

GRADUATE STUDENT HANDBOOK

Rocky Mountain Center for Occupational and Environmental Health
Division of Occupational and Environmental Health
Department of Family and Preventive Medicine
Department of Mechanical Engineering
School of Medicine and College of Engineering
University of Utah
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Rocky Mountain Center
for Occupational and
Environmental Health

University of Utah
391 Chipeta Way, Ste C
Salt Lake City, UT 84108
801-581-4800
Fax: 801-581-7224

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1 Overview

1.1 Welcome

Welcome to the Occupational and Environmental Health Graduate programs in the Rocky Mountain Center for Occupational and Environmental Health (RMCOEH). The RMCOEH is an interdisciplinary trans-campus, education and research center with its primary housing in the Division of Occupational and Environmental Health in the Department of Family & Preventive Medicine, a large component in the Department of Mechanical Engineering, and other faculty in other departments at the University of Utah. RMCOEH includes a NIOSH-sponsored Education and Research Center that provides support to graduate students pursuing degrees in several areas of occupational and environmental health and safety. Degrees offered include Master of Occupational Health (MOH), Master of Science in Occupational Health (MSOH), and Doctor of Philosophy (PhD) in Occupational and Environmental Health. Non-degree programs include a Graduate Certificate in Occupational Safety and Health.

1.2 Purpose and Scope

The purpose of the Graduate Student Handbook is to inform students of requirements and processes necessary to complete their graduate degree program, as well as resources to enhance the student experience and student success. Additional information about policies, procedures and resources available to graduate students are available through the Graduate School at the University of Utah.

1.3 Mission and Vision Statements

The University of Utah's mission is to foster student success by preparing students from diverse backgrounds for lives of impact as leaders and citizens. We generate and share new knowledge, discoveries, and innovations, and we engage local and global communities to promote education, health, and quality of life. These contributions, in addition to responsible stewardship of our intellectual, physical, and financial resources, ensure the long-term success and viability of the institution.

The University of Utah School of Medicine's mission is to serve the people of Utah and beyond by continually improving individual and community health and quality of life. This is achieved through excellence in patient care, education, and research. Each is vital to our mission and each makes the others stronger. We provide compassionate care without compromise. We educate scientist and health care professionals for the future. We engage in research to advance knowledge and well-being.

The University of Utah College of Engineering's mission is to prepare students for leadership positions and professional practice in academia, industry and government; to improve the productivity, health, safety and enjoyment of human life through leading-edge research; and to stimulate and grow the economy by providing qualified engineering professionals and by transferring the technologies developed in College of Engineering research to the private sector.

In the Department of Family & Preventive Medicine's vision is to expand the possibilities of health by focusing on:

- Promoting wellness as the foundation of health,

- Discovering and addressing what optimizes health,
- Educating health professionals from every community,
- Improving access to care and prevention, and
- Increasing evidence-based practice.

The mission of the Department of Mechanical Engineering is to conduct innovative research and to provide a world-class education that instill professional, technical, critical-thinking, and communication skills necessary for students and faculty to make impactful contributions to society.

The Rocky Mountain Center for Occupational and Environmental Health (RMCOEH) vision is to be the leading international center in meeting current and future occupational and environmental health and safety challenges. The mission of RMCOEH is to protect workers and the environment through interdisciplinary education, research and service.

2 Faculty and Staff

Faculty and staff are essential to ensuring student success. The names, roles and contact information for staff who have roles directly relevant to students are presented in Table 1. RMCOEH faculty with primary mentorship roles for students, including the ability to serve on student graduate committees are shown in

Table 2. All of the faculty shown in

Table 2 have been pre-approved to serve on OEH Programs student Supervisory Committees. Other faculty, affiliated with RMCOEH, the University of Utah, and/or other institutions and organizations, may also potentially serve on Supervisory Committees with permission. Administrative roles filled by faculty are presented in Table 3.

Table 1. Administrative staff providing support to students.

