IUP Graduate Handbook

Master of Science in Safety Sciences

Department of Safety Sciences

Handbook Updated 2023-2024

Master of Science in Safety Sciences

Department of Safety Sciences
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Program Website: https://www.iup.edu/academics/find-your-degree/programs/safe/gr/safety-sciences-ms.html

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Introduction

Welcome!

It is our honor to welcome you to the M.S. in Safety Sciences program at IUP. This handbook has three objectives. The first is to act as a supplement to the official IUP Graduate Catalog. This handbook is intended to augment the university-wide policies and School of Graduate Studies and Research (SGSR) policies. Most importantly, the handbook provides additional clarification of university policies and SGSR regulations that are of particular concern to master's degree students in Safety Sciences.

The second objective of the handbook is to provide a detailed description and explanation of the master's degree experience specific to the discipline of Safety Sciences.

Finally, the handbook makes available, early on, suggestions regarding the process of being, and demands upon, a student in a master's degree program. The intent is to help guide the student toward achieving an M.S. in Safety Sciences in the most expedient and personally satisfying way possible.

IUP's Civility Statement

As a university of different peoples and perspectives, IUP aspires to promote the growth of all people in their academic, professional, social, and personal lives. Students, faculty, and staff join together to create a community where people exchange ideas, listen to one another with consideration and respect, and are committed to fostering civility through university structures, policies, and procedures. We, as members of the university, strive to achieve the following individual commitments:

To strengthen the university for academic success, I will act honestly, take responsibility for my behavior and continuous learning, and respect the freedom of others to express their views.

To foster an environment for personal growth, I will honor and take care of my body, mind, and character. I will be helpful to others and respect their rights. I will discourage intolerance, hatred, and injustice, and promote constructive resolution of conflict.

To contribute to the future, I will strive for the betterment of the community, myself, my university, the nation, and the world.

Affirmative Action

https://catalog.iup.edu/content.php?catoid=7&navoid=951

Title IX Reporting Requirement

https://catalog.iup.edu/content.php?catoid=7&navoid=959

Student Conduct and Student Rights

https://www.iup.edu/studentsupportandstandards/policies/index.html
www.iup.edu/gradcatalog

Department of Safety Sciences

The Department of Safety Sciences was established in 1971 to conduct professional programs in safety management. The program evolved into Safety Sciences in the 1980s, and the Master of Safety Sciences degree was added in 1983.

Mission Statement and Program Objectives

The Department of Safety Sciences was established in 1971 to conduct professional programs in safety management. The program evolved into Safety Sciences in the 1980s, and the Master of Safety Sciences degree was added in 1983.

As an institution of higher learning, Indiana University of Pennsylvania (IUP) is committed to the preservation, expansion, and transmission of knowledge in all its forms. As a university within the Pennsylvania State System of Higher Education, IUP has primary responsibilities of providing high quality education at a reasonable cost and assessing and responding to the higher educational needs of the commonwealth; as a university, IUP has the responsibility of being concerned with the needs of the nation as a whole and those of the international community at large so far as its resources allow.

At the graduate level, IUP is committed to encouraging intellectual excellence, research, and scholarship, to provide in–depth study in each student's special field; and to stimulate continued cultural and intellectual growth for faculty and students.

After completing the MS program in Safety Sciences, students will have:

1. Expanded their technical and managerial knowledge and skills of the safety, health, and environmental field.
2. Acquired advanced research and communication skills.
3. Enhanced their leadership skills.
4. Developed an understanding of their professional and ethical responsibilities within the safety, health, and environmental field.

Faculty and Staff

Faculty Member	Office	Phone Number	E-mail Address
Dr. Laura Rhodes	138 Johnson Hall	724-357-2357	lhrhodes@iup.edu
Dr. Tracey Cekada	125 Johnson Hall	724-357-3272	cekadat@iup.edu
Dr. Jan Wachter	137 Johnson Hall	724-357-3275	Jan.wachter@iup.edu
Dr. Wanda Minnick	126 Johnson Hall	724-357-3276	minnickw@iup.edu
Dr. Majed Zreiqat	121 Johnson Hall	724-357-4455	zreiqat@iup.edu
Dr. Luz Marin	123 Johnson Hall	724-357-3270	Luz.marin@iup.edu
Dr. Bryan Seal	125 Johnson Hall	724-357-3272	Bryan.Seal@iup.edu

Admission

Admission into the M.S. in Safety Sciences degree program follows the School of Graduate Studies and Research admission requirements available at the link below. Due to the online format, international students admitted to this program are not eligible for a student visa. International students must meet all requirements for international graduate students.

In addition to meeting the requirements for admission to the School of Graduate Studies, a student intending to work toward a Master of Science in Safety Sciences will be required to have the following prerequisite professional preparation:

> Entry-level competency in safety management, occupational safety, industrial hygiene, occupational health, and fire protection through relevant education, documented work experience, certifications, or other means acceptable to the Safety Sciences Graduate Committee.

