

## 2011-13 Cal Poly Catalog

### [Honors Program](#)

#### HNRS–HONORS

##### **HNRS 100 Orientation to the University Honors Program (2) (CR/NC)**

Introduction to the Honors Program and overview of the University. Topics include the role of higher education, development of leadership skills, career advising, and guest speakers from the Cal Poly community. For University Honors Program students only. Credit/No Credit grading only. 1 lecture, 1 activity.

##### **HNRS 101 Public Speaking (4) GE A2**

Introduction to the principles of public speaking. Practical experience in the development, presentation, and critical analysis of speeches to inform, to persuade, and to actuate. Not open to students with credit in COMS 102. 4 lectures. *Crosslisted as COMS/HNRS 101*. Fulfills GE A2.

##### **HNRS 112 Race, Culture and Politics in the United States (4) GE D1 USCP**

Introductory and interdisciplinary study of the ways that race and ethnicity are created by both historical processes and American institutional formation – specifically social, political, economic, legal and cultural institutions. Special attention paid to the interlocking systems of race, class, gender and sexuality. 4 lectures. *Crosslisted as ES/HNRS 112*. Fulfills GE D1 and USCP.

##### **HNRS 131 General Physics I (4) GE B3 & B4**

Fundamental principles of mechanics. Vectors, particle kinematics. Equilibrium of a rigid body. Work and energy, linear momentum, rotational kinematics and dynamics. Primarily for engineering students, and for students majoring in the physical sciences. Not open to students with credit in PHYS 141. 3 lectures, 1 laboratory. Prerequisite: MATH 141 with grade C- or better, or consent of instructor, and MATH 142 or MATH 182 (or concurrent enrollment). Recommended: high school physics. For ME and AERO students only. *Crosslisted as HNRS/PHYS 131*. Fulfills GE B3 & B4.

##### **HNRS 132 General Physics II (4) GE B3 & B4**

Oscillations, waves in elastic media, sound waves. Temperature, heat and the first law of thermodynamics. Kinetic theory of matter, second law of thermodynamics. Geometrical and physical optics. 3 lectures, 1 laboratory. Prerequisite: PHYS 131, PHYS 141 or HNRS 131. *Crosslisted as HNRS/PHYS 132*. Fulfills GE B3 & B4.

##### **HNRS 134 General Physics IA (4) GE B3**

Fundamental principles of mechanics. Vectors, particle kinematics. Equilibrium of a rigid body. Work and energy, linear momentum, rotational kinematics and dynamics. Primarily for engineering and science students. Not open to students with credit in HNRS/PHYS 131. 4 lectures.

Prerequisite: MATH 141 with grade C- or better, or consent of instructor, and MATH 142 or MATH 182 (or concurrent enrollment). Recommended: High school physics. *Crosslisted as HNRS 134/PHYS 141*. Fulfills GE B3.

##### **HNRS 141, 142, 143 Calculus I, II, III (4) (4) (4) GE B1**

Limits, continuity, differentiation, integration. Techniques of integration, applications to physics, transcendental functions. Infinite sequences and series, vector algebra, curves. 4 lectures. **141** prerequisite: Completion of ELM requirement and passing score on appropriate Mathematics Placement Examination, or MATH 118 and high school trigonometry, or MATH 119. **142** prerequisite: HNRS/MATH 141 with a grade of C- or better or consent of instructor. **143** prerequisite: HNRS/MATH 142 with a grade of C- or better or consent of instructor. *Cross-listed as HNRS/MATH 141, 142, 143*. Fulfills GE B1.

##### **HNRS 145 Reasoning, Argumentation, and Writing (4) GE A3**

The principles of reasoning in argumentation. Examination of rhetorical principles and responsible rhetorical behavior. Application of these principles to written and oral communications. Effective use of research methods and sources. 4 lectures. Prerequisite: Completion of GE Area A1 with a C- or better, or consent of instructor. Recommended: Completion of GE Area A2. *Crosslisted as COMS/ENGL/HNRS 145*. Fulfills GE A3.

##### **HNRS 148 Reasoning, Argumentation and Professional Writing (4) GE A3**

The principles of reasoning in technical writing. Discussion and application of rhetorical principles, both oral and written, in technical environments. Study of methods, resources and common formats used in corporate or research writing. 4

lectures. Prerequisite: Completion of GE Area A1 with a C- or better, or consent of instructor. Recommended: Completion of GE Area A2. *Crosslisted as ENGL/HNRS 148*. Fulfills GE A3.

