

SAFETY AND HEALTH FOCUS AREA

Summary

The Safety and Health Focus Area strengthens a student's ability to design and operate chemical processes with a focus on preventing hazards, protecting workers, and ensuring regulatory compliance. It builds on core chemical engineering principles while emphasizing risk analysis, process safety, and the safe handling of chemicals and industrial systems—key themes supported by required coursework such as Chemical Process Safety. This pathway prepares students for roles in occupational safety, industrial hygiene, environmental health, and safety management across manufacturing, energy, pharmaceuticals, and other high-risk industries.

Focus Area Requirements

In addition to the core chemical engineering requirements, you must choose a focus area and complete 12 s.h. towards that focus area. Below are the lists of possible focus areas electives that can fulfill this requirement for the Safety and Health focus area. If you feel another course would fit within this requirement, you must get approval from the department undergraduate director to have it count.

Required Focus Area Elective 3 s.h.

Offered	Course	s.h.
S - Even	CBE:4125 Advanced Chemical Process Safety (spring semester, even years)	3

Focus Area Electives 9 s.h. – Pick from list below

Offered	Course	s.h.
S	CBE:4459 Air Pollution Control Technology	3
F	CEE:4158 Solid and Hazardous Wastes	3
F	ISE:4175 Safety Engineering	3
S	CPH:3400 Health Work and the Environment	3
S - EVEN	CPH:2220 Building a Healthier Tomorrow: Public Health Methods to Minimize Disease & Pollutant Exposures	3
F	GHS:3500 Global Public Health	3
F	OEH:4910 Solid and Hazardous Wastes	3
F	OEH:6420 Methods in Exposure Science	

Other Electives that Align with this Focus Area

In addition to the focus area electives listed above, you will be required to complete the following electives to complete your degree: the Advanced Chemistry Elective (3 s.h.), the Advanced Chemistry Lab Elective, the Advanced Science Elective (3 s.h.), the Statistics Elective (3 s.h.), a Free Elective (3 s.h.), The Be Creative – General Education Elective (3 s.h.), the Understanding Cultural Perspectives and Values – General Education Elective (3 s.h.) and an additional general education requirements (9 s.h.). **These do not count towards your focus area electives.** Below are lists of possible courses to fulfil these requirements that align with this focus area.

Statistics Requirement 3 s.h. – Possible Courses that align with this focus area

Offered	Course	s.h.
S	CBE:3020 Applied Statistics for Chemical and Natural Resources Engineering (recommended)	3
F/S	STAT:2020 Probability and Statistics for Engineers	3
F/S	STAT:3510 Biostatistics	3

Advanced Chemistry Elective 3 s.h. – Possible Courses that align with this focus area

Offered	Course	s.h.
S	CHEM:4873 Atmospheric and Environmental Chemistry	3
ALL	CHEM 3000+ Level	3

Advanced Chemistry Lab Elective 3 s.h. – Possible Courses that align with this focus area

Offered	Course	s.h.
F/S	CHEM:2210 Fundamental of Chemical Measurements Lab	3
F/S	CHEM:2220 Organic Chemistry Lab	3
S	CHEM:2240 Organic Chemistry for Majors Lab	3

Advanced Science Elective 3 s.h. – Possible Courses that align with this focus area

Offered	Course	s.h.
S	OEH:6710 Human Toxicology and Risk Assessment (recommended)	3
ALL	OEH:3000+ level course	3
ALL	BIO:3000+ level course	3
ALL	BMB 3000+ level course	3
ALL	CHEM 3000+ level course	3

Cultural Perspective, Values and Issues - Gen Education Elective 3 s.h. – Possible courses that align with this focus area

Offered	Course	s.h.
S	HHP:2280 Cultural Competency and Health	3
F	GHS:2100 Foundation of Health Humanities	3

General Education Elective 9 s.h. – Possible courses that align with this focus area

Offered	Course	s.h.
F/S	ANTH:2261 Human Impacts on the Environment	3
ALL	GHS:2000 Introduction to Global Health Studies	3