Name and Title	Role	Contact Information
Toni Chambers Administrative Assistant	Provides general administrative support, such as photocopier access, event planning, travel assistance	801-581-8719 Toni.Chambers@hsc.utah.edu
Kevin Ostler Residency Program Coordinator	Coordinates Occupational Medicine Residency	801-581-4096 kevin.ostler@hsc.utah.edu
Jesslyn Popwell Academic Advisor	Liaison between faculty and students overseeing student affairs and success	801-581-5056 Jesslyn.popwell@utah.edu
Liz Reiser Administrative Project Coordinator	Coordinator for the academic programs in Mechanical Engineering	801-581-4160 Liz.reiser@mech.utah.edu
Camie Schaefer, PhD Sr. Technical Writer	Support with academic writing; facilitates journal club and writing bootcamp	801-585-3673 Camie.Schaefer@utah.edu

Table 2. RMCOEH faculty approved by the Graduate School to serve on student graduate committees.

Name *	Primary Academic Program Affiliation	Contact Information
Joseph Allen, PhD (T)	Occupational Injury Prevention	801-581-4800 joseph.a.allen@utah.edu
Jeremy Biggs, MD, MSPH (C)	Occupational Medicine	801-581-3841 jeremy.biggs@hsc.utah.edu
Melissa Cheng, MD, MOH, MHS (C)	Occupational Medicine	801-581-8719 melissa.cheng@hsc.utah.edu
Ken d'Entremont, PhD (L)	Ergonomics and Safety	801-448-3206 k.dentremont@utah.edu
Kelli Graziano, MD, MOH (C)	Occupational Medicine	801-581-4800 Kelli.graziano@hsc.utah.edu
Kurt Hegmann, MD, MPH (T)	Occup. Injury Prevention; Occupational Medicine	801-581-8719 kurt.hegmann@hsc.utah.edu
Matthew Hughes, MD, MPH (C)	Occupational Medicine	801-581-4800 Matthew.hughes@hsc.utah.edu
Rachael Jones, PhD, CIH (T)	Industrial Hygiene	801-585-0451 rachael.jones@utah.edu
Andrew Merryweather, PhD (T)	Occupational Injury Prevention; Ergonomics & Safety	801-581-8118 a.merryweather@utah.edu
Maureen Murtaugh, PhD (T)	Internal Medicine	801-585-9216 maureen.murtaugh@hsc.utah.edu
Leon Pahler, PhD, MPH, CIH (L)	Industrial Hygiene	801-585-1032 leon.pahler@hsc.utah.edu
Andrew Phillips, MD, MOH (C)	Occupational Medicine	801-581-7553 Andy.Phillips@hsc.utah.edu
Darrah Sleeth, PhD, MPH, CIH (T)	Industrial Hygiene	801-585-3587 darrah.sleeth@hsc.utah.edu
Matthew Thiese, PhD, MSPH (T)	Occupational Injury Prevention	801-587-3322 Matt.Thiese@hsc.utah.edu
Eric Wood, MD, MPH (C)	Occupational Medicine	801-581-7780 eric.wood@hsc.utah.edu
Sarang Yoon, DO, MOH (C)	Occupational Medicine	801-581-7234 sarang.yoon@hsc.utah.edu

*C=Clinical track, L=Lecturer-track, T=Tenure-track

Table 3. Faculty administrative roles relevant to academic programs (August 2020).

Title	Name
Chair, Department of Family & Preventive Medicine	Kolawole Okuyemi, MD*
Chair, Department of Mechanical Engineering	Bruce Gale, PhD
Center Director, Rocky Mountain Center for Occupational & Environmental Health Chief, Division of Occupational and Environmental Health	Kurt Hegmann, MD
Director of the Occupational and Environmental Health Graduate Programs	Joseph Allen, PhD
Director of the Industrial Hygiene Program	Rachael Jones, PhD
Director of the Occupational Injury Prevention Program and Director of the Targeted Research Training Program	Matthew Thiese, PhD
Director of the Occupational Medicine Program and Occupational Medicine Residency Program Director	Eric Wood, MD
Director of the Ergonomics and Safety Program	Andrew Merryweather, PhD

*The Chair of the Department of Family & Preventive Medicine has primary responsibility over the OEH Graduate programs as they are primarily housed in this department.

3 Master of Occupational Health (MOH)

3.1 MOH Overview

The Master of Occupational Health (MOH) program is designed to train professionals who either (i) have a terminal degree (MD, DO, DVM, DDS or PhD degree) or (ii) have a bachelor's or other degree and experience in OEHS such as current employment with a goal to further his/her career in occupational health practice or research.

