

## Course Descriptions

approach to problem solving.

### PHYS 4410

#### Electrostatics and Magnetism

3:3:0

• Prerequisite(s): PHYS 3740, PHYS 3300

Explores the theory of electrostatic phenomena in a mathematically rigorous manner. Covers Gauss' Law, the Laplace and Poisson equations, boundary-value problems, and dielectrics.

F

### PHYS 4420

#### Electrodynamics

3:3:0

• Prerequisite(s): PHYS 4410

Explores the theory of electrodynamic phenomena in a mathematically rigorous manner. Covers Ohm's and Kirchhoff's Laws, magnetic induction, the Biot-Savart Law, Ampere's Law, Ferromagnetism, Plasmas, Maxwell's Equations, and Special Relativity.

Sp

### PHYS 4510

#### Quantum Mechanics I

3:3:0

• Prerequisite(s): PHYS 3740, PHYS 3300

Covers postulates of quantum mechanics, state functions of quantum systems, Hermitian Operators, the Schrodinger Equation, eigenfunctions of harmonic oscillators, and particles in potential wells.

F

### PHYS 4520

#### Quantum Mechanics II

3:3:0

• Prerequisite(s): PHYS 4510

Covers general principles and applications of quantum mechanics. Addresses topics of three-dimensional problems, angular momentum operators, spin wavefunctions, perturbation theory, applications to atomic, molecular, solid-state, and nuclear physics.

Sp

### PHYS 4600

#### Optics

3:3:0

• Prerequisite(s): PHYS 3740, PHYS 4410

Covers the phenomena of reflection, refraction, diffraction, interference, optical behavior in materials and lasers. Presents a mathematically rigorous description of optical phenomena. Includes lab experience.

Sp

### PHYS 4700

#### Acoustics

3:3:0

• Prerequisite(s): PHYS 2220, MATH 2210

Covers phenomena of sound, resonance, acoustics, and human hearing. Treats associated topics of waves, frequency, vibration and interference using appropriate mathematical tools.

F

### PHYS 4800

#### Solid State Physics

3:3:0

• Prerequisite(s): PHYS 3740, PHYS 4510

Explores topics relevant to the structure, behavior, and properties of crystalline materials. Includes a study of lattice

Sp

vibrations, free electrons, semiconductors, superconductivity, dielectric and ferroelectric materials and magnetism.

### PHYS 490R

#### Seminar

0.5:0.5:0

F, Sp

Exposes students to current research topics in physics and related fields. Provides an opportunity for students to attend bi-weekly lectures presented by department faculty and invited speakers. Lectures are usually a summary of the speaker's recent research results presented at a level appropriate for junior and senior physics majors.

### PHYS 492R

#### Topics in Physics

3:3:0

On Sufficient Demand

• Prerequisite(s): Departmental approval

Studies a chosen topic in physics. Topics vary depending upon student demand. Possible topic may be the mathematics for quantum mechanics. May be taken for a maximum of 6 credits toward graduation, but is limited to 3 credits for the BS in Physics.

### PHYS 495R

#### Independent Research

1 to 3:0:3 to 9

Su, F, Sp

• Prerequisite(s): PHYS 2220, Departmental Approval

Working under faculty supervision, allows research on a project determined jointly with a faculty member and approved by the department chair. Emphasizes experimental technique, data collection, modeling, and analysis techniques. May be used as part of a senior thesis. May be repeated for no more than nine hours of elective credit.

### PHYS 499A

#### Senior Project

2:0:6

Su, F, Sp

• Prerequisite(s): Instructor and Departmental approval

Provides an opportunity for senior physics majors to participate in a current research project supervised by a department faculty member. Includes independent study and/or laboratory work as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research project as required for PHYS 499B. May be taken concurrently with PHYS 499B.

### PHYS 499B

#### Senior Thesis

1:0:3

Su, F, Sp

• Prerequisite(s): Instructor and Departmental approval

Continues PHYS 499A. Provides an opportunity for senior physics majors to present the results of a current research project supervised by a department faculty member. Includes independent study as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research

project.

## PJST—PEACE AND JUSTICE STUDIES

### PJST 3000

#### Introduction to Peace and Justice Studies

3:3:0

Su, F, Sp

• Prerequisite(s): PHIL 2050

Introduces the student to the important literature, questions, and research programs of peace and justice studies. Explores personal, domestic, national, and international issues. Considers alternative conceptions of violence, war, terrorism, justice/injustice, and peace. Enables the student to become aware of various intellectual and professional disciplines that bear relationships to peace and justice, e.g., history, political theory, international relations, political economy, international law, environmental law, military science, mediation and negotiation.

