

Prerequisite and/or restriction: Mathematics 235. Physics 151.

Taught: Annually, 4 semester credits.

PHYS 452 THEORETICAL DYNAMICS II

Staff

Content: The calculus of variations, Lagrangian and Hamiltonian mechanics, canonical transformations, Poisson brackets, nonlinear dynamics, introduction to the theory of chaos. Development of physics through minimum principles and generalized systems of coordinates, conjugate relationships between positions and momenta, and between energy and time, as these relate to the connections between the classical and quantum mechanical descriptions of the world. Phase-space notion of an attractor, characterization of strange attractors. Time series and dimensional analyses for describing chaotic systems.

Prerequisite and/or restriction: Physics 451.

Taught: Alternate years, 4 semester credits.

PHYS 490 UNDERGRADUATE RESEARCH AND COLLOQUIUM

Staff

Content: Advanced research supervised by a sponsoring faculty member. Students conduct a preliminary literature survey; demonstrate thoughtful planning; and develop a tractable research plan, stating objectives, possible methodology, and realistic time schedule. Attendance at weekly physics colloquium required.

Prerequisite and/or restriction: Physics 201 or 202. Consent of department.

Taught: Annually, 4 semester credits.

PHYS 491 HONORS RESEARCH

Staff

Content: Supervised research toward completing a project and a research-quality paper to qualify for honors in physics on graduation. Students conduct an exhaustive literature search of a research problem, perform an extensive experimental or theoretical investigation, and prepare a comprehensive report of the findings.

Prerequisite and/or restriction: By invitation only.

Taught: Each semester, 4 semester credits.

Political Economy

COORDINATOR: OREN KOSANSKY

The political economy minor embraces one of the world's major interdisciplinary perspectives on human phenomena. This perspective emphasizes the dynamic interaction between, and critical influence of, political and economic forces on individuals, cultures, societies, markets, states, and the global system. The intellectual reach of political economy is illustrated by the fact that the minor includes courses drawn from anthropology, communication, economics, gender studies, history, international affairs, philosophy, political science, sociology, and teacher education.

To earn a minor in political economy, students must complete five courses: two core courses and three electives. The core courses, chosen from economics and international affairs, introduce students to various theories of political economy and examine their application to significant national and international patterns and developments. The elective courses fall into three concentrations: global, national-regional, and social and cultural. Many of these electives go beyond the material bases of power to examine how ideas, culture, discourse, gender, race, and identity can affect and interact with political and economic forces to structure varied social environments. Underlying all these

courses is the premise that power—be it state power, business power, collective power, or individual power—is primarily shaped by, and operates through, political and economic systems.

Potential employers and graduate programs increasingly seek liberal arts majors who have strong analytical skills and knowledge of contemporary events; a political economy minor offers evidence of such preparation. Reflecting the sponsoring faculty's broad array of training and interests, the minor highlights a wide range of topics and applications. Examples include the connections between economic systems and political power in structuring production relations at the shop-floor, national, and international level; the relationship between governments and markets in determining national development; the relationship among gender, race, and class and an individual's position in society; the ways in which environmental issues are shaped by economic institutions; the influence of state power on the global economy; and the role of social movements in promoting economic change.

Students may enhance almost any major through the addition of a minor in political economy. Students interested in the minor are encouraged to take one of the core courses in their sophomore year. Application for admission to the minor is made in consultation with one of the program's sponsoring faculty after the student has successfully completed one of the core courses.

MINOR REQUIREMENTS

A minimum of 20 semester credits (five courses), distributed as follows:

- Two program core courses: International Affairs 340 and Economics 250.
- Three courses chosen from the following list, with no more than two courses taken in any one concentration:

Global concentration: Economics 232, 260, and 430; International Affairs 257, 318, and 341; Sociology/Anthropology 225, 350, and 352.

National-regional concentration: Economics 280 and 295; History 142, 330, and 347; Sociology/Anthropology 281 and 285.

Social and cultural concentration: Gender Studies 440; Political Science 311; Sociology/Anthropology 214, 221, 228, 249, 254, 300, and 340.

SPONSORING FACULTY

Andrew Cortell, associate professor of international affairs.

Robert Goldman, professor of sociology.

Martin Hart-Landsberg, professor of economics.

Oren Kosansky, assistant professor of anthropology.

Bruce M. Podobnik, associate professor of sociology.

Zaher Wahab, professor of education.

Elliott Young, associate professor of history.

Political Science

CHAIR: CURTIS N. JOHNSON

Political scientists examine the theory and practice of government, law, and politics within the history of political ideas and philosophy, as well as within the context of contemporary political practices. They use the tools and methods of the social sciences to seek knowledge of political institutions and processes, and to learn how to think critically about public policies and their consequences. Political scientists attempt to evaluate how behavior (individual, group, and mass) affects political institutions, and how institutions shape and constrain political choices.

Because of their understanding and interest in political systems, students who earn degrees in political science often enter such career fields as government service, law, journalism, politics, public policy analysis, and education.