

Student Learning Outcomes
Bachelor of Science, Safety
Department of Health Sciences
College of Applied Science and Technology

Upon successful completion of the program, the graduate of the Bachelor of Science program in Safety will have acquired a foundation in the physical, biological and behavioral sciences, and be able to demonstrate the ability to:

1. Anticipate potential hazards to people, property and the environment.
2. Recognize existing hazards to people, property and the environment.
3. Evaluate potential and existing hazards to people, property and environment with respect to risk and regulatory requirements.
4. Control potential and existing hazards to people, property and the environment to achieve acceptable levels of risk or meet regulatory requirements.
5. Develop loss prevention and control programs, including engineering and behavioral strategies.
6. Evaluate the effectiveness of loss prevention and control programs, including engineering and behavioral strategies.
7. Manage and communicate safety, health and environmental information to stakeholders.
8. Function as a member of the safety professional community, with a commitment to continuing professional growth.
9. Acknowledge the standards of professional conduct that are published by professional safety organizations and/or certification bodies.

Safety Program Assessment Plan

The Department of Health Sciences has implemented a multiple measures assessment procedure that includes evaluation of faculty (by students and professional peers), facilities, curriculum, and advising (See Table I). The methods include class evaluations; surveys of new graduates, 1st- and 5th-year alumni; external accreditation visits; professional practice evaluations; and the IBHE Student Outcomes Initiative. The Safety Program utilizes a multiple-measures approach to program quality management on a course, program, departmental, and university level. The evaluation strategies target five major “customers” of the Safety program: students, graduates, employers, institution and external accreditation agencies. In addition, the University surveys students regarding attainment of program learning outcomes and career success. The survey data has, for example, led to an increase in the ergonomics content of HSC 370 and was also a factor in the decision to change HSC 462 (Ergonomics) to HSC 362 (Ergonomics). In 2002, the program began implementing IBHE Student Outcomes Project.

Table I: Summary of Safety Program Evaluation Activities

Evaluation Programs	Responsible Authority	Evaluators	Evaluation Techniques	Frequency
HSC Dept. Assessment Program	Department Chairperson	Students Graduates Employers	Survey Questionnaires	Annually
Safety Program Advisory Committee (planned)	Safety Program Director	Alumni, Employers and Subject Matter Experts	Open Discussion	Annually
Program Faculty Meetings	Program Faculty	Faculty	Open Discussion	Weekly to bi-weekly
Professional Practice	Professional Practice Coordinator	Professional Practice Supervisors	Performance evaluations	Every Semester
Faculty Evaluations	Department Chairperson	Faculty Peers, Department Chair, Students	Performance evaluations	Every Semester
ABET-ASAC Accreditation (1993 to Sept. 2001)	Accreditation Board for Engineering and Technology, Applied Science Accreditation Commission	Safety Professional Peer Reviewers	Self-study and Site visit	Every 6 years

Data From Assessment Program

Table II: Senior Satisfaction Survey Results for 2000-2001-2002

Educational Preparation	Year 2000-02
	(n=10)
• Satisfied with instruction on writing effectively.	90%
• Satisfied with instruction on speaking effectively.	100%
• Satisfied with instruction on listening effectively.	100%
• Satisfied with instruction on using computer technology.	80%
• Satisfied with instruction on professional behavior.	100%
• Satisfied with instruction on problem solving.	100%
• Satisfied with instruction on teamwork.	100%
• Satisfied with instruction on continuous professional development.	100%
Program Performance	
• Overall experience in Safety Program	100%
• Satisfied with course content	100%
• Satisfied with class size	90%
• Satisfied with computer equipment and facilities	100%
• Satisfied with classrooms	100%
• Satisfied with student club experience	100%
• Satisfied with faculty encouragement to attend professional meetings	90%
• Satisfied with professional practice experience	90%
• Satisfied with faculty interaction.	100%
• Satisfied with student interaction.	100%
• Satisfied with academic advisement.	100%
• Satisfied with laboratory experiences.	80%
• Satisfied with laboratory equipment and facilities.	70%
• Satisfied with field experiences	90%

Alumni Satisfaction

The Health Sciences Department Assessment Program sends a survey to one, three and five-year graduates of the program. The results of this survey for 1999-2000 indicate graduate satisfaction with the program.