The MOH program currently has the following approved emphases:

1. Ergonomics
2. Occupational Injury Prevention
3. Occupational Medicine
4. Occupational Safety
5. General Occupational Health

The MOH program may be completed within 1 year of full-time study, ending with a summative examination. The University of Utah's Graduate School requires that all work to obtain a master's degree be completed within **four** consecutive calendar years. On recommendation of the student's Supervisory Committee, the Dean of the Graduate School may modify or waive this requirement. If the student exceeds the time limit and is not granted a modification or waiver, the OEH Programs and

department have the option to discontinue the student. Students whose studies have been interrupted for long periods of time and who have been granted extended time to complete his/her degree may be required to (re)complete additional courses, to pass examinations, or otherwise to demonstrate that he/she is current in the field.

The MOH program does not require students to complete a research project. Occupational Medicine Residents are required to complete a research project in the course of the residency, but it is not required for the MOH degree which is part of their training.

3.2 Admissions Process and Requirements

Prospective students are required to submit an application and transcripts electronically through the form accessed on the OEH programs' webpage which gets forwarded to the University of Utah Graduate School, Office of Admissions. This application is via the Apply Yourself (AY) program platform, and the applications also requires letters of recommendation, a statement of purpose, test scores (for those without a terminal degree), resume and any other materials to be reviewed by the MOH admissions committee.

Regarding only physicians applying to the Occupational Medicine Residency, they are required to both apply to the Graduate School as per the paragraph above and also required to submit an application to the residency program through the Electronic Residency Application Service (ERAS) program platform.

The University of Utah Office of Admissions specifies admissions requirements for the University's graduate programs. The requirements include:

1. A bachelor's degree from a regionally-accredited U.S. college or university. The Office of Admissions will determine if an applicant's degree, including from international institutions, meets the Graduate School's requirement of a recognized Bachelor's degree.
2. At least a 3.0 or higher undergraduate weighted mean GPA on a 4.0 scale. If the undergraduate GPA is below 3.0, a GPA will be calculated based upon the last 60 semester hours (90 quarter hours) if the student attended a U.S. institution.

In addition to the above requirements by the University of Utah Office of Admissions, admission to the MOH requires:

1. Either (i) a terminal degree, such as an MD, DO, DVM, DDS, or PhD, or (ii) a bachelor's degree or other master's degree and work experience in occupational health seeking to further their career in occupational health.
2. Demonstrated English proficiency, if applicable. International applicants may be required to take the TOEFL to demonstrate English proficiency.
3. Two letters of reference, preferably from teachers, colleagues or mentors that speak to the attributes and characteristics of the applicant that will contribute to his or her success in the

MOH degree program and as an occupational health professional or researcher.

4. A personal statement, not to exceed 500 words, explaining the applicant's interests in occupational health and describing the applicant's academic and/or professional goals.
 - Application deadline for MOH (and all programs) is February 15th
 - Admission decisions are provided to students no later than April 1st
 - University requires decisions from students by April 15th

For individuals also applying to the Occupational Medicine Residency, the same letters of reference and personal statement submitted to the ERAS application platform can also be submitted for the MOH application. After screening by the admissions committee, eligible applicants will be invited an interview.

3.3 MOH Program Requirements

3.3.1 Non-Credit Training Requirements

Traditional students (not online MOH for whom it is optional) are required to attend orientation for RMCOEH, which occurs at the beginning of the Fall semester, typically on the first day of classes or the Friday before classes begin.

The following forms and trainings are required to be completed by all traditional students as soon as possible upon enrollment (online students are only required to complete #1):

1. Graduate Student Conduct and Dismissal Policy (Appendix A). Students that violate the Rules of Conduct are subject to dismissal from the MOH program, the Department of Family & Preventive Medicine, and the University of Utah.
2. Consent for photography
3. HIPAA training
4. IRB (CITI) training
5. Introduction to Research Integrity
6. Defensive Driving Course

3.3.2 Advising and Curricular Planning

Students will form a Supervisory Committee during the first semester of the MOH program. The Chair of the Supervisory Committee is the primary advisor for the student, and will guide the student with respect to developing a curricular plan and assisting in selecting a topic for the research project, if applicable. The Supervisory Committee may require supplementary courses to address deficiencies in a student's prior training, for which no graduate credit is granted.