##### **HNRS 149 Technical Writing for Engineers (4) GE A3**

The principles of technical writing. Discussion and application of rhetorical principles in technical environments. Study of methods, resources and common formats used in corporate or research writing. 4 lectures. Prerequisite: Completion of GE Area A1 with a C- or better, or consent of instructor. Recommended: Completion of GE Area A2. For Engineering students only. *Crosslisted as ENGL/HNRS 149*. Fulfills GE A3.

##### **HNRS 200 Special Problems for Undergraduates (1–2) (CR/NC)**

Individual investigation, research, projects, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Credit/No Credit grading only. Prerequisite: Consent of instructor and Honors Program.

##### **HNRS 201 Survey of Economics (4) GE D2**

Basic principles of microeconomics and macroeconomics. Emphasis on applications to current national and global economic issues. For majors requiring one quarter of economics. Not open to students having previous credit in ECON 222 or equivalent. 4 lectures. *Crosslisted as ECON/HNRS 201*. Fulfills GE D2.

##### **HNRS 207 Freedom and Equality in American History (4) GE D1 USCP**

The multiple and conflicting ways in which various Americans (defined in terms of race, class and gender) have struggled to formulate and promote their own understandings of freedom and equality, from the pre-conquest era to the present. 4 lectures. *Crosslisted as HIST/HNRS 207*. Fulfills GE D1 and USCP.

##### **HNRS 212 Global Origins of United States Cultures (4) GE D3 USCP**

How the global dispersal of Europeans, Asians, and Africans, the hemispheric dispersal of Latin Americans, and the forced internal migration of Native Americans have contributed to American cultural heritage and the struggles for ethnic, class and gender equality, and justice. 4 lectures. *Crosslisted as ES/HNRS 212*. Fulfills GE D3 and USCP.

##### **HNRS 216 Comparative Social Movements (4) GE D3**

History of global social movements from the late nineteenth century to the present. May include, but not limited to: socialism, nationalism, feminism, fascism and communism, pacifism, life reform, gay liberation, indigenous peoples' movements, and environmentalism. Includes a service learning component. 4 lectures. *Crosslisted as HIST/HNRS 216*. Fulfills GE D3.

##### **HNRS 223 World History, 1800 to Present (4) GE D3**

Comparative history of Western and non-Western societies in global perspective. History of cross-cultural exchange, interaction, and conflict in the making of the modern world, with focus on the economic, political, and cultural transformations that facilitated and emerged from imperialism. 4 lectures. *Crosslisted as HIST/HNRS 223. Formerly HIST/HNRS 215*. Fulfills GE D3.

##### **HNRS 230 Philosophical Classics: Knowledge and Reality (4) GE C2**

Critical examination of primary philosophical texts, from the ancient and modern periods, with focus on the nature of reality, and the sources and limits of human knowledge. 4 lectures. Prerequisite: Completion of GE Area A. *Crosslisted as HNRS/PHIL 230*. Fulfills GE C2.

##### **HNRS 231 Philosophical Classics: Ethics and Political Philosophy (4) GE C2**

Readings from primary philosophical texts, from the ancient and modern periods, with focus on the identification, evaluation and contemporary relevance of the central ethical and political themes and arguments presented in them. 4 lectures. Prerequisite: Completion of GE Area A. *Crosslisted as HNRS/PHIL 231*. Fulfills GE C2.

##### **HNRS 232 Masterworks of British Literature from the Late 18<sup>th</sup> Century to the Present (4) GE C1**

Broadly surveys Romantic, Victorian, Modern, and Contemporary British literature in an historical-cultural context. Investigates works from several genres and a variety of national and cultural voices. May include such writers as Wordsworth, Wollstonecraft, Dickens, G. Eliot, Wilde, Woolf, Yeats, and G. K. Chesterton. 4 lectures. Prerequisite: Completion of GE Area A. *Crosslisted as ENGL 231/HNRS 232*. Fulfills GE C1.

