

REVIEW OF THE B.S. IN SAFETY

Classification of Instructional Programs (CIP) Code: 51.2206
Occupational Health and Industrial Hygiene

OVERVIEW

The B.S. in Safety program at Illinois State University is housed in the Department of Health Sciences within the College of Applied Science and Technology. The department also offers undergraduate minors in Environmental Health, Health and Wellness Coaching, Public Health, and Safety; a B.S. in Environmental Health; a B.S. in Health Information Management; a B.S., B.S.Ed. in Health Promotion and Education; and a B.S. in Medical Laboratory Science. The Department of Health Sciences does not offer graduate programs. The B.S. in Safety, B.S., B.S.Ed. in Health Promotion and Education, and B.S. in Medical Laboratory Science programs were reviewed in this 2018-2019 program review cycle, while the B.S. in Environmental Health and B.S. in Health Information Management programs were reviewed in 2017-2018. The last review of the B.S. in Safety program occurred in 2010-2011.

The B.S. in Safety program prepares students for positions responsible for preventing or reducing human and economic loss due to accidental mishaps. Safety professionals investigate accidents, conduct safety training sessions, conduct cost-benefit analyses of safety initiatives, and inventory hazardous materials. The program curriculum is based on a foundation in the sciences and emphasizes the technical, managerial, and ethical aspects of safety and health. Work in the field does not require licensure. Certification is voluntary but is encouraged by many employers. National recognition of the program by the Accreditation Board of Engineering and Technology and the Board of Certified Safety Professionals evidences program quality, which helps program graduates when seeking their first positions in the field and when seeking to advance their careers. The B.S. in Safety program is the only undergraduate degree program in the discipline in Illinois.

Enrollment and Degrees Conferred, 2011-2018

B.S. in Safety, Illinois State University

First Majors Only

	2011	2012	2013	2014	2015	2016	2017	2018
Enrollment, fall census day	55	53	59	59	67	73	67	62
Degrees conferred, graduating fiscal year	16	14	16	16	22	10	19	18

Table note:

Graduating Fiscal Year consists of summer, fall, and spring terms, in that order. For example, Graduating Fiscal Year 2018 consists of the following terms: summer 2017, fall 2017, and spring 2018.

EXECUTIVE SUMMARY PROGRAM REVIEW SELF-STUDY REPORT

Program goals

The B.S. in Safety program is designed to prepare graduates who, within five years of completing the program, will have independently demonstrated efficient risk management within their organization; effective communication of safety and health issues within their organization or within their local, regional, or global industry sector; effective leadership within their organization or within their local, regional, or global industry sector; and professional growth and pursuit of life-long learning in an ever-changing global economy.

Students learning outcomes

At the time of graduation, students in the B.S. in Safety program will be able to ...

- Apply knowledge of mathematics, science, and applied sciences to the anticipation, recognition, evaluation, and development of control strategies for hazardous conditions and work practices.

- Conduct experiments and accident/incident investigations, as well as analyze and interpret data.
- Design and evaluate safety, health, and/or environmental programs to meet desired needs.
- Function on multidisciplinary teams.
- Identify and solve applied sciences problems using fundamental aspects of safety, industrial hygiene, environmental science, fire science, hazardous materials, emergency management, ergonomics, and/or human factors.
- Discuss the importance of professional and ethical responsibility.
- Communicate effectively in writing, oral presentation, and the application of adult learning theory to safety training methodologies.
- Discuss the impact of business and risk management solutions in a global or societal context.
- Recognize the need for and ability to engage in life-long learning.
- Identify contemporary safety and health issues and apply relevant standards, regulations, and codes or best practices.
- Apply principles of safety and health in a non-academic setting through a supervised professional practice experience.

Program curriculum (2018-2019)

Graduation requirements:

120 credit hours consisting of 37 credit hours of required Health Sciences courses, 9 credit hours of professional practice, 6 credit hours of Health Sciences elective courses, and 10 credit hours in specified courses offered by other academic units, with the balance earned by meeting General Education requirements or by completing elective courses.

Program delivery

The program is offered on the Normal campus.

The program is delivered primarily through face-to-face or blended face-to-face/online instruction.

The Department of Health Sciences offers a short-term study abroad course during the spring term. The course spans four to six weeks, with the travel portion taking place over spring vacation. Travel destinations may differ from one year to the next.

Department faculty (Fall 2018)

14 tenure track faculty members (4 Professors, 3 Associate Professors, and 7 Assistant Professors)

14 non-tenure track faculty members (3 full-time and 11 part-time, totaling 6.56 FTE)

Undergraduate student to faculty ratio: 19.0 to 1

Undergraduate student to tenure-line faculty ratio: 28.4 to 1

Core faculty for the B.S. in Safety program includes three full-time faculty members (two tenure track and one non-tenure track) and two part-time adjunct lecturers.

