natural ecosystems.

PES 4460* Soil Management 3(3) Basic soil properties are related to compaction, water and solute movement, and root growth. Considers practical management problems and develops solutions based on basic soil characteristics. Problems include erosion, no-tillage, compaction, irrigation, leaching, waste application, golf green management, and orchard establishment. Preq: PES 2020.

PES 4510* Agricultural Biotechnology and Global Society 1(1) In-depth discussion of recent articles on agricultural biotechnology and related global issues. Includes independent and comprehensive literature survey and critical discussions on implementation of biotechnology products in the context of world agricultural production systems and economics. Discusses the role of international agencies and social and ethical issues.


PES 4550 Seminar 1(1) Presentation of interdisciplinary topics and original research in agronomy, entomology, plant pathology, soils, and related sciences.

PES (GEO) 4850 Environmental Soil Chemistry 3(3) Study of soil chemical processes (sorption, desorption, ion exchange, precipitation, dissolution, and redox reactions) of nutrients and inorganic and organic contaminants in soils and organic matter. Chemical complex equilibria and adsorption phenomena at the solid (soil, sediment, and mineral) water interface are emphasized. Preq: CH 1020 or PES 2020. May also be offered as ETOX 4850 or GEO 4850.

PES 4900* Beneficial Soil Organisms in Plant Growth 3(3) Aspects of biological nitrogen fixation, mycorrhizal fungi, microbial-pesticide interactions, bioremediation, nutrient cycles, and biological pest control related to plant growth, soil environmental quality, and sustainable agriculture are covered. Students who desire laboratory experience in these topics may register for PES 4060 after consultation with instructor. Preq: PES 2020 and either MCR 3050 or PLPA 3100.

PES 4910 Senior Honors Research 3(1) Senior division honors research in an agricultural sciences curriculum. In consultation with and under the direction of a professor, students select a research topic, conduct experiments, record data, and make oral presentations of results to the College Honors Program Committee. Open to approved Honors Program students only. Coreq: PES 4911.

PES 4911 Senior Honors Research Laboratory 0(6) Non-credit laboratory to accompany PES 4910. Coreq: PES 4910.

PES 4920 Senior Honors Research 3(1) Continuation of PES 4910. Senior division honors research in an agricultural sciences curriculum. Upon termination of the research project, students submit formal written reports and make final oral presentations of results to the College Honors Program Committee. Professor-student discussions of additional topics are arranged. Coreq: PES 4921.

PES 4921 Senior Honors Research Laboratory 0(6) Non-credit laboratory to accompany PES 4920. Coreq: PES 4920.

PES (ENT) 4970 Selected Topics in Creative Inquiry Laboratory 1-2(1-2) Disciplinary and multidisciplinary research project with the goal of developing the student’s ability to conduct research along with analysis, evaluation and presentation of results. Students are required to document their research activities in their ePortfolios. May be repeated for a maximum of six credits. Preq: Consent of instructor. May also be offered as ENT 4970.

PHIL 1010 Introduction to Philosophical Problems 3(3) Discussion of representative philosophical questions that arise from human thought and action. Characteristic topics are values, knowledge, human nature, and society. Includes Honors sections.

PHIL 1020 Introduction to Logic 3(3) Introduction to methods of evaluating arguments. Gives simple valid argument forms, which can be joined together to produce the logical form of virtually any argument. Informal fallacies may also be considered. Includes Honors sections.

PHIL 1030 Introduction to Ethics 3(3) Philosophical consideration of the nature of ethics, basic ethical issues, and problems and modes of ethical reasoning. Includes Honors sections.

PHIL 1050 Introductory Seminar in the Big Questions 3(3) Introductory seminar dealing with a single important philosophical question such as “Who are we?” “What is the meaning of life?” “Are we free or determined?” Question is pursued throughout the semester with active student involvement. Questions may vary from semester to semester.

PHIL 1240 Technology and Its Discontents 3(3) Philosophical introduction to issues arising from the development of technologies, their implementation, and their integration into society. Considers theoretical questions regarding the nature of technology and its evaluation, as well as issues related to specific technologies.

PHIL 2100 Evolution and Creation 3(3) A critical comparison of evolution and creationism. Students examine the scientific, philosophical, and theological issues this clash brings to light, develop their ability to think through the various claims and counter claims critically, and then articulate a coherent position for themselves. Credit toward a degree will be given for only one of PHIL 2100 or BIOI 2100.