When the Safety Sciences Graduate Committee determines that a deficiency in work experience or relevant education exists, a student will be required to complete additional studies to eliminate the deficiency.

Deficiency Courses: During the application process, prospective students' prior coursework, professional work experience, and certifications are examined. If it is determined an applicant has deficiencies, they will be notified by the Graduate Coordinator prior to beginning the program. Students have different options for clearing the deficiencies. The deficiency clearing procedures appear in Appendix A

Graduate Admissions: www.iup.edu/admissions/graduate/

For more information regarding Admission Classification and Provisional Admission for International Graduate Application, view the Graduate Catalog: www.iup.edu/gradcatalog

Financial Assistance

Graduate Assistantships

Each year, the Department of Safety Sciences is allocated funds that can be used to award a limited number of Graduate Assistantships. However, Graduate Assistants are only recruited if faculty determine a need within the department. Graduate Assistants hired with funds allocated to the MS in Safety Sciences program are primarily on-campus positions, as the need for on-line graduate assistants is rare. Assistantship awards are based upon academic achievement, academic honors, and prior experience that would be beneficial to complete work required by faculty members. To be considered for a graduate assistantship, the following requirements must be met:

1. Admission to the School of Graduate Studies and Research following the procedures outlined in the Catalog,
2. Submission of a GA application to the Department of Safety Sciences will be required. When new Graduate Assistantships are available, the Safety Sciences Graduate Coordinator uses email

to inform current students and reaches prospective MS in Safety Sciences students by using the information available on CRM irecruit.

Purpose of the Graduate Assistantship Program

The purpose of the graduate assistantship program is to provide mutual professional development opportunities for the graduate student and the faculty mentor. The graduate assistant program is one important way in which the School of Graduate Studies and Research supports research and scholarship at IUP.

Eligibility for Graduate Assistantships

1. Admission and acceptance into the program is required. It is not possible to award an assistantship until the applicant has been officially admitted to an academic program. All GAs must have completed the School of Graduate Studies and Research admission process.
2. Social Security Card is required. All graduate assistants (GAs) must obtain a Social Security card in order to be employed at the university.
3. Commitment to a binding contract is required. Anyone seeking a GA position must view the contract as a binding commitment, sign the contract, return it to the School of Graduate Studies and Research (at the very latest) by the deadline indicated in the letter of agreement, and comply with all of the terms set forth in the contract. Resignation from an awarded GA position has very serious consequences for the Department: if a person resigns after accepting an appointment as a GA, that faculty mentor is deprived of the support of a GA. All GAs is assigned to a faculty mentor(s) who is engaged in scholarly activities and all GAs are given a job description.
4. Attend the orientation session and be available to work. GAs must be available to begin their assistantship duties by the date specified in their letter of agreement. GAs will be contacted via letter and/or e-mail about an orientation session for the Fall semester.
5. Understand the terms of the agreement. All GAs bear responsibility for reading the correspondence that they receive, checking the specifics of their contracts, and complying with the terms of their agreements.
6. Duration of support. GAs who seek to continue for another semester must be in good academic standing and must reapply.

Role of the Graduate Assistant: duties for graduate assistants may include:

1. conducting library research and compiling a literature review
2. collecting, coding, and analyzing research data
3. supporting innovative projects in the Department of Safety Sciences
4. providing support to a faculty member's teaching

The following activities are *not* appropriate for a graduate assistant:

1. performing contractual duties of the faculty mentor (e.g., teaching classes without the faculty mentor present, covering office hours, advising students)
2. assisting the faculty mentor with personal tasks
3. engaging in instructor of record activities (e.g., assigning grades)

According to the policies of The School of Graduate Studies and Research, graduate assistants are not clerical workers; their role and function is to support scholarship and research.

Work Duties, Hours, and Terms of Employment
Graduate assistantships, when available, are for students enrolled part-time and full-time. Graduate assistants may be offered a position at 10 hours, or 20 hours per week during the academic term and may be awarded for one term (fall or spring) or for two terms (fall and spring). All graduate assistants receive a stipend and tuition dollars. Stipends for assistantships may change from year to year. Applicants should check with the Graduate Program Coordinator for current stipend levels.

Graduate Assistant Conduct
At the beginning of each semester, GAs will be assigned to a faculty member or a pair of faculty members. GAs will develop work schedules with their faculty member(s) and are expected to be at work during their scheduled times.

GAs are expected to act in a professional manner.

All GAs will have access to a computer through a desktop computer, a laptop, use of the computer lab in the study area, etc. GAs should print documents from the computers in the computer lab, in the study area, or from a flash drive and have your faculty supervisor print it.

GAs should not be in the front main office area (area behind the counter, student file cabinet areas, copier, etc) unless asked to do something by your faculty supervisor that requires you to be in that area.

