

# ENVIRONMENTAL, SAFETY AND HEALTH, M.S.

## Program Description

The environmental, safety and health program gives the student the broad multi-disciplinary subject matter and analytical tools necessary to be successful in such professions as consulting, industrial environmental, safety and health management, employee safety and environmental protection. Students from diverse science backgrounds apply their knowledge and skills to problems such as air pollution and control; water pollution and treatment; groundwater protection, contamination and remediation; solid and hazardous waste management; industrial hygiene; and employee safety and health.

## Admission Requirements

Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website: [www.marshall.edu/graduate/admissions/how-to-apply-for-admission](http://www.marshall.edu/graduate/admissions/how-to-apply-for-admission) (<http://www.marshall.edu/graduate/admissions/how-to-apply-for-admission/>).

Each applicant must satisfy at least ONE of the following criteria:

- Score at the mean or above on the verbal GRE
- Score at the mean or above on the quantitative GRE
- Score at the mean or above on the analytical GRE
- Score at the mean or above on the Miller Analogies Test
- Have an undergraduate GPA of 2.50 or above
- Have passed the Fundamentals of Engineering exam and/or the Professional Engineering exam

In addition to the general requirements all students entering the graduate Environmental Science program must have completed prior to admission the following courses **or** their equivalent:

CHM 205 General, Organic, and Biochem and MTH 130 College Algebra with a grade of C or better, **and** a minimum total of **five** (5) courses/competencies, relevant to environmental, safety and health, from the following:

- Chemistry (200 level or above);
- Physics (100 level or above);
- Biology; Geology; Geography; Statistics; Soil Science; Law; Health and Economics; or
- 10 years of relevant work experience.
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## Program Requirements

Students must complete 30 graduate credit hours (CH) at the graduate level, including at least 18 CH at Marshall University. The degree consists of 15 CH of core courses; 3-6 CH of required courses; and 9-12 CH of electives. At least 15 CH must be at the 600 level.

Students may choose to complete either the project option or the thesis option, after consultation with their academic advisor. Students must have a project or thesis proposal approved by their project

or thesis advisor prior to enrolling in project (TE 699 Comprehensive Project or SFT 679 Problem Report) or thesis (ES 680 or SFT 681 Thesis).

*Project Option.* The comprehensive project involves the application of coursework completed as part of the degree to a practical problem. Students will work with their advisors to identify an appropriate project and scope. Students must prepare a formal written report and deliver an oral presentation to a committee. Students register for either Comprehensive Project (TE 699, 3 CH) or Problem Report (SFT 679, 3 CH) during the semester in which their project will be completed and presented, but preliminary work on the project may commence before that semester.

*Thesis Option.* The thesis option involves the completion of 6 CH of research (ES 680 or SGT 681) under the direction of an advisor on an approved project. Students must summarize their work in the form of a formal, written document and successfully defend the thesis before a committee. Thesis work is typically conducted over two semesters.

## Plan of Study

On completion of the M.S. in Environmental, Safety and health degree program the student should have the requisite scope of knowledge and competency in specific environmental, safety and health subject matter. As students may not have the requisite background in the subject matter from their undergrad curriculum, some courses will be required based on the student's background. Students that do not have a Safety undergraduate background or that cannot otherwise satisfy the requirement will be required to take SFT 660 and SFT 598 as part of their M.S. Plan of Study. Students that do not have an ES undergraduate background or that cannot otherwise satisfy the requirement will be required to take at least one of ES 604, ES 630, ES 640 or ES 665. The required and elective courses should be outlined in the Plan of Study. The Plan of Study should be developed in cooperation with and signed by the student's advisor and should be completed prior to registration for the 12th credit hour.

Electives for either degree option may be selected from the following:

- Any 500- or 600- level ES or SFT course not already taken to satisfy degree requirements.
- Any 500- or 600- level CE, CS, CYBR, EE, ENGR, ME course.
- Any 500- or 600- level BSC, GEO, GLY, MTH, NRE, PH, PHY or PS course.
- Any 500- or 600- level course approved in advance by the student's advisor.

## Thesis Option

The thesis option involves completion of 6 CH of research (SFT 681 or ES 680 Thesis) under the direction of an advisor. The student must prepare a formal thesis proposal (including a statement of work, extensive literature search, and proposed timeline) in consultation with his or her advisor and present the proposal to the graduate thesis committee, which is formed in consultation with the advisor. The thesis proposal must be defended and approved by the thesis committee prior to the final semester of study (typically completed during the first semester of SFT 681/ES 680 Thesis). Students must then summarize their research work in the form of a formal, written thesis and successfully defend it before their thesis committee in order to fulfill the requirements for the degree (typically completed during the second semester of SFT 681/ES 680 Thesis). Thesis work is typically conducted over two semesters.

Code	Title	Credit Hours
SFT 599	Dev & Mgt of Occup Safety Prog	3
SFT 610	Intro to Prof Safety & Health	3
SFT 647	Industrial Hygiene II	3
ES 514	Environmental Risk Assessment	3
ES 550	Environmental Law & Policy	3
Electives		9
SFT 681	Thesis	6
or ES 680	Thesis	
<b>Total Credit Hours</b>		<b>30</b>

## Project Option

The project option involves completion of 3 CH of comprehensive project (SFT 679 Problem Report or TE 699 Comprehensive Project). The comprehensive project involves the application coursework completed as part of the degree to a practical problem. Students will work their advisors to identify an appropriate project and scope. Students must prepare a formal written report and deliver an oral presentation to a committee. Students register for SFT 679 Problem Report or TE 699 Comprehensive Project (3 CH) during the semester in which their project completed and presented, but preliminary work on the project may commence before that semester.

Code	Title	Credit Hours
SFT 599	Dev & Mgt of Occup Safety Prog	3
SFT 610	Intro to Prof Safety & Health	3
SFT 647	Industrial Hygiene II	3
ES 514	Environmental Risk Assessment	3
ES 550	Environmental Law & Policy	3
Electives		12
TE 699	Comprehensive Project	3
or SFT 679	Problem Report	
<b>Total Credit Hours</b>		<b>30</b>