Identification of the Chair and members of the Supervisory Committee will be guided by the Program Director for the MOH degree program emphasis (see Table 3 above). The University of Utah Graduate School requires that the Supervisory Committee have 3 members, with at least 2 members being tenure-line faculty in the student's major department; other arrangements require approval by the

Dean of the Graduate School. For the OEH program, any of the faculty in Table 2 above meet these requirements.

The Occupational Medicine Program Director is the Chair for all traditional Occupational Medicine Residents.

The student is responsible for asking faculty members to serve on their committee. When formed, the student will report the Supervisory Committee members to the Academic Advisor and to complete a Supervisory Committee Form (link below).

[Supervisory Committee Form](#)

Students will work with the Chair of his or her Supervisory Committee (aka, Academic Advisor) to develop a curricular plan that lists the courses that are planned to be taken to meet the requirements for their emphasis in the MOH degree program. The curricular plan will be documented on MOH Degree Requirement Checklist Form. Copies of the form will be maintained by the Academic Advisor or Program Coordinator and the student.

3.3.3 Summative Examination

The OEH Programs' Summative Examination is administered at least twice a year, currently in December and April of each year, and a satisfactory score on this examination is required for completion of the MOH degree. A summative experience, such as a summative examination, is required by the UU Graduate School for awarding of a graduate degree. The OEH Programs' Summative Examination is designed similarly to a standardized examination and consists of two components: (1) a Core Examination of common curricular elements across the OEH Graduate programs, and (2) an Emphasis-specific examination that reflects the student's area of emphasis. The OEH Summative Examination is intended to evaluate mastery of occupational and environmental health and safety skills and knowledge from the curricular elements in the OEH degree programs, and to prepare students for future professional certification examination(s) in their discipline. Students are allowed two attempts to pass the examination; failure to pass the examination on both attempts will result in dismissal from the MOH program without awarding of the degree.

3.3.4 MOH Research Project

There is no research project required for any of the MOH degree emphases.

However, while not required for the awarding of the MOH degree, the Occupational Medicine residency program does require the completion of a research project in the course of the OM residency program.

3.4 MOH Required Courses

3.4.1 Required MOH Courses

The MOH degree requires a minimum of 30 or more credit hours of coursework depending on the emphasis chosen, and is designed to be completed in 1 year—Students may also enroll in additional

elective courses at the University of Utah, although either more than 1 year is required and/or a petition must be submitted to the Graduate School to request permission to enroll in more than 16 credit hours per semester.

3.4.2 Required Courses MOH with Ergonomics Emphasis

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
MEEN 7100	Advanced Ergonomics	3
MEEN 6110	Introduction to Industrial Safety	3
Total Required Credits:		21

Pre-approved electives for the MOH emphasis in Ergonomics.

OEHS 6715	Occupational Health and Safety Solutions	3
KINES 6390	001-Advanced Biomechanics	3
MEEN 6535	Intro to Biomechanics	3
MEEN 7120	Functional Anatomy	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Total Required Credits for MOH Degree:		30

3.4.3 Required Courses MOH with Industrial Hygiene Emphasis

Table 4. Required courses for the MOH emphasis in Industrial Hygiene.

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6761	Ergonomics	3
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 6754	Noise and Other Physical Agents (Offered alternate years)	2

OEHS 6760	Administration and Management of Health and Safety Programs	3
OEHS 6751	Advanced Industrial Hygiene	4
OEHS 6753	Industrial Ventilation (Offered alternate years)	3
Total Required Credits:		27

Pre-approved electives for the MOH emphasis in Industrial Hygiene.

OEHS 6715	Occupational Health and Safety Solutions	3
OEHS 6756	Hazardous Substances (offered alternate years)	3
OEHS 6730	Quantitative Exposure Assessment (offered alternate years)	3
PBHLT 6781	Post-Disaster Community Health	3
OEHS 6810	Occupational Health Psychology	3
PBHLT 6320	Qualitative and Mixed Methods in Public Health	3
OEHS XXX	Occupational Health Law	3
MEEN 6110	Intro to Industrial Safety	3
Total Required Credits for MOH Degree:		30

3.4.4 Required Courses MOH with Occupational Injury Prevention Emphasis

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Diseases	3
MEEN 6110	Introduction to Industrial Safety	3
OEHS 6761	Ergonomics	3
OEHS 6607	Injury Surveillance	3
OEHS 7300	Epidemiology II	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
OEHS 6810	Occupational Health Psychology	3
Total Required Credits:		27

Pre-approved electives for the MOH emphasis in Occupational Injury Prevention.