The computer and desk in the main office area are for the office student workers only. They should not be used by GAs.

The copier should only be used to copy materials requested by faculty. The office copier should not be used to copy homework, other students' papers, and personal documents.

GAs who are not adequately performing their assignments and tasks as part of their assistantship or violating the University's code of conduct will be dismissed from their assistantship which would result in loss of tuition waivers and stipends.

Links to additional resources are provided here:

- www.iup.edu/admissions/graduate/financialaid/assistantships-and-scholarships/
- Office of Financial Aid: www.iup.edu/financialaid/

Academic Advisement

Students are assigned an academic advisor within the Department of Safety Sciences at the time of admission. The advisor will help students plan their course schedule, select electives, approve transfer credits, and provide guidance with program requests. The Graduate Program Coordinator is an additional resource for discussion of University and Departmental policies and program requirements. The student maintains the responsibility for fulfilling program requirements and meeting deadlines. Students are referred to the Graduate School catalog for additional policy information.

Course Registration – Students will use 'My IUP' for scheduling classes and accessing grades. 'My IUP' can be accessed from the University webpage. Your banner identification number is assigned to you upon acceptance to the university and is used when scheduling courses.

Registration for all classes is the responsibility of the student. You must complete the registration process before the start of IUP's semester to avoid paying a late fee. View the IUP Academic Calendar for important dates: www.iup.edu/news-events/calendar/academic/

Your Advisor will send your four-digit Alternate PIN to your IUP email address prior to each registration period.

Campus Resources & Student Support

The School of Graduate Studies and Research: www.iup.edu/graduatestudies/
Graduate Catalog: www.iup.edu/gradcatalog
Office of Student Billing: https://www.iup.edu/student-billing/
Office of the Registrar: www.iup.edu/registrar/
Disability Support Services: www.iup.edu/disabilitysupport/
Office of Social Equity: www.iup.edu/socialequity/
IUP Campus Library: www.iup.edu/library/
MyIUP: www.iup.edu/myiup/
IT Support Center: www.iup.edu/itsupportcenter/
Veterans and Service Members: www.iup.edu/veterans/resource-center/
IUP Writing Center: www.iup.edu/writingcenter/
IUP Career and Professional Development Center: www.iup.edu/career/
IUP Parking Services and Visitor Center: www.iup.edu/parking/
University Policy: www.iup.edu/police/ |724-357-2141
Crisis Intervention 24/7 Hotline: 1-877-333-2470
Student Registration: www.iup.edu/registrar/students/registration-resources/index.html

IUP Email

IUP offers an email account to all active students. **Your IUP email address is the primary means by with the university will contact you with official information and you should use for all IUP official communications. It is your responsibility to check your IUP email regularly.** Visit https://www.iup.edu/itsupportcenter/get-support/e-mail-and-calendar/general/ to learn more about setting up this account. For more information regarding University Policy on email communications, view the Graduate Catalog: www.iup.edu/gradcatalog

Graduate Student Assembly

The Graduate Student Assembly (GSA) represents the graduate student body's interests at IUP and within the Indiana community. The GSA makes recommendations related University-wide and graduate-specific policies and in areas of concern in the cultural, intellectual, and social life of the part- and full-time graduate student. Visit www.iup.edu/graduatestudies/gsa for more information.

Programs and Degrees

Master's Program

The Department of Safety Sciences offers a 36-credit online education program leading to a Master of Science degree in Safety Sciences. The total time needed to complete the degree is approximately two years. Each course requires attendance in a weekly and synchronous on-line session. Students with identified deficiency areas in their undergraduate preparation will be required to take additional coursework as part of their program of study. Students can be admitted to this program in any semester.

Course Descriptions

The M.S. in Safety Sciences consists of the courses listed below. Detailed course descriptions are located in Appendix B. The current catalog is the official listing of courses and program requirements. In the event there are differences between what is listed here, the Graduate Catalog information supersedes.

Core Courses (24 credits)
SAFE 602 Research Methods in Management
SAFE 791 Capstone Project in Safety Sciences
SAFE 605 Application of Engineering Principles
SAFE 610 Safety Health and Environmental Administration
SAFE 644 Preventing Unsafe Acts
SAFE 647 Applied Ergonomics
SAFE 660 Applied Industrial Hygiene
SAFE 701 Environmental Impact Analysis and Documentation
SAFE 774 Fire Safety in Building Design

Advisor-Approved Controlled Electives (12 credits)
Four elective courses are required. Electives are offered on a rotating basis. Examples of elective courses include:

SAFE 541 Accident Investigation
SAFE 542 Current Issues in Safety
SAFE 543 Construction Safety
SAFE 562 Radiological Health
SAFE 603 Human Relations in Safety Management

SAFE 623 Advanced Safety Administration SAFE 630 Pollution Control
SAFE 773 Disaster Preparedness
SAFE 795 Thesis Supervision (6 credit hours)

Electives (a maximum of 2) outside of the department may be taken with prior approval from the Graduate Program coordinator.