**HNRS 241 Calculus IV (4)**

Partial derivatives, multiple integrals, introduction to vector analysis. 4 lectures. Prerequisite: MATH 143. *Crosslisted as HNRS/MATH 241.*

**HNRS 244 Linear Analysis I (4)**

Separable and linear ordinary differential equations with selected applications; linear and analytical solutions. Linear algebra: vectors in n-space, matrices, linear transformations, eigenvalues, eigenvectors, diagonalization; applications to the study of systems of linear differential equations. 4 lectures. Prerequisite: MATH/HNRS 143. *Crosslisted as HNRS/MATH 244.*

**HNRS 251 Great Books I: The Ancient and Classical World—From Myth to Reason (4) GE C1**

Examination of the ancient epics and classical literature of Mesopotamia, Greece, and Rome. Representative readings include "The Epic of Gilgamesh," "The Iliad," "The Odyssey," "Genesis," "Exodus," "Antigone," "The Symposium," "The Aeneid," and Marcus Aurelius's "Meditations." 4 lectures. Prerequisite: Completion of GE Area A. *Crosslisted as ENGL/HNRS 251.* Fulfills GE C1.

**HNRS 270 Selected Topics (1–4)**

Directed group study of selected topics. The Schedule of Classes will list title selected. Total credit limited to 8 units. 1 to 4 lectures. Prerequisite: Open to undergraduate students and consent of instructor.

**HNRS 299 Honors Group Seminar (1) (CR/NC)**

Students in the Honors Program are required to take at least eight courses for honors credit before graduation. Taking an Honors course may not be possible due to scheduling conflicts or unavailability of courses. This course allows students to engage in honors-level work in a standard, non-honors course on a group basis. Credit/No Credit grading only. Total credit limited to 4 units; repeatable in same term. Must achieve a B or better in the related standard course. 1 seminar.

**HNRS 302 The Learn By Doing Lab Teaching Practicum (2) (CR/NC)**

Early teaching experience in an informal science/technology/engineering/mathematics (STEM) teaching and learning environment. Principles of inquiry-driven STEM education, lesson design, implementation and assessment. Intended for undergraduates exploring STEM teaching as a career. Total credit limited to 4 units. Credit/No Credit grading only. 1 seminar, 1 laboratory. Prerequisite: Completion of GE Area B and consent of instructor. *Crosslisted as ENGR 322/SCM 302/HNRS 302. New course, effective Summer 2012.*

**HNRS 303 Economics of Poverty, Discrimination and Immigration (4) GE D5 USCP**

Economic analysis of the cause, extent and impact of poverty, discrimination and immigration and of the policies designed to address these socioeconomic issues. Emphasis on the experience of African-Americans, Latinos, and women in the United States. 4 lectures. Prerequisite: Junior standing; completion of GE Areas A, D1, and either ECON 221 and ECON 222, or ECON 201. *Crosslisted as ECON/HNRS 303.* Fulfills GE D5 except for Economics majors. Fulfills USCP.

**HNRS 304 Values and Technology (4) GE C4**

Humanistic investigation into the theoretical and practical applications of technology with specific reference to the social effects of technological change. For all majors. Non-technical. 4 lectures. Prerequisite: Completion of GE Area A and one course from Area C. Recommended: Junior standing. *Crosslisted as HNRS 304/HUM 303.* Fulfills GE C4.

**HNRS 310 Air and Space (4) GE Area F**  
Technological innovations that have led to modern aircraft and spacecraft as viewed from an historical perspective. Development of aerodynamics, propulsion systems, light-weight structures, and control systems. How aviation has affected, and been affected by, history. Impact of aviation on society, including civil and military aircraft/spacecraft. Federal regulation of aviation, including air traffic control and airlines. Future developments in air and space technology. 4 lectures. Prerequisite: Junior standing and Completion of GE Area B. *Crosslisted as AERO/HNRS 310.* Fulfills GE Area F.

**HNRS 311 Computers for Poets (4) GE Area F**

How computers and computer devices work. Introduction to software systems and applications. How computers connect with various media including images, speech and data. How information is encoded and transmitted across networks. Relationship between the computer and human

information processing. 4 lectures. Prerequisite: Junior standing and completion of GE Area B. *Crosslisted as CSC 310/HNRS 311.* Fulfills GE Area F.

**HNRS 312 East Asian Culture and Civilization (4) GE D5**

The pre-modern and modern histories of China and Japan. Focus on the traditional era, the transition to modernity, cultural uniqueness within East Asian civilization, and western images of Asia. 4 lectures. Prerequisite: Completion of GE Area A and one course from GE Area D2 or D3. Recommended: Junior standing. *Crosslisted as HIST 310/HNRS 312.* Fulfills GE D5 except for History majors.