Specialized accreditation

The B.S. in Safety program is accredited by the Applied and Natural Science Accreditation Commission (formerly the Applied Science Accreditation Commission) of the Accreditation Board for Engineering and Technology (ABET). The most recent ABET accreditation review of the program occurred in 2014, resulting in full accreditation. The next comprehensive accreditation review by ABET is scheduled to occur in 2020-2021. The B.S. in Safety program is also recognized by the Board of Certified Safety Professionals (BCSP) as a Qualified Academic Program. This designation allows graduates of the program to immediately receive the Graduate Safety Practitioner credential. The credential is needed to apply for the Certified Safety Professional designation from the board.

Changes in the academic discipline, field, societal need, and program demand

There have not been major changes in the academic discipline, profession, or demand for safety program graduates since the 2010-2011 program review. The demand for safety professionals still far exceeds the supply across the nation and in other parts of the world. The U.S. Bureau of Labor Statistics predicts that the shortage will continue. One impact of the shortage is a steady increase in starting salaries for safety program graduates.

Responses to previous program review recommendations

The 2010-2011 program review resulted in recommendations for faculty to continue seeking accreditation of the program by the Accreditation Board for Engineering and Technology (ABET), recruit students with the goal of meeting enrollment targets within five years, continue recruiting students and faculty who self-identify with groups traditionally underrepresented in the discipline, and increase opportunities for student participation in research. ABET accreditation of the program was achieved in 2014. The next comprehensive accreditation review is scheduled to occur in 2020-2021. Enrollment targets established at the time of the prior program review have been met, as fall enrollment ranged between 67 and 73 students from 2015 through 2017. The targets have been achieved through outreach to other academic units at the University with students who could benefit from a major or minor in safety, additional exposure of the program by increasing enrollment in a safety course that meets General Education requirements, and outreach by a new marketing and recruiting committee of the program advisory board to students and their academic advisors throughout the state. Efforts to recruit for diversity have included establishing a scholarship for transfer students identifying with underrepresented groups and exploring ways to recruit international students. Achieving faculty diversity is a longer-term initiative for the department since full-time faculty positions in the program are seldom open. As opportunities arise to hire faculty, efforts will be made to recruit diverse applicant pools. Since the prior program review, faculty members have made significant progress increasing student involvement in research. The program annually designates a faculty member as research advisor for the registered student organization affiliated with the program. The advisor encourages and assists members in developing a short-term research agenda for the organization. The agenda is then implemented by students with guidance from the advisor. Since 2010-2011, organization members have presented eight different studies either at the annual research symposium sponsored by the University or at a national conference. The national parent organization of the student group recognized the group at Illinois State as the best among its peers in the nation in 2017 in large part because of its research efforts. Involvement of students in research will continue during the next review cycle.

Major findings

The current state of the B.S. in Safety program is very positive. The program is experiencing stable enrollment within its target range, stable graduation rates, and stable job placement opportunities. Feedback from external reviewers and program advisory board members demonstrates that program graduates become highly skilled in their profession and successful members of society. Accreditation and advisory board support have been instrumental in achieving and sustaining program success. Maintaining accreditation is a priority for the program in order to attract students to the program and sustain high job placement rates for its graduates. The program could seek to increase enrollment to help address the continuing shortage of safety professionals nationally, however any significant enrollment increases without access to additional resources could result in course scheduling difficulties. The Safety program continues to explore best practices for encouraging students to actively seek professional and scholarship opportunities and for developing and maintaining alumni relations once students leave the program. Improvements in those areas will enhance the student experience and further promote program excellence.

Initiatives and plans

- Sustain program excellence and develop new indicators of quality for the major.
- Continue ongoing recruitment and retention of both underrepresented students and faculty, including international students.
- Continue the development and acquisition of state-of-the-art facilities and technology to enhance interdisciplinary inquiry and lifelong learning.
- Maintain or increase opportunities for student involvement in research and service to the profession.
- Explore innovative programs for attracting new students and professionals.

PROGRAM REVIEW OUTCOME AND RECOMMENDATIONS FROM THE ACADEMIC PLANNING COMMITTEE

Review Outcome. The Academic Planning Committee, as a result of this review process, finds the B.S. in Safety program to be in Good Standing.

The Academic Planning Committee thanks faculty and staff of the B.S. in Safety program for a concise, critical, and forward looking self-study report that evidences a program review process that involved all faculty members associated with the program as well as external stakeholders.