The course descriptions can be found in Appendix B of this handbook.

Thesis Option
Students planning to pursue an advanced degree beyond the Master's degree should seriously consider taking the thesis route. Students can use 6 hours of thesis supervision towards their electives in the program. The procedures, registration policies and various deadlines for pursuing a thesis can be found on the Graduate School website.

The decision to write a thesis should be made early in a student's program of study. Master's degree students in Safety Sciences are required to formally defend their theses.

Degree Requirements
Residency Requirements: Master's degree candidates have no formal residency requirements, but all credits applied toward the degree (except a possible transfer of credits as defined in the section titled "Transfer Credits") must be taken through IUP.

Transfer Credits: A student may transfer graduate credits from another institution, with Department approval, up to one-third (1/3) of the required credits for the graduate student's program at IUP.

To request transfer credits, the student must complete the Request for Graduate Transfer Credit Review Form and follow the instructions listed on the form. A catalog course description or course syllabus must accompany the request. An official graduate transcript showing the earned credits must be provided by the school at which the credits were taken. To be considered official, the transcript must arrive in a sealed envelope bearing the official seal of the issuing institution. The request is reviewed in the School of Graduate Studies and Research and the academic department. After review, the student's department and the student are notified of the transfer decision. The transfer credit policy is located on the graduate school website.

It is strongly recommended that students seeking to transfer credits from another institution while enrolled at IUP receive advance written authorization for credit acceptance from the School of Graduate Studies and Research and the academic department prior to enrolling in that course.

If credits earned at another institution are approved for transfer, only the credit, not the grade or accompanying quality points, will appear on the student's IUP transcript.

Credits earned at IUP that are approved for transfer to a second program will not be posted to the transcript a second time.

Final Credits Policy: All degree candidates must complete their program's final six credits of graduate work in courses offered by IUP.

Under unique circumstances, appropriate substitutions may be authorized by petitioning the dean of the School of Graduate Studies and Research after obtaining departmental approval.

Evaluation of Students

For information regarding School of Graduate Studies and Research policies on grading, view the Graduate Catalog: www.iup.edu/gradcatalog

Comprehensive/Candidacy Examinations

This examination is given, usually upon the candidate's completion of coursework, to determine the student's progress in the degree field and fields related to it and the student's likelihood of success in his/her research-dissertation phase. The examination may be written, oral, or both and is not necessarily limited to areas in which the candidate has taken course work. In addition to having written procedures for taking the comprehensive exam, departments must also have written procedures regarding providing feedback for comprehensive exams.

Program Level Examination Appeals

Appeals for Program Level Exams such as, candidacy, comprehensive, or qualifying examinations, are made to the dean of the School of Graduate Studies and Research (SGSR) based on policy and/or procedural violations. The appeal can be based only on policy and/or procedural violations, and not simply on the outcome of the examination. Procedural violations would be cases in which the program/department failed to follow program/department and/or University policies and/or procedures relating to the administration and/or evaluation of the exam.

The appeal must be made in writing to the dean of the School of Graduate Studies and Research. Documentation of the policy(ies)/procedures in question must be provided, along with a detailed description of the alleged violation(s). All evidence supporting the alleged violation should also be provided. The student must submit the written appeal to the dean of the SGSR within 30 days of receipt of the outcome of the examination. Upon receipt of the written appeal to the dean of the SGSR, the dean will conduct an investigation of the allegation, review the documentation and render a final decision which completes the appeal process. The final decision rendered by the dean of the SGSR may not be appealed.

If it is found that policy/and/or procedure has been violated, the dean of the SGSR will instruct the program/department to allow the student to retake the exam, fully adhering to policy and procedures. In the event of a finding in support of the student allegation, the reexamination may not be counted as one of the attempts permitted under the University or Department's Reexamination Policy.

Reexamination Policy

No student is permitted a "third" examination without a recommendation to that effect from the degree program's sponsoring department per their adopted written procedures and the approval of the School of Graduate Studies and Research dean (or designee). Exceptions to this policy for programs can be made only with the approval of the School of Graduate Studies and Research. In the event a student does not successfully complete the comprehensive re-examination according to program requirements and the failure results in program dismissal, the program must notify the School of Graduate Studies and Research (SGSR) of the dismissal in writing. The SGSR will send an official notification of the dismissal to the student.

Degree Completion

It is imperative to apply for graduation by the deadlines listed at the following site: How to Apply for Graduation - Undergraduate Commencement - Commencement - IUP or the IUP webpage. In addition, it is also important to read through and understand commencement participation requirements.