Course #	Course Title	Credits
OEHS 6715	Occupational Health and Safety Solutions	3
MEEN 7960	Computer Applications & Research Methods in Occupational Injury Prevention	3
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
MEEN 7110	Systems Safety	3

OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6756	Hazardous Substances (offered alternate years)	3
OEHS 6730	Quantitative Exposure Assessment (offered alternate years)	3
OEHS 6730	Quantitative Risk Assessment	3
OEHS XXX	Occupational Health Law	3
MEEN 6110	Intro to Industrial Safety	3
Total Required Credits for MOH Degree:		30

3.4.5 Required Courses MOH with Occupational Medicine Emphasis¹

*Residents in Aerospace Medicine who are students in the MOH program are also required to take Studies in Aerospace Medicine (FPDM 6706, 5 credit hours), in addition to the courses listed in **Error!** Reference source not found..*

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Diseases	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6761	Ergonomics	3
OEHS 6702	Advanced Topics in Occupational and Environmental Health	2
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
OEHS 6504	Clinical and Behavioral Aspects of Preventive Medicine	3
OEHS 6810	Occupational Health Psychology	3
Total Required Credits:		29

Pre-approved electives for the MOH emphasis in Occupational Medicine.

OEHS 6715	Occupational Health and Safety Solutions	3
OEHS XXX	Occupational Health Law	3
MEEN 6110	Intro to Industrial Safety	3
Total Required Credits for MOH Degree:		30

3.4.6 Required Courses MOH with Occupational Safety Emphasis

Course #	Course Title	Credits
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¹ Note that in addition to other non-academic courses, the Occupational Medicine Residency requires the completion of the Occupational Health Psychology OEHS 6810, Occupational Health and Safety Solutions OEHS 6715 and Occupational Health Law OEHS XXX.

OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 7720	Occupational Injury Epidemiology	3
MEEN 6960-6	Introduction to Product Safety	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6110	Introduction to Industrial Safety	3
Total Required Credits:		27

Pre-approved electives for the MOH emphasis in Occupational Safety.

OEHS 6715	Occupational Health and Safety Solutions	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Total Required Credits for MOH Degree:		30

3.4.7 Required Courses MOH with General Occupational Health Emphasis

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6110	Introduction to Industrial Safety	3
Total Required Credits:		18

Pre-approved electives for the MOH emphasis in General Occupational Health.

OEHS 6715	Occupational Health and Safety Solutions	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
MEEN 6960-6	Introduction to Product Safety	3
OEHS 7720	Occupational Injury Epidemiology	3
OEHS 6754	Noise and Other Physical Agents (Offered alternate years)	2
OEHS 6751	Advanced Industrial Hygiene	4
KINES 6390	001-Advanced Biomechanics	3

MEEN 6535	Intro to Biomechanics	3
MEEN 7120	Functional Anatomy	3
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Total Required Credits for MOH Degree:		30

3.5 Summary of Important Dates, Deadlines and Milestones

Students are encouraged to apply for scholarships. Scholarship deadlines that students should anticipate include:

- Early-March: WCF Insurance scholarships
- Early-March: RMCOEH scholarships

Table 5. Time for the MOH degree program.

Semester 1	Semester 2
<ul style="list-style-type: none"> <input type="checkbox"/> Identify Advisor and Supervisory Committee <input type="checkbox"/> Complete Curricular Plan <input type="checkbox"/> Apply for graduation through the Office of the Registrar (Apply for Graduate Degree) 	<ul style="list-style-type: none"> <input type="checkbox"/> Summative Exam (N.B., only one retake is allowed)

4 Master of Science in Occupational Health (MSOH)

4.1 MSOH Overview

The MSOH degree program is intended to train occupational health professionals for professional practice or transition to further research training. The MSOH degree is intended to be completed in two years of full-time study and requires students to:

- Complete required and elective courses (≥ 36 credit hours),
- Pass a summative examination,
- Complete a research-based project involving a substantive written work product and oral presentation with defense (3 credit hours).

