Safety Program
Department of Health Sciences
Assessment Plan and Outcome
August 2005

The Safety Program implemented a multiple measures assessment program in August of 2002. The assessment program consistent of several different qualitative and quantitative assessment approaches that included the following:

- Surveying new graduates and alumni
- Receiving feedback from Professional Practice site supervisors
- Performing a regular analysis of curricular content
- Ongoing course evaluations

Assessment and Action

Graduate and Alumni Surveys

Graduate and alumni surveys are completed on an annual basis. New graduates, one-year alumni and five-year alumni are surveyed. The surveys address every aspect of the Safety Program from the curricular content to organization and structure of the program itself. The results of these surveys have been very positive, with the 80-100% of the recent graduates and alumni expressing satisfaction with the program in all areas except three: advising, information technology and field experiences. The following describes how the Program faculty and the Department are addressing these two areas.

Advising

After a critical review and analysis of the survey results, program faculty believe that this problem area on the survey is a result of our continuing challenge to recruit students who have completed all of the science and math pre-requisite courses early in their academic careers. When the students arrive at the beginning of their junior year, they find that they have a sequence of pre-requisite courses that must be completed prior to taking some of their major courses. Because our departmental academic advisor holds the students to the pre-requisites, some students feel that our advisor is inflexible. The Safety Program is small a program that only offers many of its classes only once a year.

Action:

- During the past two years, the HSC Department has focused its recruiting efforts at the community colleges on attracting students with a strong science and math preparation. The 2006 and 2007 graduate surveys will be reviewed to see if the responses improve.
- 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.

- We will monitor the graduate surveys to gauge the impact of the changes outlined above.

Computer/Information technology

One theme that was noted in the surveys was a lack of satisfaction with the computing resources in the department and lack of experience with software packages. Some students reported problems with printers, while others stated that the computer laboratories were heavily used at times.

Action:

- The Department has engaged an outside vendor to service a card-operated printer in the computer lab. The department has also placed additional computers in the student lounge area. Beginning in Fall 2005, all incoming students are required to purchase a computer. This should reduce the pressure on the Department-operated computing labs.

- The Safety Program faculty members are making increasing use of a variety of current instructional methodologies and technologies, and infrastructure improvements are a part of that effort. The department chair has identified funding to support an upgrade to the teaching technology in FSA 222, the program's primary classroom. When the multi-phase upgrade is complete, each seat in the refurbished room will have internet access and a microphone. This upgrade will provide additional distance learning capability, including two-way video communication. This will allow practicing safety professionals to deliver guest lectures without the need for travel to the ISU campus.

- 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. The course has been a popular elective.

- With the arrival of a new faculty member with expertise in system safety, the Department Head 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. The Safety faculty member has also developed a hazard analysis application in Excel (which is more easily mastered by students than the specialized, commercially-available hazard analysis packages). This Excel application is used in several classes.

Computer-based hazard analysis is required as a component of projects in HSC 272, HSC 362, HSC 370, HSC 378, 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. Most 300-level courses require a project that is based on an assessment of an actual worksite.
- We will monitor the graduate satisfaction survey results to gauge the effectiveness of the above changes.

Field Experiences

Another theme that emerged was an opportunity to review field experience opportunities in the curriculum.

Action

Because the Bloomington/Normal area does not have a large industrial base, it is challenging to schedule field experiences as a part of the coursework. Instead, the program relies upon the following combination of experiences to provide a *real-world* component:

- Class projects to be done at a worksite (HSC 272, HSC 362, HSC 370, HSC 378, HSC 380, HSC 385)
- Invite area safety practitioners to do guest lectures, with audio-visual supporting materials
- Professional Practice experience is required for all Safety majors (duration ranges from 9 to15 weeks, with 35-40 hours per week)

Professional Practice Site Supervisor Evaluations

The Safety program requires completion of a 9 to 15-week period of professional practice under the supervision of an experienced safety professional. At the end of the assignment, the site supervisor completes a detailed evaluation of the student's strengths and weaknesses.

Written and Oral Communication

Review of the Professional Practice Site Supervisor data reveals no common themes that demand changes in the program, though among our weaker students, written communication is noted as needing improvement.

Action:

- 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. Most 300-level courses require a project that is based on an assessment of an actual worksite.

- Safety Program faculty will continue to monitor the site supervisor evaluations to gauge the impact of the action listed above.

Ongoing critical review of curriculum and courses by faculty

No significant program changes are anticipated as a result of the program assessment. However, individual faculty members use the previously described inputs as they plan their courses each semester. The narrative below describes some of the modifications.

Disaster Preparedness and Response
In HSC 378 Disaster Preparation and HSC/AGR 383 Agricultural Safety and Health, the course faculty are incorporating some of the on-line course offerings from the U.S. Federal Emergency Management Agency. In HSC/AGR 383 Agricultural Safety and Health, the instructor is also providing incentives for completing a CPR course.

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 (and continuing to the present), 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), HSC/AGR 383 Agricultural Safety and Health (particularly bioterrorism), and HSC 385 System Safety (specifically vulnerability analysis).

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 members have responded by increasing the emphasis on ergonomics. Coverage of ergonomics in HSC 385 (System Safety) was increased in 2004-2005, as a consideration for task-based hazard analysis. A new course, HSC 362 (Ergonomics) was approved and has been offered each Spring semester, starting with Spring 2004, with strong enrollment. Additional background in Ergonomics is included in HSC 248 (Occupational Health), HSC 271 (Safety Technology), HSC 381 (Occupational Safety and Health Act), HSC 382 (Improving Safety Performance), HSC/AGR 383 (Agricultural Safety and Health), and HSC 359 (Industrial Hygiene).

Management and Training Skills
Data from revalidation studies conducted by the professional credentialing bodies (BCSP and ABIH) reveal that the safety and health 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. Most 300-level safety courses require in-class presentations, and HSC 382 requires development/delivery of a training module.

Best Practices

All courses emphasize the importance of incorporating best practices in all of our applications to program elements for workplace safety. It is important for the students to understand that the OSHA standards are the minimal requirements for a strong and effective health and safety program.

Hazardous Materials Regulation and Management

The instructor has adopted a new book, *Environmental Law and Policy,* by Stephen R. Chapman, this semester. Chapman's work is much easier to follow and provides a framework for introducing the historical perspective on the statutes that impact environmental regulations and those specific to the management of hazardous materials. The course will also increase coverage of the historical forces- including population growth and increasing demand on environmental resources- as will as changes in public policy from initial giveaways to Federal retention and management of increasing scarce land resources that have increasingly affected our environmental statutes.