Thesis Completion

Students have the option to pursue a Thesis in place of two SAFE elective courses. Students that pursue a thesis will be required to adhere to the strict guidelines outlined in the IUP thesis-dissertation manual located at: http://www.iup.edu/graduatestudies/resources-for-current-students/research/thesis-dissertation-manual/

At a minimum, students are required to complete CITI ethics in research training, identify a thesis committee, complete a Research Topic Approval form (RTAF), successfully conduct a proposal thesis defense, and obtain a formal IRB approval letter prior to beginning research. The CITI training can be accessed at http://www.iup.edu/irb/irb-training/

Evaluation Outcome for Thesis

Thesis Defense Department Protocol

The thesis *proposal* defense shall be attended by all committee members. The proposal defense will be an oral presentation and closed to the Safety Sciences department. Students will be notified of the outcome of the proposal defense at conclusion of the defense and after a brief meeting among committee members. The potential outcomes are pass or revise and resubmit.

The *final* thesis defense will be conducted once research is complete, and a final version of the thesis is submitted to the thesis committee. The defense shall be attended by all committee members. The defense will be an oral presentation and closed to the Safety Sciences department. Students will be

notified of the outcome of the defense at conclusion of the defense and after a brief meeting among committee members. The potential outcomes are pass, fail, or revise and resubmit.

For students admitted after Fall 2017 – Dissertation and thesis credits will be assigned Pass or Fail as the final evaluation outcome for the taken credits and carry no quality points weighted towards a student's CGPA.

For students admitted prior to Fall 2017 – Dissertation and thesis credits will be assigned a letter grade as the final evaluation outcome for the credits taken and carry quality points weighted towards a student's CGPA for the number of dissertation credits required for the program. "Extended" dissertation credits are not calculated into a student's CGPA.

For more information, view the Graduate Catalog: www.iup.edu/gradcatalog

University Policies and Procedures

University policy is the baseline policy. Programs may have policy that is more stringent than the University baseline policy; however, not less stringent than the University baseline policy. For questions regarding this statement, please contact [Program Coordinator] or the School of Graduate Studies and Research.

Academic Calendar
View the IUP Academic Calendar: www.iup.edu/news-events/calendar/academic/

The Following University and SGSR policies can be found at www.iup.edu/gradcatalog
Academic Good Standing
Academic Integrity
Bereavement-Related Class Absences
Continuous Graduate Registration for Dissertation and Thesis
Grade Appeal Policy
Graduate Fresh Start Policy
Graduate Residency Requirement
Leave of Absence Policy
Time Limitations
Time-to-Degree Masters/Doctoral Dismissal Appeal Policy
Time-to-Degree Extensions for Master's Thesis and Doctoral Dissertation
Transfer of Credits Policy

Research

Online Course Technical Support

The Master of Science in Safety Sciences program delivers all of the courses online. Technical support for online courses and computer requirements are provided through the University IT Support Center. Prior to the start of an online course, the professor will send students a letter with the course requirements

and textbook information. When a student registers for an online course, they will be provided with a course day and time. This is the day and time of the lecture/chat session in which all students in the course and the professor log into and is conducted synchronously. Attendance in the synchronous portion of the class is mandatory and part of the course grade.

Resources

Stapleton Library
The Stapleton Library contains hundreds of books, electronic resources, safety journals and other related course materials. As an IUP student, you can order books from other libraries, access course materials for your class on E-reserve and search electronic databases. For more information on these resources, visit the library on-line at www.iup.edu/library

University Computer Facilities
The Applied Research Lab (ARL) is open to students and can provide assistance with research instrument design and statistical analyses of many kinds. The ARL is an excellent resource to support graduate student research activities. The ARL is located in 107B Stright Hall. Additional information about the services of the ARL can be found at www.iup.edu/arl.

Jones White Writing Center
The writing center has trained tutors (graduate and undergraduate) that are able to assist students on any piece of writing and at any stage of writing. Writing graduate students frequently seek tutoring for includes course papers, personal writing, and thesis or dissertation writing. The writing center can work with you to generate ideas, refine arguments, integrate sources, or help you learn to self-edit your work. More information can be found at Graduate Writer Services - Writing and Editing Services - Writing Center - IUP

Career Development Center
The Career Development Center, 302 Pratt Hall, is open to all IUP graduate students and alumni. Resources are available to assist students with their personal career plans, including resume-writing, interviewing skills, and job-hunting techniques. Individual appointments with career counselors are recommended. For additional information, access their webpage here:
https://www.iup.edu/career/index.html

Services for Students with Disabilities
Disability Support Services (a unit of the Advising and Testing Center) is the primary agent for the provision of access for IUP students with documented physical, learning, or other disabilities. Students with disabilities are urged to register with the office. Services provided include, but are not limited to: early registration, equipment, loan, test proctoring and reading, note taking, recording of books, NCR paper, liaison with faculty, OVR and BVS, and general advising and counseling.