Students in the MSOH degree program have an emphasis in one of the following approved areas:

1. Industrial Hygiene,
2. Ergonomics,
3. Occupational Safety,
4. Occupational Injury Prevention, or
5. General Occupational Health

The University of Utah Graduate School requires that all work to obtain a master's degree be completed within **four** consecutive calendar years. On recommendation of the student's Supervisory Committee, the Dean of the Graduate School may modify or waive this requirement. If the student exceeds the time limit and is not granted a modification or waiver, the department has the option to discontinue the student. Students whose studies have been interrupted for long periods of time and who have been granted extended time to complete his/her degree may be required to (re)complete additional courses, to pass examinations, or otherwise to demonstrate that he/she is current in the field.

4.2 Admissions Process and Requirements

Prospective students are required to submit their application and transcripts electronically to the University of Utah Office of Admission via the Apply Yourself (AY) program platform, along with letters of recommendation, a statement of purpose, test scores, resume and any other materials to be reviewed by the MSOH admissions committee. In the AY platform, the MSOH is designated as Occupational Health Master of Science.

The University of Utah Office of Admissions specifies admissions requirements for graduate programs across campus. The requirements include:

1. A bachelor's degree from a regionally-accredited U.S. college or university. The office of Admissions will determine if an applicant's degree, including from international institutions, meets the Graduate School's requirement of a recognized Bachelor's degree.
2. At least a 3.0 or higher undergraduate weighted mean GPA on a 4.0 scale. If the undergraduate GPA is below 3.0, a GPA will be calculated based upon the last 60 semester hours (90 quarter hours) if the student attended a U.S. institution.

In addition to the requirements by the University of Utah Office of Admissions, admission to the MSOH requires:

1. Professional experience or academic training in occupational health, environmental health or related field (e.g., biology, chemistry, engineering, kinesiology, public health, etc.).
 - a. Admission into the Industrial Hygiene emphasis also requires college-level coursework in chemistry, physical sciences, biological sciences and mathematics (at least through algebra, preferably through calculus).
2. A GRE score from within the past 5 years, unless the applicant has a prior doctoral degree. Testing should include: Quantitative Reasoning, Verbal Reasoning and Analytical Writing sections. While there is no minimum score for admission, competitive applicants should score ≥ 300 combined on the quantitative and verbal reasoning sections.
3. Demonstrated English proficiency, if applicable. International applicants may be required to take the TOEFL to demonstrate English proficiency.
4. Three letters of reference, preferably from teachers, colleagues or mentors that speak to the

attributes and characteristics of the applicant that will contribute to his or her success in the MSOH degree program and as an occupational health professional or researcher.

5. A personal statement, not to exceed 500 words, explaining the applicant's interests in occupational health and describing the applicant's academic and/or professional goals.
 - Application deadline for MSOH program (and all programs) is February 15th
 - Admission decisions are provided to students by no later than April 1st
 - The University of Utah requires decision from students by April 15th
 - Admissions to start in the Spring semester are allowed on a case-by-case basis, but are generally discouraged, especially due to challenges in hierarchical course sequencing

4.3 General MSOH Program Requirements

4.3.1 Non-Credit Training Requirements

Students are required to attend orientation for RMCOEH, which occurs at the beginning of the Fall semester.

The following forms and trainings are required to be completed by all students as soon as possible upon enrollment:

7. Graduate Student Conduct and Dismissal Policy (Appendix A). Students that violate the Rules of Conduct are subject to dismissal from the MSOH program, the Department of Family & Preventive Medicine, and the University of Utah.
8. [Photo Video Release Form](#)
9. IRB (Institutional Review Board for human research) training

Students are required to attend the National Occupational Research Agenda New/Young Investigators Symposium which is hosted at the University of Utah, Salt Lake City in April. Students are strongly encouraged to work with their advisor and submit abstracts for posters or oral presentations at this symposium.

4.3.2 Non-Credit Activity Requirements

JOURNAL CLUB

Students in all of the MSOH emphases are encouraged to participate in the Friday Journal Clubs (1 hour) to gain experience reading and critiquing journal articles. Students are also expected to present at least 1 Journal Club per semester.

OEH FORUM

Students participating in all OEH programs are encouraged to participate in the monthly OEH Forum (1 hour). The OEH Forum involves a variety of activities that involve relationship building, sharing information, participating in discussions and frequent guest presenters.

