

Samples of Program Learning Objectives – University of Colorado at Boulder

(see <http://www.colorado.edu/pba/outcomes/units/unitindx.htm>)

Chemical Engineering

The educational objectives in the undergraduate program in the Department of Chemical Engineering are to:

- educate students in chemical engineering fundamentals and practice;
- train students in chemical process design and integration;
- train students in critical thinking and in the identification, formulation, and solution of open-ended engineering problems;
- help students be aware of their responsibility to conduct ethical, safe, and environmentally conscious engineering;
- train students to be good communicators and function effectively as individuals and in teams;
- provide students with knowledge of contemporary issues and understanding of the impact of engineering practices in global and societal contexts; and
- teach students the necessity and tools for continued, life-long learning.

In addition, students completing the undergraduate program in chemical engineering acquire the ability and skills to:

- apply knowledge of mathematics, science, and engineering;
- design and conduct experiments and analyze and interpret data;
- use modern engineering tools, skills, and methods for engineering practice;
- design processes and systems to meet desired performance specifications;
- identify, formulate, and solve engineering problems;
- understand professional and ethical responsibilities;
- communicate effectively in oral and written forms;
- function effectively on multidisciplinary teams;
- understand the impact of engineering solutions in global and societal contexts;
- know contemporary issues; and
- recognize the need for and have an ability to engage in life-long learning.

English

The undergraduate degree in English emphasizes knowledge and awareness of:

- canonical and noncanonical works of English and American literature;
- the general outlines of the history of British and American literature;
- literary theories, including recent theoretical developments; and
- the social and historical contexts in which the traditions developed.

In addition, students completing the degree in English are expected to acquire the ability and skills to:

- analyze literary texts;
- interpret texts on the basis of such analysis;
- relate analyses and interpretations of different texts to one another; and
- communicate such interpretations competently in written form.

The undergraduate degree in creative writing emphasizes knowledge and awareness of:

- literary works, including the genres of fiction, poetry, playwriting, and screenwriting, and the major texts of contemporary writers;
- literary history, including the origins and development of genres, major writers of the past, and the role of the writer in society; and
- literary analysis, including theories of literary composition and critical theory.

In addition, students completing the degree in creative writing are expected to acquire the ability and skills to:

- write in different poetic modes and styles;
- write in various fictive styles; and
- evaluate other students' written work.

History

The undergraduate degree in history emphasizes knowledge and awareness of:

- the main topics in the political, social, cultural, and economic history of the United States, from its origins to the present;
- the main topics in the political, social, cultural, and economic history of western civilization, from its origins in antiquity to the present;
- the main topics in the political, social, cultural, and economic history of one or more geographic areas outside Europe and America; and
- methodology in historical studies.

In addition, students completing the degree in history are expected to acquire the ability and skills to:

- research and conduct an investigation, consulting appropriate works for developing a bibliography;
- distinguish between primary and secondary sources, analyze arguments and interpretations, and recognize interpretative conflicts;

- interpret evidence found in primary sources and develop an historical argument based on and sustained by the evidence available; and
- produce historical essays that are coherent, cogent, and grammatically correct.

Mathematics

The undergraduate degree in mathematics emphasizes knowledge and awareness of:

- basic real analysis of one variable;
- calculus of several variables and vector analysis;
- basic linear algebra and theory of vector spaces;
- the structure of mathematical proofs and definitions; and
- at least one additional specialized area of mathematics.

In addition, students completing a degree in mathematics are expected to acquire the ability and skills to:

- use techniques of differentiation and integration of one and several variables;
- solve problems using differentiation and integration;
- solve systems of linear equations;
- give direct proofs, proofs by contradiction, and proofs by induction;
- formulate definitions;
- read mathematics without supervision; and
- utilize mathematics.

Sociology

The undergraduate degree in sociology emphasizes knowledge and awareness of:

- the basic data, concepts, theories, and modes of explanation appropriate to the understanding of human societies;
- the structure of modern American society, its social stratification, its ethnic, racial, religious, and gender differentiation, and its main social institutions - family, polity, economy, and religion;
- the basic social processes that maintain and alter social structure, especially the processes of integration, organization, and conflict; and
- the diversity of human societies, including the differences between major historical types such as foraging, agricultural, industrial, and post-industrial societies.

In addition, students completing the degree in sociology are expected to acquire the ability to:

- locate and consult works relevant to a sociological investigation and write a sociological paper that is coherent, cogent, and grammatically correct;
- understand the basic procedures of sociological research and analyze sociological data;
- understand and interpret the results of sociological research; and
- integrate and evaluate sociological writings.