Other Resources
Additional information on research resources is provided at:
www.iup.edu/gradcatalog
www.iup.edu/research/

Appendices

Appendix A: Deficiency Clearance Procedures

This document lists the possible deficiency areas graduate students may have upon entering the Master of Science in Safety Sciences degree program and methods to clear them. Graduate students should refer to their correspondence from the Department identifying their specific deficiency areas. The method selected to clear a deficiency must be approved by the Graduate Program coordinator.

Math and Science:
Students must be able to demonstrate competency in math, chemistry, and physics. This can be addressed through successful completion of the following:

College Algebra (MATH 105). This must be completed prior to taking SAFE 605 and SAFE 660. Equivalent college course may be used with a C or better.

Chemistry (CHEM 101). This must be completed before SAFE 660. Equivalent college course may be used with a C or better.

Physics (PHYS 111/121). This must be completed before SAFE 605. Equivalent college course may be used with a C or better, or equivalent.

or

A portfolio of extensive professional work where the candidate can demonstrate knowledge and application of techniques used in math, chemistry, and physics. Successful completion of professional training and seminars covering topic areas dealing with the techniques used in math, chemistry, and physics. Certification as a Certified Safety Professional.

General Industry or Construction:
This deficiency may be addressed though any one of the following:

Successful completion of Principles of Industrial Safety I (SAFE 111) or Principles of Industrial Safety II (SAFE 211) with a C or better or equivalent, a portfolio of extensive *professional work* where the candidate can demonstrate knowledge and application of techniques used in the recognition, evaluation, and control of common hazards in general industry or construction, successful completion of *professional training and seminars* covering topic areas dealing with the techniques used in the recognition, evaluation, and control of common hazards in general industry or construction. Professional training could include an OSHA 30-hour card in General Industry or Construction.

Appendix B: Graduate Course Descriptions

SAFE 520/* Law and Ethics in the Safety Profession 3 cr.

Examines ethical and legal issues faced by practicing safety professionals. Students identify and evaluate these issues in terms of their own value system, as well as legal and prudent practice within the safety, health, and environmental profession. Case studies and anecdotal presentations are used to examine common issues and to prepare the students for their potential roles as expert witnesses in various forms of litigation. Specific reference is made to participation of the safety professional in workers' compensation cases, Occupational Safety and Health Review Commission hearings, class action suits, and trials by jury. Prerequisite: Permission of the instructor.

SAFE 541/* Accident Investigation 3 cr.

Focuses on the various aspects of accident investigation such as recent theories associated with accident causes, investigative techniques, data acquisition, structure of investigative reports, management responsibilities, and remedial actions. Emphasizes determining sequence of events to develop management actions which will prevent recurrence of accidents. Prerequisite: Permission of instructor.

SAFE 542/* Current Issues in Safety 3 cr.

Examines the emerging issues currently faced by the safety, health, and environmental (SH&E) practitioner that extend beyond the conventional areas of academic preparation. In addition to exploring certification, ethics, compliance issues, quality management, worldwide concerns, and other common issues, each student will research and present information on a specific item of current relevance in the safety profession. Prerequisites: SAFE 211 and SAFE 301 or permission of the instructor.

SAFE 543/* Construction Safety 3 cr.

In-depth coverage of hazard recognition, evaluation, and control principles used for the variety of phases of construction. Information regarding the development of a construction safety program along with extensive coverage of federal standards related to the construction industry is also provided.

SAFE 561/* Air Pollution 3 cr.

Focuses on the various major aspects of the air pollution problem. These include sources of pollution, evaluation and engineering control of pollutants, government regulations, atmospheric chemistry and dispersion, and human and nonhuman effects. Emphasizes information that is practical for the safety sciences and industrial health professionals. Prerequisites: CHEM 101 and 102 or equivalent and SAFE 301 or equivalent courses or permission of the instructor.

SAFE 562/* Radiological Health 3 cr.

Studies of problems associated with ionizing radiation in the human environment. Emphasizes biological effects, radiation measurement, dose computational techniques, exposure control, and local and federal regulations. The study and use of various radiological instruments are

included. Prerequisite: SAFE major or permission of instructor.

SAFE 565/* Right-to-Know Legislation 3 cr.
Covers both the federal and selected state right-to-know laws and related legislation. The scope, application, and enforcement of the various laws, including specific legal and moral obligations, are discussed. Strategies are explored and developed to identify the means by which employers can gain compliance with regulatory requirements. Prerequisites: SAFE 301 and SAFE 311 or permission of the instructor.

SAFE 581 Special Topics 3 cr.
A dual-level elective offering in which the specific topic may vary from one term to the next. Prerequisite: Permission of the instructor.