The committee commends faculty for fulfilling the long-standing goal of the B.S. in Safety program to achieve accreditation of the program by the Applied Science Accreditation Commission (since renamed the Applied and Natural Science Accreditation Commission) of the Accreditation Board for Engineering and Technology (ABET). The program was accredited by ABET effective October 1, 2013 through September 30, 2021. Accreditation of the program, the only one of its kind in Illinois, evidences efforts by faculty to meet or exceed standards of the discipline and field. The committee also commends faculty for recognition of the program by the Board of Certified Safety Professionals as a Qualified Academic Program. Graduates of the program benefit from that designation in that they receive the Graduate Safety Practitioner designation upon program completion. That credential is an important step toward achieving full professional certification as a Certified Safety Professional.

The committee recognizes faculty and staff members for their efforts to promote timely graduation of students from the B.S. in Safety program with the knowledge and skills needed to succeed in the safety profession and achieve the Certified Safety Professional credential. Average credit hours at the time of program completion for students enrolling at the University as a first-time-in-college student decreased from 148.0 credit hours in Fiscal 2010 to 129.6 in Fiscal 2017. That average includes credit hours for students who started at Illinois State in a major other than safety. Average credit hours at the time of program completion for students who had transferred into the program from a community college or other university was 152.3 credit hours in Fiscal 2014 but has since declined to 134.9 in Fiscal 2017. Nearly every student who has graduated from the program since the last program review has been hired into a job in safety or a related field within six months of graduation. Salaries of program graduates have averaged approximately 60 percent more than the median annual wage for all workers in the U.S.

Among faculty and staff efforts since the last program review to promote student success are ongoing monitoring of the curriculum for its relevancy and currency, developing opportunities for students to engage in research with faculty, and providing co-curricular opportunities to enhance student exposure to the field. The committee commends the program for those efforts. Faculty has used assessment findings and alumni feedback to identify the need for additional attention in the curriculum to helping students develop communication skills. Faculty has addressed this need in part by adding a safety training development course (HSC 370) to prepare students for developing and delivering safety training programs in the workplace. A major faculty initiative in response to the 2010-2011 review has been involving students in research through the Illinois State University student section of the American Society of Safety Engineers (renamed the American Society of Safety Professionals in 2018). Each year the program designates one of its faculty members to serve as the research advisor to the chapter. In that role the faculty member mentors students in designing and implementing a research project and in presenting research findings through presentations or publications. Eight such studies have been completed and presented by the students. That unique involvement in research by the students was a factor in the group being named the outstanding student section for 2017 by the American Society of Safety Professionals. Among the numerous other co-curricular opportunities provided students since the last program review are activities and events sponsored by the Illinois State University student section of the American Industrial Hygiene Association, such as attendance at professional meetings and field trips to industrial sites.

A key asset for evaluating the program and providing co-curricular opportunities for students is the Safety Program Advisory Board. The committee recognizes efforts by program faculty and staff leading to establishment of the board in 2015 and ongoing efforts to actively involve its members in the program. Board members advise faculty regarding changes in the field that may inform curricular changes and approaches faculty might take to inform prospective students about the program. Board members also volunteer time to mentor students, for example through the safety in residence initiative through which board members spend time in the department. The advisory board is

also active in fundraising for program enhancements such as purchase of tools and equipment for use by students in the laboratory.

Recommendations. The Academic Planning Committee makes the following recommendations to be addressed within the next regularly scheduled review cycle. In the next program review self-study report, tentatively due October 1, 2026, the committee asks the program to describe actions taken and results achieved for each recommendation.

Maintain program accreditation. The committee encourages efforts by faculty and staff of the B.S. in Safety program to maintain accreditation of the program by the Applied and Natural Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) in good standing throughout the next program review cycle. The next comprehensive re-accreditation review of the program is scheduled for 2020-2021. The program is scheduled to submit a self-study report to ABET in connection with that re-accreditation review by July 1, 2020.

Formalize and implement a student recruitment plan. The committee notes the upward trajectory of enrollment in the B.S. in Safety program since the 2010-2011 program review. Enrollment increased from 49 students in fall 2010 to a nine-year peak of 73 students in fall 2016. However, enrollment has since declined, to 62 students. Accordingly, the committee recommends that the program formalize and implement a plan for stabilizing enrollment during the next program review cycle and for growing enrollment within resource constraints under which the program functions. The committee notes that numerous components of such a plan are already in place in the program, including enrollment targets and guidance with program promotion from the Safety Program Advisory Board. Given the target of having external transfer students comprise about one-quarter of students enrolling in the safety program, the committee recommends that faculty seek articulation agreements with community colleges from which students entering the program typically matriculate. Having such agreements could help reduce time-to-degree for external transfer students and also help increase awareness of the major among community college students. Developing articulation agreements with community colleges serving high school districts with diverse student populations might also aid efforts to increase diversity among students enrolling in the B.S. in Safety program (see below).