PHIL 3030 Philosophy of Religion 3(3) Critical consideration of the meaning and justification of religious beliefs. Representative topics are the nature and existence of God, religious knowledge, religious language, the problem of evil.

PHIL 3040 Moral Philosophy 3(3) Study of moral problems, their origin in conflicts between duty and desire, and alternative solutions proposed by classical and contemporary writers.
PHIL 3050 Existentialism 3(3) Inquiry into the core themes of existentialism: freedom, meaningfulness or meaninglessness of life, the existence of God, etc. Representative thinkers from the existentialist tradition, such as Dostoevsky, Kierkegaard, Sartre, and de Beauvoir, are studied.

PHIL (CHIN) 3120 Philosophy in Modern China 3(3) Study of the history of Chinese philosophy from the 19th century BCE, including Confucianism, Daoism, M oism, legalism, Buddhism, Neo-Daoism, and Neo-Confucianism. Examination of Chinese philosophers' views and arguments on questions of life and death, history and society, education and personal cultivation. May not be used to satisfy general modern language requirements. May also be offered as CHIN 3120.

PHIL (CHIN) 3130 Philosophy in Modern China 3(3) Study of the history of Chinese philosophy from the 19th century BCE, including Confucianism, Daoism, Moism, legalism, Buddhism, Neo-Daoism, and Neo-Confucianism. Examination of Chinese philosophers' views and arguments on questions of life and death, history and society, education and personal cultivation. May not be used to satisfy general modern language requirements. May also be offered as CHIN 3120.

PHIL 3140 Comparative Topics in Eastern and Western Philosophy 3(3) Study of issues and areas of overlapping concern to Eastern and Western philosophical traditions (e.g., ontology, ethics) with emphasis on both contrasts and convergences in philosophical approaches. Topics may vary.

PHIL 3150 Ancient Philosophy 3(3) Origins and development of rationality as found in the thought of selected philosophers such as Socrates, Plato, and Aristotle.

PHIL 3160 Modern Philosophy 3(3) Development of the modern view as seen in major Western philosophers of the 16th, 17th, and 18th centuries. Thought of Berkeley, Descartes, Hume, Leibniz, Locke, and Spinoza may be considered to illustrate the development of rationalism and empiricism.

PHIL 3170 Nineteenth-Century Philosophy 3(3) Development of 19th-century philosophy emphasizing selected works of philosophers such as Kant, Hegel, Marx, Nietzsche, and Kierkegaard.

PHIL 3180 Twentieth-Century Philosophy 3(3) Historical overview of selected significant movements in 20th-century Western philosophy such as Continental and/or analytic philosophy.

PHIL 3200 Social and Political Philosophy 3(3) Critical consideration of the views of some major philosophers on the nature of the individual's relation to society and the state in the context of their wider philosophical (logical, epistemological, metaphysical, and ethical) doctrines. Philosophers may include Plato, Aristotle, Augustine, Hobbes, Rousseau, Mill, Marx, Hegel, Rawls, and Nozick.

PHIL 3210 Crime and Punishment 3(3) Investigates what sorts of conduct should be criminalized and what society should do with those who engage in criminal activity. Specific topics may include the enforcement of morals, euthanasia, hate crimes, deterrence, retribution, and restitution.

PHIL 3220 Symbolic Logic 3(3) Examination of the nature of the basic concepts of modern symbolic logic, including the symbolization of statements and arguments and the techniques of formal proof.

PHIL 3230 Theory of Knowledge 3(3) Examination of concepts, criteria, and decision procedures underlying rational belief and the justification of knowledge claims. Representative answers to the problem of skepticism are considered, with special attention to some leading theories of knowledge.

PHIL 3240 Philosophy of Technology 3(3) Examines technology and representative philosophical assessments of it with a focus on understanding its impact on the human condition.

PHIL 3250 Philosophy of Science 3(3) Philosophical study of problems generated by science, but that are not themselves scientific, such as what comprises a scientific theory; how scientists formulate theories and acquire knowledge; what, if anything, differentiates science from other ways of knowing; what role concepts play in scientific knowledge; whether scientific progress is rational.

PHIL 3260 Science and Values 3(3) Examination of several features of the relation between science and values. Topics may include ethical and social obligations of scientists, role of value judgements in scientific practice, and influence of social and political values on science and scientists.

PHIL 3270 Philosophy of Social Science 3(3) Inquiry into the philosophical foundations of social science, in particular questions of objectivity, explanatory structure, causality, agency, normativism and naturalism, and social determination of knowledge.