### PJST 3020

#### The Ethics of War and Peace

3:3:0

Su, F, Sp

• Prerequisite(s): PHIL 2050

Introduces literature concerning the ethics of conflict, war, terrorism, and peace. Considers alternative conceptions of these phenomena, as will be alternative approaches and ethical theories in respect to how conflict of various kinds might most effectively and morally be preempted or diminished. Addresses various defense theories and religious traditions' teachings about conflict, violence, and peace.

## POLS—POLITICAL SCIENCE

### POLS 1000

SS

#### American Heritage

3:3:0

F, Sp

Studies the founding of American constitutional government. Considers the cultural, economic, legal, political, and social ramifications of the Constitution of the United States.

### POLS 1010

SS

#### Introduction to Political Science

3:3:0

F, Sp; DE

Explores the nature of politics and power. Compares constitutional systems of government with closed totalitarian systems such as the Communist Bloc nations. Examines public opinion, political communications, interest groups, party politics, ideologies, governmental institutions, bureaucracies, and governmental legal systems. Studies the role of violence and revolution. Emphasizes the influence of these political elements on the average citizens.

# Course Descriptions

**POLS 1020**  
**Political Ideologies**  
**3:3:0** **F**  
 Surveys the major historical and current political ideologies including liberalism, Marxism, fascism and Islamism.

**POLS 1100**  
**American National Government**  
**3:3:0** **AS**  
**F, Sp; DE**  
 Studies history and structure of American National Government, rights and responsibilities of citizens, political institutions, political processes, and governmental policies.

**POLS 1440**  
**Introduction to Middle East Politics**  
**3:3:0** **Not 07-08**  
 Studies social, historical, political and religious influences affecting the Middle East. Explores forces that motivate policy and decision-making. Examines current issues such as the Arab-Israeli conflict, political Islam, petroleum power and U.S. foreign policy. Presents profiles of selected modern Middle East states and the balance of power in the region.

**POLS 1800**  
**Our Global Community**  
**3:3:0** **GS**  
**Sp**  
 Examines geography, climate and topography of Western Europe, Asia, Latin America, Pacific Rim, sub-Saharan Africa and Middle/East Islamic regions. Studies the unique social, cultural, economic and political differences and resulting tensions and conflicts. Explores how historical experience affect the expectations and perceptions of selected populations.

**POLS 2100**  
**Introduction to International Relations**  
**3:3:0** **SS**  
**F, Sp**  
 Discusses logic of power in international relations. Studies idealistic and realistic theories of international relations. Examines reasons why nations go to war. Compares geopolitical thrust and response.

**POLS 2120**  
**Political Parties**  
**3:3:0** **On Sufficient Demand**  
 • Prerequisite(s): POLS 1100 or consent of instructor  
 Examines the American political party system with special attention given to the history, campaign strategies, and ideologies of American political parties.

**POLS 2200**  
**Introduction to Comparative Politics**  
**3:3:0** **SS**  
**F, Sp**  
 Studies comparative politics and looks at attitudes and causes of political problems. Examines methods and means employed by selected countries to solve political problems, and studies successes and failures of different approaches. Examines the means which different nations employ to deal with political problems. Explores

the politics, institutions, and governments of seven selected nations.

**POLS 2350**  
**Introduction to Political Theory**  
**3:3:0** **F, Sp**  
 Surveys the history of Western political theory from the Greeks to the 21st Century.

**POLS 3000**  
**Political Analysis**  
**3:3:0** **F**  
 • Prerequisite(s): (MATH 1040 or MATH 1050) and POLS 1100  
 Covers the analytical and quantitative methodologies used in political science and public policy research. Includes statistical analysis, database research, and writing exercises.

**POLS 3030**  
**State and Local Government**  
**3:3:0** **F**  
 Examines the operation and structure of American State and Local Government with special attention to the Utah experience. Explores the local political process, administrative practices, and intergovernmental relations.

**POLS 3100**  
**Survey of International Terrorism**  
**3:3:0** **Sp**  
 A survey course of political violence and terrorism in the modern world. Studies terrorism and other forms of political violence and how they relate to fundamentalism, such as the Shiite Islamic, and Christian identity movements in the United States and Western Europe. Examines the concept of religious and political terrorism, as well as the ideologies, tactics, and organizations common to most terrorist groups.