SAFE 602 Research Methods in Safety Management 2 cr.
Prepares individuals for the conduct of research in safety and its numerous subspecialties. Research paradigms, experimental design, data sources and collection, and statistical methods are covered in detail. The emphasis throughout is on quantitative approaches likely to produce valid new knowledge in the discipline of safety management. Co-requisite: Concurrent enrollment in SAFE 791.

SAFE 603 Human Relations in Safety Management 3 cr.
Integrates various behavioral science theories into the practice of safety management. Areas covered are motivation, communications, managerial interactions, and controlling worker behavior as it relates to accident causation. Prerequisite: SAFE major or permission of instructor.

SAFE 604 Industrial Toxicology 3 cr.
Principles and techniques for evaluating toxicological properties of chemical substances are studied with particular emphasis on extrapolation of information to determine permissible exposure limits in the workplace. Acquaints students with requirements for operating an animal toxicology facility as well as means of obtaining relevant human experience data. Prerequisites: CHEM 101, CHEM 102, MATH 217, or permission of instructor.

SAFE 605 Application of Safety Engineering Principles 3 cr.
Prepares the student with a fundamental understanding of those hazards which can contribute to accidental injury and damage. These hazards are studied in an engineering context; their physical and chemical characteristics are studied in depth in order to make the appropriate hazard control measures better understood. Prerequisite: SAFE major or permission of instructor.

SAFE 606 Hazardous Materials Management 3 cr.
Examines the technical and management aspects of handling hazardous materials, including hazardous waste. Definitions and the procedures for determining hazard properties are reviewed. The student is introduced to the various regulations that pertain to hazardous materials. Responsibilities for creating/receiving, storing, handling/using, shipping, and

ultimately disposing of hazardous materials are discussed in detail. Examination of current trends and future directions is included. Prerequisites: SAFE 311, CHEM 101, and CHEM 102 or permission of the instructor.

SAFE 610 Safety, Health, and Environmental Administration 3 cr.
Examines administrative concepts and principles regarding organizing and managing the functional areas of safety, health, and the environment within an organization. Students are introduced to management practices unique to SH&E programs as well as concepts related to organizational culture, labor relations, professional ethics, workers' compensation, and medical management.

SAFE 620 Safety Data Management 3 cr.
Covered are design of loss incident source documents and code dictionaries; procedures to collect accident cost and cause data; accident cause analysis; and data for management accountability and decision making. Prerequisite: SAFE 412 or permission of instructor.

SAFE 621 Programming Safe Behavior 3 cr.
Students learn to apply behavior principles to motivate safe behavior (SB) in the workplace. Included are Programming Safe Behavior, SB program funding proposals, employee performance analysis, safe behavior definitions, workplace motivations and incentives, and SB program design, implementation, and evaluation. Prerequisite: Permission of the instructor.

SAFE 623 Advanced Safety Administration 3 cr.
Analyzes the management structure for its procedures, organizations, policies, and departmental competencies as they relate to safety. Ways to audit and improve management's safety effectiveness are covered. Prerequisite: SAFE major or permission of instructor.

SAFE 624 Solving Safety Problems 3 cr.
Students are presented with common scenarios that safety professionals face while trying to advise management on ways to prevent accidents. Students use problem-solving skills and safety knowledge to deal effectively with and resolve safety management problems such as being assigned a safety responsibility that is clearly another manager's responsibility and having objections raised about one's proposed project plans. Prerequisite: SAFE 603 or permission of the instructor.

SAFE 625 Risk Strategies for the SH&E Professional 3 cr.
Provides the student with a thorough understanding of the fundamentals of risk management, including leading-edge risk identification, control, finance, and transfer recommendations. Addresses workers' compensation, product risk management, construction risk management and wrap-up programs, catastrophic risk management, quantitative methods, risk finance, and risk management technology.

SAFE 630 Pollution Control 3 cr.

Introduces students to both management and engineering strategies in the prevention and control of pollution to the environment from industrial activities. Includes a brief history of pollution, legal aspects of prevention and control, the management of major types of industrial wastes, and the control of releases into both water and air.

SAFE 644 Preventing Unsafe Acts 3 cr.

Accident cause analysis narrowed to behavior analysis to determine motivation problems and behavior skill deficiencies with appropriate intervention techniques are covered. Cost/benefit analysis of accident costs versus training program benefits and OSHA training requirements are presented. Proposals for funding of training programs as well as writing behavioral objectives are covered. Course descriptions and course, unit, and lesson outlines as well as lesson plan development are presented. Lesson plan presentations and evaluation techniques are included.

SAFE 645 Principles of Occupational Safety 3 cr.

Provides the student with fundamental knowledge of the technical and managerial aspects of the safety and health function within an organization. The effects of loss incidents, accident causation, safety and health legislation, and safety program development are among the managerial aspects covered. The technical aspects of the course focus on the recognition, evaluation, and control of common safety, fire, and repetitive motion hazards in the workplace. Does not count toward degree requirements for the M.S. Degree in Safety Sciences.