PHIL 3280 Philosophy and Technology of the Body 3(3) Examines the interrelation of human bodies and emerging technologies in light of philosophical notions of human nature, personal identity, and the ethical dignity of the human. Emphasizes the influence of social values on scientific and technological developments and the reciprocal impact of these developments on understandings of the body.

PHIL 3300 Contemporary Issues in Philosophy 3(3) Examination of a variety of issues of broad concern to philosophers today. Issues may vary. May be repeated once for credit with departmental consent.

PHIL 3330 Metaphysics 3(3) Examination of issues and problems concerning the ultimate nature of reality. Topics may include the appearance/reality distinction, the nature of existence, freedom and determinism, personal identity, idealism, and realism.

PHIL 3400 Technology, Environment, and Sustainability 3(3) Philosophical examination of how technology contributes to significant environmental change. Considers role of science in justifying claims about (for example) global climate change, role of technology in responding to these changes, how technology affects relations between humans and the extra-human world, and ethical implications of various kinds of technology.

PHIL 3410 Ethics in Architecture 3(3) Interdisciplinary course focused on the architectural profession and the practices of design, building, and other processes in a social and business context. Consideration is given to both general moral principles and particular case studies.

PHIL 3420 Medical Ethics 3(3) Examines ethical dilemmas facing modern medicine. Topics may include controversies surrounding death, reproductive technologies, abortion, allocation of resources, the concept of disease, the doctor-patient relationship, and medical research.

PHIL 3430 Business Ethics 3(3) Study of ethical issues created by business activities, relating them to fundamental questions of ethics generally. Representative topics may include hiring, firing, promotions, business and minorities, organizational influence in private lives, consumer interests, economic justice, and reindustrialization.

PHIL 3440 Environmental Ethics 3(3) Study of ethical problems in our dealings with the rest of nature and of how they relate to ethics in general. Representative topics include the basis of ethics, nature and intrinsic value, duties to future generations, economics and the environment, rare species, animal rights, ethics and agriculture, energy doctrine.

PHIL 3450 Business Ethics 3(3) Examines the philosophical foundations of social science, in particular questions of objectivity, explanatory structure, causality, agency, normativism and naturalism, and social determination of knowledge.

PHIL 3460 Medical Ethics 3(3) Examines ethical dilemmas confronting modern medicine. Topics may include controversies surrounding death, reproductive technologies, abortion, allocation of resources, the concept of disease, the doctor-patient relationship, and medical research.

PHIL 3470 Ethics in Architecture 3(3) Interdisciplinary course focused on the architectural profession and the practices of design, building, and other processes in a social and business context. Consideration is given to both general moral principles and particular case studies.

PHIL 3480 Philosophies of Art 3(3) Examines some of the predominant attempts to understand art in ancient and modern philosophy and also considers a variety of contemporary views and controversies about the nature, meaning, value, and future of art.

PHIL 3490 Theories of Gender and Sexuality 3(3) Examines the philosophical dimensions of contemporary debates about the relation of sex, gender, and sexuality. May also be offered as WS 3490.

PHIL 3500 Philosophy of Emotion 3(3) Considers a range of classic and contemporary readings on the nature and function of emotion. Topics include cognitive, physiological, and constructionist approaches to understanding emotion, emotion and reason, emotion and morality, and select individual emotions.

PHIL 3550 Philosophy of Mind and Cognitive Science 3(3) Critical examination of philosophical and scientific theories of mental phenomena and of the relationship between mental and material phenomena. Theories of Mind-Body Dualism, Monism, Functionalism, Eliminative and Reductive Materialism, Connectionism, and the status of folk psychology versus cognitive neuroscience are studied.

PHIL 3600 Symbolic Logic 3(3) Introduction to the basic concepts of modern symbolic logic, including the symbolization of statements and arguments and the techniques of formal proof.

PHIL 3700 Philosophy of War 3(3) Examines war from both ethical and strategic perspectives: the nature of a just war, the aims of war, and the kinds of general strategies appropriate for achieving those aims.
PHIL 3750 Minds and Machines 3(3) Examine controversial questions in artificial intelligence and the Computational Theory of Mind. Topics may include: “Can machines think?” “What’s involved in being able to think?” “Can machines reason, understand, be conscious, be self-aware, learn, be creative, have emotions, and use natural language?” Focus is on manmade computers and the mind as computer.