Table III: First Year Alumni Satisfaction Survey Results for 1999-2000

Educational Preparation	Year 1999-2000
	(n=21)
• Satisfied with instruction on writing effectively.	95%
• Satisfied with instruction on speaking effectively.	95%
• Satisfied with instruction on listening effectively.	95%
• Satisfied with instruction on using computer technology.	81%
• Satisfied with instruction on professional behavior.	100%
• Satisfied with instruction on problem solving.	100%
• Satisfied with instruction on teamwork.	100%
• Satisfied with instruction on continuous professional development.	100%
Program Performance	
• Satisfied with course content	91%
• Satisfied with class size	100%
• Satisfied with computer equipment and facilities	81%
• Satisfied with classrooms	95%
• Satisfied with student club experience	91%
• Satisfied with professional practice experience	76%
• Satisfied with faculty interaction.	100%
• Satisfied with student interaction.	100%
• Satisfied with academic advisement.	62%
• Satisfied with laboratory experiences.	95%
• Satisfied with laboratory equipment and facilities.	86%
• Satisfied with field experiences	85%

Safety

Program Changes Based on Assessment

Ergonomics

One theme that was revealed by an analysis of the unstructured response portion of the alumni survey was a need for additional education in ergonomics. The Safety faculty have responded by increasing the emphasis on ergonomics. Coverage of ergonomics in HSC 370 Industrial Accident Prevention was increased in 2001 to include the NIOSH Revised Lifting Equation. A new course, HSC 362 Ergonomics was approved and will be offered during Fall 2003 or Spring 2004. Additional background in Ergonomics is included in HSC 248 (Occupational Health), HSC 271 (Safety Technology), HSC 381 (OSHA), HSC 382 (Safety Performance Control), HSC/AGR 383 (Agricultural Accident Prevention), and HSC 359 (Industrial Hygiene).

Terrorism as a Loss Exposure

Terrorism (using biological, chemical, radiological or explosive agents) is an increasing concern for the Safety Professional. With the events of September 11, 2001, disaster preparation and planning has been added to the task list for the safety professional. We have increased coverage of terrorism in HSC 378 Disaster Preparation, HSC 381 Occupational Safety and Health Act (specifically Emergency Action Plans), and HSC/AGR 383 Agricultural Accident Prevention (particularly bioterrorism).

Management and Training Skills

Data from the revalidation study conducted by the BCSP in 1998-2000 reveal that the safety profession has increased its emphasis on management and training skills. Safety graduates are often promoted to supervisory roles within a few years of graduation. Class projects in HSC 248, 271, 370, 382 and 383 include development of training materials. Coverage of program auditing has increased in HSC 370.

Computer and Communications Skills

Data from the HSC Departmental surveys revealed that computer technology, computer based skills, and communications skills were areas that needed improvement. The Safety Program faculty members are making increasing use of a variety of current instructional methodologies and technologies. Faculty members may employ lecture/discussion, demonstrations, case studies, discussion and study groups, role playing, and program learning modules as teaching techniques. All faculty members use PowerPoint presentations to augment lectures. Two of the faculty members store class notes and other handouts on the department's server, so students can have access to the files as needed. One faculty member makes extensive use of WebCT in his course delivery, and began offering Construction Safety (HSC 272) as an on-line course during Spring 2003.

With arrival of a new faculty member with expertise in system safety, the Department Head has authorized purchase of state-of-the-art software for fault tree analysis and preliminary hazard analysis and risk assessment for installation in the student computer laboratories. Computer-based hazard analysis is required as a component of projects in HSC 370, HSC 374, HSC 380, HSC 384, and HSC 385.

Every course requires computer-based written assignments and/or computer-based presentations. One faculty member uses a virtual reality fire investigation as a class project. All 300-level courses require a project that is based on an assessment of an actual worksite.

Professional Practice

The assessment instrument for the professional practice program has been updated. With the budget-related loss of a full-time Professional Practice Coordinator, the responsibility for implementation of this instrument will revert to the faculty.

Academic Advisement

Student and alumni satisfaction surveys indicated that academic advisement was one area that could be improved. The current academic advisor has been very good about working with the faculty to identify at-risk students for special counseling before their grades fall below 2.0 GPA. The current academic advisor also works more closely with program faculty to develop a plan of study tailored to the student's professional goals and interests.