**POLS 3150**  
**Executive Branch**  
**3:3:0** **F**  
 • Prerequisite(s): POLS 1100  
 Studies the executive branch of American national government. Examines the basic functions, tenants, and institutions of the executive branch. Special attention given to the powers, roles, and structure of the presidency. Also analyzes the various complexities of executive politics and policies.

**POLS 3180**  
**Public Opinion and Political Behavior**  
**3:3:0** **On Sufficient Demand**  
 Explores the formation and role of public opinion in politics and its impact on political behavior. Topics covered are: how, and to what extent, individuals form their attitudes about politics; how researchers go about attempting to measure public opinion; the distribution and determinants of public opinion regarding a broad range of political issues; and how political attitudes affect political participation.

**POLS 3200**  
**Legislative Process**  
**3:3:0** **F**  
 • Prerequisite(s): POLS 1100 or POLS 1010  
 Examines the legislative branch of American national government. Explores concepts of legislative theory, examining basic structure, functions, powers and roles of Congress. Gives special attention to the legislative process, constitutional structure, and modern development of federal legislature.

**POLS 3250** (Cross-listed with: LEGL 3250)  
**Introduction to Law and Politics**  
**3:3:0** **F**  
 • Prerequisite(s): POLS 1010 or POLS 1100  
 Examines the relationship between law and politics. Addresses the impact politics have on the judiciary and the strengths and weaknesses of law as a means of social order. Focuses on general issues of legal and political theory and the social and political function of law.

**POLS 3300**  
**Introduction to Public Administration**  
**3:3:0** **F**  
 Introduces basic concepts and principles in the implementation of public policy, as opposed to the formation of public policy. Includes concepts such as chain of command, hierarchy, and span of control.

**POLS 3400**  
**American Foreign Policy**  
**3:3:0** **Sp**  
 • Prerequisite(s): POLS 1100  
 Examines the development and theories of American foreign policy with special emphasis on the twentieth and twenty-first centuries. Surveys the process by which American foreign policy is formulated and examines major events and trends in policy since World War II.

**POLS 3500**  
**International Relations of the Middle East**  
**3:3:0** **On Sufficient Demand**  
 • Prerequisite(s): POLS 2100 or consent of instructor  
 Covers the impact of the West on the Middle East, the Arab-Israeli wars, the rise of Islamic fundamentalist terrorist groups and regimes, the Iran-Iraq war (1980-1988), the Iraq-Kuwait-US war (1990-1991), the Impact of 9/11, as well as the foreign policies of several major states in the Middle East.

**POLS 3590**  
**American Indian Law and Tribal Government**  
**3:3:0** **F**  
 • Prerequisite(s): (ENGL 2010 or ENGL 2020) or permission of instructor  
 Surveys American Indian law in treaties, statutes, case law, regulations, and executive orders, and analyzes various policy approaches to the federal trust relationship, tribal sovereignty over internal affairs, civil jurisdiction over tribal lands, management of natural resources of

PJST  
 POLS

## Course Descriptions

tribal lands, hunting and fishing rights, and cultural preservation. Examines the traditional and modern forms of various Indian tribal governments.

**POLS 3600**  
**International Relations of East Asia**  
**3:3:0 On Sufficient Demand**

Studies the emergence, from the nineteenth century, of modern nations from the rich and varied cultures and societies of Pacific Asia. Focuses on China, Japan and Korea. Explores the historical and geographical context of the development of East and Southeast Asia. Examines the transformation between East and West as well as the persistence of tradition. Discusses the political, economic and cultural changes in a region whose economic output rivals that of any other area of the world.

**POLS 420R**  
**Issues and Topics in Political Science**  
**3:3:0 Su, F, Sp**

• Prerequisite(s): ENGL 2010 or ENGL 2020  
 Surveys a specific topic in political science. Topic varies each semester. May be repeated for a maximum of 6 credits toward graduation.

**POLS 4720**  
**Foundations of American Constitutionalism**  
**3:3:0 F**

• Prerequisite(s): POLS 1100, or POLS 1000, or by consent of instructor  
 Examines the political and constitutional foundations of American constitution-making, beginning with the English Charter of Liberties in 1100 ACE and ending with the United States Bill Rights of 1791. Employs a comparative analysis of early Anglo-American constitutional thought, with special attention being given to the writings of prominent 17th century and 18th century constitutional theorists (e.g. Coke, Bacon, Burke, Penn, Dickinson, Mason, Adams, Madison, Marshall).