PHIL 3990 Philosophy Portfolio 2(2) Creation of a digital portfolio to demonstrate competence in reasoning, critical thinking, and problem solving skills as well as ethical judgment. Course also serves as a resource for academic and professional development. Preq: Junior standing in Philosophy.

PHIL 4010* Studies in the History of Philosophy 3(3) In-depth study of a selected philosopher, philosophical school, or movement. Topics vary. With departmental consent, may be repeated once for credit. Current topics and course descriptions are available in the department’s course offering.

PHIL 4020* Topics in Philosophy 3(3) Thorough examination of a particular philosophical topic, issue, or problem. Topics vary. May be repeated once for credit with departmental consent. Current topics and course descriptions are available in the department’s course offering.

PHIL 4220 Anarchism 3(3) Philosophical study of the roots of anarchist thought and its current articulations.

PHIL 4750 Philosophy of Film 3(3) Pursues several issues at the center of recent debate in the philosophy of film. Questions investigated include whether film has an essence that distinguishes it from other art forms, whether films ought to be thought of as having authors or narrators, and whether films can themselves philosophize.

PHIL 4900 Law, Liberty and Justice Prelaw Internship 1-3(1-3) Faculty-supervised internship designed for students in the Law, Liberty and Justice emphasis area of the Philosophy major. Interns are placed with law offices or with institutions and agencies in fields related to law and social policy. May be repeated for a maximum of six credits. To be taken Pass/No Pass only. Preq: Philosophy major and Junior standing and consent of internship coordinator.

PHIL 4920 Creative Inquiry-Philosophy 1(1-4) Small group work on particular issues with emphasis on involving students in research. Content varies. May be repeated for a maximum of nine credits. Preq: Consent of instructor.

PHIL 4970 Philosophy Honors Research 3(3) Students conduct research, clearly define the topic, and complete an annotated bibliography under the supervision of the thesis advisor. Preq: Consent of department chair and thesis advisor.

PHIL 4980 Philosophy Honors Thesis 3(3) In consultation with the thesis advisor and committee, students write, revise, defend, and complete the thesis. Preq: PHIL 4970 and consent of department chair and thesis advisor.

PHIL 4990 Independent Study 1-3(1-3) Course of study designed by the student in consultation with a faculty member who agrees to provide guidance, discussion, and evaluation of the project. Student must confer with the faculty member prior to registration. May be repeated for a maximum of six credits. Preq: Consent of instructor.

PHYS 1010 Current Topics in Modern Physics 1(0) Demonstrations and lectures serving as an introduction to different areas of physics and astronomy are presented by various members of the staff. May include such topics as astrophysics, energy, relativity, and weather, as well as visits to the planetarium.

PHYS 1220 Physics with Calculus I 3(3) First of three courses in a calculus-based physics sequence. Topics include vectors, laws of motion, conservation principles, rotational motion, oscillations, and gravitation. Credit for a degree will be given for only one of PHYS 1220, 2000, or 2070. Includes Honors sections. Preq: MATH 1060 or MATH 1070.

PHYS 1240 Physics Laboratory I 1(3) Introduction to physical experimentation with emphasis on mechanical systems, including oscillatory motion and resonance. Computers are used in the experimental measurements and in the statistical treatment of data. Credit for a degree will be given for only one of PHYS 1240 or 2090. Preq or concurrent enrollment: PHYS 1220.

PHYS 1990 Creative Inquiry-Physics and Astronomy 1-4(1-4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. Preq: Consent of faculty member/mentor.

PHYS 2000 Introductory Physics 4(3) Introduction to classical physics. Includes elements of mechanics, heat, electricity, and light. May not be substituted for PHYS 2120, but may be substituted for PHYS 2070 with the approval of the student’s program of study department. Credit for a degree will be given for only one of PHYS 1220, 2000, or 2070. Preq or concurrent enrollment: MATH 1020. Coreq: PHYS 2001.


PHYS 2070 General Physics I 3(3) Introductory course for students who are not majoring in physical science or engineering. Covers such topics as mechanics, waves, fluids, and thermal physics. Credit for a degree will be given for only one of PHYS 1220, 2000 or 2070. Preq: MATH 1020 or MATH 1040 or MATH 1050 or MATH 1060 or MATH 1070.

PHYS 2080 General Physics II 3(3) Continuation of PHYS 2070. Covers such topics as electricity, magnetism, electromagnetic waves, optics, and modern physics. Credit for a degree will be given for only one of PHYS 2080 or 2210. Preq: PHYS 2070.