INDUSTRIAL HYGIENE FORUM

Students in all of the MSOH emphases are required to participate in the monthly IH Forum (1 hour). The IH Form involves a variety of activities to facilitate relationship building, information exchange and professional development.

4.3.3 Advising and Curricular Planning

Students will form a Supervisory Committee during the first semester, and *no later than* the second semester, of the MSOH program. The Chair of the Supervisory Committee is the primary advisor for the student, and will guide the student with respect to developing a curricular plan and selecting a topic for the research project. The Supervisory Committee may require supplementary courses to address deficiencies in a student's undergraduate training, for which no graduate credit is granted.

Identification of the Chair and members of the Supervisory Committee will be guided by the Program Director for the MSOH degree program emphasis (e.g., Industrial Hygiene, Occupational Injury Prevention). The University of Utah Graduate School requires that the Supervisory Committee have 3 members, with at least 2 members being tenure-system faculty in the student's major department, however all *RMCOEH faculty listed in Table 2 above have been approved by the Graduate School for service on these MSOH committees*

Table 2); other arrangements require approval by the Dean of the Graduate School.

When formed, the student will report the Supervisory Committee members to the Academic Advisor and OEH Program Director. [Request for Supervisory Committee Form](#)

Students will work with the Chair of his or her Supervisory Committee to develop a curricular plan that describes the courses that are planned to be taken to meet the requirements of the chosen MSOH degree program emphasis. The curricular plan will be documented on MSOH Degree Requirement Checklist. Copies of the form will be maintained by the Academic Advisor and the student.

The MSOH degree requires ≥ 42 credit hours of courses. The 42 credit hours includes, 3 credit hours of mentored, applied practical experience related to occupational health (≥ 240 hours in the field, i.e., the practicum) and 3 credit hours of research for the final research project. The remaining 36 credit hours includes required and elective courses, which vary among the MSOH emphases. A number of recommended elective courses have been pre-approved for each MSOH emphasis, but other courses may be selected with approval by the Supervisory Committee or Program Director. To count towards the 42-credit hour requirement, other elective courses must be 5000+ level or above and related to occupational or environmental health. Only courses numbered 5000 and above count towards a graduate degree.

4.3.4 Practicum (Internship)

Academic Credit

All students in any of the MSOH-IH degree program must complete ≥ 3 credit hours (equal to ≥ 240 hours of fieldwork) of a practical experience (OEHS 6800) prior to graduation. One credit hour is equal to 80 contact hours in the practical experience. If working full-time (40 hours per week), the required contact hours can be completed in 6 weeks. If working part-time (20 hours per week), the required hours can be completed in 12 weeks, or approximately one semester.

If necessary, and only with written advance approval from the OEHS 6800 course director, the practicum experience can occur over multiple academic terms (Fall, Spring or Summer). Academic credit should be taken in each relevant academic term during which the practicum occurs, with the credit hours reflecting the hours of field work.

Learning Objectives

The practicum is meant to give students direct, hands-on experience working as an occupational health professional, and applying the knowledge and skills acquired in the classroom. The practicum also prepares students for employment after completion of the degree. While research may be part of the practicum, it is not required, and should not be the primary aspect of the practicum. The learning objectives of the practicum are:

- To integrate foundational occupational health knowledge with a concrete experience of occupational health practice, usually focused on a specific discipline. In particular, to observe and report how the following concepts play out in an occupational health practice:
 - The core functions of occupational health
 - The core organizational practices necessary for governmental agencies to carry out the mission of protecting the health of workers, and
 - The essential occupational health services, from an organization or community-based perspective.
- To identify and report germane issues relevant to a specific Practicum site and how they play out in occupational health practice.
- To identify growth areas in occupational health practice.
- To broaden knowledge and skills in occupational health practice.