**HNRS 319 Natural Resource Ecology, Theories and Applications (4) GE B5**

Scope and nature of "ecology" in modern society, including resource terminology and classifications systems; dynamics of natural systems (energy exchange and cycles); man's role as a principle agent of change; environmental impacts; historical perspective including people (ethnicity); and the future environment. 3 lectures, 1 laboratory. Prerequisite: Completion of GE Area B2. *Crosslisted as HNRS/NR 319.* Fulfills GE B5.

**HNRS 320 Values, Media, and Culture (4) GE C4**

Contemporary popular culture and its relationship to the great art and literature of the past. Discussion of television, films, advertising, best sellers, popular magazines, children's stories, comics, and the great tradition of literature. 4 lectures. Prerequisite: Completion of GE Area A and one course from Area C. Recommended: Junior standing. *Crosslisted as HNRS/HUM 320.* Fulfills GE C4.

**HNRS 321 Undergraduate Research Methods and Practice (4)**

Research methods and tools for sciences and humanities, including formulating a research question, designing a study, using the scientific method to conduct and analyze surveys, and analyzing data. Emphasis on working in interdisciplinary research teams. Total credit limited to 8 units. 2 lectures, 2 activities. Prerequisite: Completion of GE Areas A and B1, and consent of instructor. *Crosslisted as HNRS/UNIV 321.*

**HNRS 322 Leadership and Project Management (2)**

Theory and practice in leadership and project management skills for engineering design teams. Basic issues related to, and tools used for, managing projects and concepts comprising project management. Emphasis on situations requiring resolutions and management decisions by groups representing various elements of an enterprise. 2 lectures. Prerequisite: Junior standing in an engineering program or consent of instructor. *Crosslisted as HNRS/IME/MATE 322.*

**HNRS 324 The Historical Novel in the United States, 1960s to the Present (4) GE D5**

An introduction to the historical novel as it has developed in the United States since the 1960s. Exploration of how historical novels typically represent the past and the ways in which they change our notion of what counts as "history." 4 lectures. Prerequisite: Junior standing; completion of GE Areas A, D1 and any other lower-division Area D course. History majors will not receive GE Area D5 credit. *Crosslisted as HIST/HNRS 324.* Fulfills GE D5.

**HNRS 332 British Literature in the Age of Enlightenment: 1660-1798 (4) GE C4 GWR**

In-depth exploration of the dominant themes and preoccupations of the Age of Enlightenment. Historical and cultural contexts of canonical and non-canonical literature emphasized to illustrate 18<sup>th</sup> century Britons' views of themselves and their changing world. May include such writers as Dryden, Behn, Defoe, Swift, Pope, and Johnson. 4 lectures. Prerequisite: Completion of GE Areas A and C1. Recommended: Junior standing. Fulfills GE C4 except for English majors. *Crosslisted as ENGL/HNRS 332.* Fulfills GWR for students with junior standing (90 units).

**HNRS 333 British Literature in the Age of Romanticism: 1798-1832 (4) GE C4 GWR**

In-depth exploration of the literature of the British Romantic period. Cultural, historical, and philosophic contexts will also be examined in both canonical and non-canonical works. May include such writers as Blake, Wordsworth, Keats, and Wollstonecraft. 4 lectures. Prerequisite: Completion of GE Areas A and C1. Recommended: Junior standing. Fulfills GE C4 except for English majors. *Crosslisted as ENGL/HNRS 333.* Fulfills GWR for students with junior standing (90 units).

**HNRS 342 The Literary Sources of the American Character: 1914-1956 (4) GE C4 GWR**

The writers of the modern period and those of the early post-modern age, including writers marked by stylistic innovation and a willingness to challenge traditionally accepted standards. May include such writers as Hemingway, Fitzgerald, Stein, Hughes. 4 lectures. Prerequisite: Completion of GE Areas A and C1. Recommended: Junior standing. *Crosslisted as ENGL/HNRS 342.* Fulfills GE C4 except for English majors. Fulfills GWR for students with junior standing (90 units). *New course, effective Fall 2012.*

**HNRS 375 Technology and the Environment: A Seminar on Contemporary Issues (4)**

Interdisciplinary exploration of significant environmental issues (local, regional, national, or global) where technology is a major cause and/or offers a possible solution. 4 seminars. Prerequisite: Completion of GE Area A and two courses from Areas D1, D2, D3. Honors Program membership or nomination by CRP department head. *Crosslisted as CRP/HNRS 375.*