Formalize and implement a plan for increasing student diversity. The committee acknowledges attention by faculty and staff to student diversity since the prior program review. Those efforts have contributed to an upward trajectory in the percentage of students self-identifying with racial or ethnic groups traditionally underrepresented in the discipline, department, and University, although increases have been sporadic. For example, the percentage increased from 13.5 percent in fall 2015 to 23.6 percent in fall 2016 but then decreased to 20.9 percent in fall 2017. Accordingly, the committee encourages the program to formalize and implement a plan for recruiting and retaining a diverse student population, either as a component of a broader student recruitment plan (see above) or as a separate document. Through the planning process, faculty and staff can prioritize high-impact strategies that can be sustained given current and anticipated resources available to the program. The committee recommends adopting a broad approach to diversity, to include gender and other identities. The committee recommends including in the plan strategies for maintaining an inclusive environment in the program to promote student retention. Examples of such strategies include considering diversity when selecting speakers to invite to campus or when selecting businesses and industries for students to visit.

Seek diversity when opportunities arise to hire new faculty members. According to the self-study report, 57.9 percent of full-time faculty members in the Department of Health Sciences are women, and 18 percent self-identify with traditionally-underrepresented racial or ethnic groups (as of fall 2017). However, the group of faculty teaching in the B.S. in Safety program appears to be less diverse (e.g., none of the tenure track or non-tenure track faculty members listed in the self-study report are women). While acknowledging that opportunities to hire new faculty members for the B.S. in Safety program are rare given the small size of the faculty, the committee encourages the program to recruit for a diverse applicant pool when those opportunities arise. This committee recommendation applies to hiring of tenure track faculty members and to hiring of adjunct faculty. The committee suggests a broad approach to diversity, to include race/ethnicity and gender but also diversity with respect to other identities, expertise, interests, and perspectives.

Continue efforts to mentor students in conducting research in the field. The committee commends efforts by safety faculty members to involve students in research. Doing so by working with the student section of the American Society of Safety Professionals (see above) provides a unique model for other programs to emulate. The safety program also offers undergraduate research assistantships. The committee encourages faculty members to continue their research mentoring efforts with the caveat that faculty retain sufficient time for their own research, to remain current with the discipline and field and to inform their teaching.

Explore non-traditional program delivery structures. The committee concurs with safety faculty plans to explore non-traditional program structures during the next program review cycle. Alternate ways to structure and deliver the program could help expand learning opportunities for students enrolling in the program and help grow enrollment within targets established by faculty. Some possibilities faculty might explore include establishing double major plans of study with other units at Illinois State and seeking agreements with other universities to facilitate matriculation of B.S. in Safety program graduates into master's-level safety programs. To benefit highly qualified graduates of the program, agreements with master's-level programs might provide for accelerated completion of the graduate program. Safety program faculty might also explore partnerships with universities in other countries. Although each such partnership is unique, faculty might investigate several models for international partnerships arranged by other academic programs at the University in recent years.

Continue to work toward providing state-of-the-art facilities and equipment. The ability of safety program faculty to expose students to tools and equipment that they are likely to encounter in the workplace is critical to student learning and success. The committee recognizes faculty members for their efforts to upgrade facilities and equipment since the last program review. The committee encourages faculty to continue that work in collaboration with the Department of Health Sciences and College of Applied Science and Technology. The committee notes opportunities for external contributions to facilities and equipment through efforts of the Safety Program Advisory Board. The committee also suggests exploring collaborations with other units at the University, academic and non-academic, in sharing facilities and equipment. Such arrangements could help expand research opportunities for students in the safety program through interdisciplinary inquiry with colleagues in other academic programs.

Continue collaborating with Milner Library to provide resources and information fluency instruction in support of the program. The committee recognizes collaborative efforts of Department of Health Sciences and Milner Library faculties to maintain access to research resources that support teaching and learning in the health sciences. The committee recognizes that those efforts include careful monitoring of costs associated with databases and academic journals. Those efforts will likely need to continue during the coming program review cycle. The committee also recognizes that collaborative efforts include helping students develop their information fluency skills. The committee encourages Safety faculty and Milner Library faculty to expand those efforts by collaborating to identify information fluency goals and strategies for the B.S. in Safety program, mapping strategies to the curriculum, providing opportunities for students to develop their information fluency skills at those points in the curriculum, and integrating assessment of student learning with respect to information fluency goals into the assessment plan for the program.

Continue implementing and refining the student learning outcomes assessment plan. The committee encourages faculty to continue its implementation of the student learning outcomes assessment plan for the program during the next program review cycle, to continue to utilize data collected through plan implementation to make program revisions as necessary, and to document how that has been done. The committee encourages faculty to periodically evaluate effectiveness of the plan in assessing student learning to identify any modifications to the plan faculty may deem necessary.