**POLS 4790**  
**US Constitution**  
**3:3:0 Sp**

• Prerequisite(s): POLS 1100 or POLS 1000  
 Examines the United States Constitution as the political blueprint of American national government. Explores the basic constitutional powers and structures of the federal government, and the prominent political and constitutional conflicts between its executive, legislative, and judicial branches. Addresses such key elements of constitutional design as limited and empowered government, enumerated and implied powers, separation of powers, checks and balances, federalism, and the Bill of Rights. Employs a critical analysis of modern constitutional politics.

**POLS 480R**  
**Internship**  
**2 to 9:1:5 to 40 On Sufficient Demand**

• Prerequisite(s): POLS 1100  
 Provides opportunities for internship experience in political organizations, government offices, and non-governmental organizations. May be repeated for a maximum of 9 credits toward graduation.

**POLS 490R**  
**Independent Study**  
**1 to 4:1 to 4:0 Su, F, Sp**

• Prerequisite(s): ENGL 2010 or ENGL 2020  
 Provides independent study for students unable to secure a desired class within regular semester curriculum offerings. With the approval of dean and/or department chair, student and instructor design and complete readings and other projects at the upper division level. May be repeated for a maximum of six credits toward graduation.

**POLS 4990**  
**Senior Seminar**  
**3:3:0 Sp**

• Prerequisite(s): Senior standing in Political Science and POLS 3000  
 Includes readings and discussions about fundamental political science problems and issues. Offers directed research project tailored to each student's special interests.

**PORT—PORTUGUESE**

**PORT 1010**  
**Beginning Portuguese I**  
**5:5:1 LH F, Sp**

For those with no prior Portuguese. Emphasizes listening, speaking, and writing skills along with basic grammar, vocabulary and verb conjugations all within the cultural context of modern Brazil and Portugal. Use eclectic methodology requiring conversational exchanges.

**PORT 1020**  
**Beginning Portuguese II**  
**5:5:1 LH F, Sp**

• Prerequisite(s): Students need equivalent knowledge of PORT 1010  
 Continuation of PORT 1010. Includes remaining first-year grammar and language concepts plus introduction to literature and cultural readings. Uses eclectic method of instruction, emphasizing conversational exchanges.

**PORT 1050**  
**Intensive Portuguese for Spanish Speaker**  
**5:5:1 LH On Sufficient Demand**

• Prerequisite(s): SPAN 3050, native speaker, or permission of instructor  
 Intensive overview of basic Portuguese for Spanish speakers. Practices listening, speaking, reading, and writing skills as well as discusses cultural aspects of Portuguese-speaking societies. Uses an eclectic method of instruction, emphasizing conversational exchange.

**PORT 2010**  
**Intermediate Portuguese I**  
**5:5:1 LH F**

• Prerequisite(s): Students need equivalent knowledge of PORT 1020  
 Reviews and builds grammar, reading, and conversation skills learned in the first year courses. Introduces readings and discussions on the history, culture, and literature of Brazil, maintaining a focus on oral proficiency.

**PORT 2020**  
**Intermediate Portuguese II**  
**3:3:0 HH Sp**

• Prerequisite(s): Students need equivalent knowledge of PORT 2010  
 Continuation of PORT 2010. Includes remaining grammar and language concepts, literature and cultural readings. Emphasizes literary readings, conversational exchanges as well as creative writing.

**PORT 3050**  
**Advanced Portuguese†**  
**3:3:0 F, Sp**

• Prerequisite(s): One year residency in Portuguese speaking country or placement test  
 For non-native Portuguese speakers with a fairly good mastery of basic Portuguese. Overviews basic Portuguese grammar with special emphasis on major concepts. Overviews Luso-Brazilian literatures and cultures.

**PORT 3200**  
**Business Portuguese**  
**3:3:0 On Sufficient Demand**

• Prerequisite(s): Students need equivalent knowledge of PORT 3050  
 For those who plan to pursue a career in international business or related field, learn the business language for Portuguese, or understand Portuguese speaking cultures. Teaches Portuguese business terminology. Presents the role of Portuguese-speaking countries in a global economy. Explores how students can effectively do business with Brazilian and Portuguese companies within the framework of Lusophone cultures. Includes current materials dealing with today's issues. Taught entirely in the Portuguese language.

**PORT 3520**  
**Brazilian Culture and Civilization**  
**3:3:0 LH On Sufficient Demand**

• Prerequisite(s): Students need equivalent knowledge of PORT 3050  
 Explores a multitude of aspects that construct Brazilian national identity. Completers should acquire an understanding of contemporary issues, and ethnic and economic development of Brazil, as well as historical interdependence with other nations. Presentations and class instructions conducted entirely in Portuguese.