**HNRS 380 Literary Themes (4) GE C4 GWR**

Literature selected according to a particular theme. Emphasis on critical interpretation, aesthetic appreciation, and historical and cultural contexts. The Schedule of Classes will list topic selected. Total credit limited to 12 units. 4 lectures. Prerequisite: Completion of GE Areas A and C1. Recommended: Junior standing. Fulfills GE C4 except for English majors. Fulfills GWR for students with junior standing (90 units). *Crosslisted as ENGL/HNRS 380.*

**HNRS 391 Appropriate Technology for the World's People: Development (4) GE D5**

A broad overview of international development and appropriate design for sustainability. Besides traditional classroom work, students work in teams to address problems with technical solutions. Collaboration with mentors from the university, private sector, and nonprofits serves to provide diverse background and project mentorship. 4 lectures. Prerequisite: Junior standing; completion of GE Area A, and two courses from GE D1-D4 and consent of instructor. *Crosslisted as HNRS/UNIV 391.* Fulfills GE D5. *Change effective Winter 2012.*

**HNRS 392 Appropriate Technology for the World's People: Design (4) GE Area F**

Addresses the needs of international impoverished communities with technological solutions, which are inexpensive, ecologically sustainable, and socially appropriate. Group study of target communities, and design and construction of an appropriate technology prototype. Not open to students with credit in UNIV 492. 3 lectures, 1 laboratory. Prerequisite: Junior standing and completion of GE Area B, or graduate standing. Recommended: UNIV 391, GE Area D2, and GE Area D3. *Crosslisted as HNRS/UNIV 392.* Fulfills GE Area F.

**HNRS 400 Special Problems for Advanced Undergraduates (1-2)**

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 4 units, with a maximum of 2 units per quarter. Prerequisite: Consent of Honors Program Director.

**HNRS 411 New Media Arts I (4)**

Advanced-level presentation of new media theory, design and practice. Topics covered include, but are not limited to, interactivity theory, user-centered system design, cognitive psychology, media analysis, and basic web design theory. Total credit limited to 8 units. 4 lectures. Prerequisite: Completion of GE Area A. Junior standing. *Crosslisted as ENGL/HNRS 411.*

**HNRS 412 New Media Arts II (4)**

Advanced level of work with the primary technologies and design/critique theories currently at use in the professional creation of new media works. Lectures and readings expand upon material presented in HNRS/ENGL 411. 4 lectures. Prerequisite: HNRS/ENGL 411 or consent of instructor. *Crosslisted as ENGL/HNRS 412.*

**HNRS 424 Design of Museum Displays on Science, Engineering, and Technology (4)**

The design and creation of educational museum displays that highlight science, engineering, and technology. Projects done by multidisciplinary teams and for clients in the community. Emphasis on design, teamwork, service learning and project management. 3 lectures, 1 laboratory. Prerequisite: GE Area B or Area F. *Crosslisted as HNRS/UNIV 424.*

**HNRS 470 Selected Advanced Topics (1-4)**

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. The Schedule of Classes will list title selected. Total credit limited to 8 units. 1 to 4 lectures. Prerequisite: Consent of instructor.

**HNRS 471 Selected Advanced Laboratory (1-4)**

Directed group laboratory study of selected topics for advanced students. Open to undergraduate and graduate students. The Schedule of Classes will list title selected. Total credit limited to 8 units. 1 to 4 laboratories. Prerequisite: Consent of instructor.

**HNRS 475 Sustainable Forest and Environmental Practices (15)**

Typical modules related to sustainable resource management: ecosystem sampling and inventory methods, photo interpretation, hydrologic resources, road condition, project impact analysis, best management practices. Topics covered vary from term to term depending on the priority for learning modules. Residency at Swanton Pacific and extended field trips required. 10 lectures, 5 activities. Prerequisite: Consent of instructor. *Crosslisted as HNRS/NR 475.*

**HNRS 490 President's Seminar: Science, Society and the University (1-4) (CR/NC)**

Development of higher education in the United States; the role of science and research in the University; and the response of higher education to changing economic, political and social demands. Credit/No Credit grading only. 1-4 seminars. Prerequisite: Senior standing, GPA of at least 3.0, or consent of instructor. *Crosslisted as HNRS/HUM 490.*

**HNRS 499 Honors Group Seminar (1) (CR/NC)**

Students in the Honors Program are required to take at least eight courses for honors credit before graduation. Taking an Honors course may not be possible due to scheduling conflicts or unavailability of courses. This course allows students to engage in honors-level work in a standard, non-honors course on a group basis. Credit/No Credit grading only. Total credit limited to 4 units, repeatable in same term. Must achieve a B or better in the related standard course. 1 seminar.