SAFE 647 Applied Ergonomics 3 cr.

Ergonomic principles used in the identification, analysis, and implementation of intervention strategies to address hazards in the workplace are presented. Focus is on the application of strategies to identify and correct ergonomic problems in the workplace using evaluation equipment and video case studies of actual workplace situations. Prerequisite: SAFE major or permission of the instructor.

SAFE 660 Applied Industrial Hygiene 3 cr.

Examines the current expectations and responsibilities of professionals engaged in the practice of industrial hygiene. Students become familiar with 1) the current approaches to anticipating and identifying potential health hazards in the workplace and/or environment; 2) methods and techniques for determining quantitatively the amount of environmental stresses present; and 3) proper strategies and methods for implementing effective controls. Prerequisite: SAFE major or permission of the instructor.

SAFE 663 Industrial Hygiene Laboratory Methods 3 cr.

Laboratory methods germane to industrial hygiene sampling and analytical methods are studied in-depth. Introduces a variety of laboratory procedures as well as biological monitoring. Sampling and analytical statistics are also emphasized. Prerequisites: SAFE 302 and SAFE 303 or permission of instructor.

SAFE 664 Industrial Noise Control 3 cr.

Provides an understanding of the physics of sound, functioning of the human hearing

mechanism, instrumentation for measuring sound levels, and application of control strategies. Emphasis is placed on engineering controls, although administrative controls and use of personal protective equipment are discussed as well. Components of an overall continuing, effective hearing conservation program are reviewed in detail.

SAFE 667 Principles of Occupational Health 3 cr.

Provides comprehensive coverage of the industrial hygienist's responsibility for recognition, evaluation, and control of environmental stressors arising in or from the workplace. Students learn how to recognize and evaluate exposures to chemical, physical, and biological hazards. Emphasis is also placed on the identification of appropriate control strategies, including program development and evaluation. This course will not count toward meeting the degree requirements for the M.S. Degree in Safety Sciences.

SAFE 672 Process Safety in the Chemical Industries 3 cr.

Designed to cover all important aspects of loss prevention as it is practiced in the chemical process industries. Seeks to prepare the safety professional so that he/she may be able to work more effectively with chemists and chemical engineers in joint hazard identification, evaluation, and control projects. Prerequisite: SAFE 311 or equivalent or permission of Instructor.

SAFE 701 Environmental Impact Analysis and Documentation 3cr.

Using an environmental impact statement as a model, this course is designed to provide the student with various regulatory, scientific, mathematical, and risk-based approaches and tools to conduct environmental impact assessments for industrial technologies by analyzing affected environments and by determining the significant environmental consequences of industrial technologies on various resources (e.g., water, land, human health, etc.). The student is also provided with information on how to generate reports/forms base on implementing regulatory and other requirements to document information from environmental/risk assessments and analyses. Prerequisites: None

SAFE 773 Disaster Preparedness 3 cr.

Principles and techniques for preparing for various types of disasters. Students are acquainted with requirements necessary to develop workable plans for natural and industrial types of disasters. Loss prevention measures are discussed, directed toward preservation of organization resources.

SAFE 774 Fire Safety in Building Design 3 cr.

Examines fundamental principles for the safe design of buildings from a fire hazard standpoint. Emphasis is given to an understanding of building codes, fire properties of building materials, building design criteria to limit the spread of fire and smoke, control of ignition sources, storage of combustibles and flammables, life safety, and active fire protection systems. Prerequisite: SAFE major or permission of instructor.

SAFE 791 Capstone Project in Safety Sciences (1 cr)

Students will be required to complete a comprehensive project based on the cumulative

knowledge and skills acquired in the program course work. Co-requisite: Concurrent registration in SAFE 602.

SAFE 681 Special Topics 3 cr.
A graduate-student-only elective offering in which the specific topics may vary from one term to the next. Prerequisite: Permission of instructor.

SAFE 699 Independent Study 3 cr.
Study in-depth of a topic not available through other course work. Student works with supervising faculty member on carefully planned, student-initiated project. Prior approval is necessary. Prerequisite: Permission of instructor.

Signature Page

I hereby acknowledge receipt of my personal copy of the Master of Science in Safety Sciences Student Handbook. I agree to read the handbook and abide by the standards, policies, and procedures defined or referenced in this document. The information in this handbook is subject to change. I understand that changes in policies may supersede, modify, or render obsolete the information summarized in this handbook. As the University provides updated policy information, I accept responsibility for reading and abiding by the changes.

My signature below indicates that I am responsible for reading and understanding the information provided and referenced in this department/program student handbook.

_____[please initial] I understand my program coordinator may share this document with the School of Graduate Studies and Research.

_____
Print Name

_____
Signature

_____
Date

Submit to _____ by [Date]

The [department/program] will keep this signed document on file.