Placement Criteria and Process

Students should complete the practicum at sites where occupational health practice occurs and that are relevant to the program of study and career goals. Plausible sites include, but are not limited to: industrial sites, governmental agencies (OSHA, CDC/NIOSH, etc.), health departments, universities, labor unions or worker centers, non-governmental organizations with an occupational health mission (Center to Protect Workers' Rights, etc.), insurance companies, and healthcare organizations. More specifically, a site should meet the following criteria:

1. The organization or part of the organization should be engaged in the practice of occupational health, preferably in an occupational health discipline related to the students' degree program (e.g., industrial hygiene, ergonomics, etc.).
2. The work experience available at the site must include hands-on, practical experience with the occupational health practice at the site. Activities might include: performing exposure assessment, training workers, hazard communication, performing audits, developing or implementing an intervention, etc.
3. The mentor at the site must be qualified by experience and education to supervise and evaluate the student's performance and experience, and must be available to the student on a regular basis during the practical learning experience. For students in the MSOH-Industrial Hygiene

emphasis, the mentor should ideally be a Certified Industrial Hygienist. For students in the MSOH-Occupational Safety emphasis, the mentor should ideally be a Certified Safety Professional.

A list of sites where students have previously completed a practicum, and current advertisements will be available to students from the Academic Advisor or the OEHS 6800 Course Director. If a student identifies another site, he or she must inform the Chair of his or her Supervisory Committee and the OEHS 6800 Course Director at least one semester prior to the planned start date. If a student will not become an employee at the site, a contract must be executed between the University of Utah and the site to ensure protection of the student at the site. Ultimately, the practicum site must be approved by the Chair of the student's Supervisory Committee and the proposed mentor at the site.

Timing and Logistics

Most students complete the practicum during the summer after the first year in the MSOH degree program and work at the site full-time, but some students complete the practicum during the Fall or Spring semesters and work at the site part-time. It is recommended that students complete 1-2 semesters of study before the practicum so that they acquire the skills and knowledge needed to enable them to contribute to activities at the site, and learn. Students in the MSOH Industrial Hygiene emphasis must complete OEHS 6751 Advanced Industrial Hygiene before completing the practicum.

Three or four months prior to the anticipated start date, students should begin to identify the industry or organization where they wish to have their practicum. Prior to beginning the experience (by April 15th for experiences in the summer), students must submit the following documents to the OEHS 6800 Course Director

1. Statement of students' goals and objectives for the experience, and
2. Mentor Credential form.

4.3.5 Summative Examination

The summative examination is administered in December and April of each year, and a satisfactory score on this examination is required for completion of the MSOH degree. The summative examination is intended to evaluate mastery of occupational health skills and knowledge from the common curricular elements in the MSOH degree programs, and to prepare students for future certification examinations in their occupational health discipline. Students should plan to take the examination one semester prior to planned graduation in case the student is unsuccessful on the first attempt. Students are allowed two attempts to pass the examination, and failure to pass the examination on the second attempt will result in dismissal from the MSOH program.

The examination has two parts: a core content component and a discipline-specific component. The core examination component consists solely of multiple-choice questions constructed in a standardized style covering material addressed in core courses (i.e., occupational epidemiology, biostatistics, and management/ administration). The second part of the examination is comprised of questions specific to the student's MSOH degree program emphasis, and may include short-answer essay and multiple-choice questions.

4.3.6 Research Project

General Information

The MSOH degree requires students to complete a research project that results in a substantive written work product and an oral presentation with defense. Students enroll in a ≥ 3 credit hours (OEHS 6910) with the Chair of the Supervisory Committee.

Throughout the research process, students are strongly encouraged to meet frequently with the Chair of the Supervisory Committee (1-2 times per month), and to maintain regular communication with the Supervisory Committee via email or meetings. The RMCOEH's Senior Technical Writer is an important resource for writing at all stages of the research progress, and students are encouraged to meet with her more often than they think is necessary, including when struggling to put the words down.

Topic and Scope

The research project must be on a topic related to the MSOH emphasis in which the student is enrolled. The research project must involve a systematic investigation to establish new facts and reach new conclusions. Primary data collection is strongly encouraged, but not required. Systematic analysis of existing data, including literature, to answer a new research question is acceptable. The scope of the research project should be equivalent to one publishable paper. It may be helpful to recognize that a peer-reviewed paper typically includes 4-7 figures and tables presenting data.

The decision as to the appropriateness of the research project topic and scope is made by the student's Supervisory Committee. This is a two-step process. In the first step, students must prepare a 1-page concept paper that proposes a research question or testable hypothesis, a methodological approach, and significance of the topic to occupational health. With approval of the Supervisory Committee, the student will proceed to the second step and prepare a formal research proposal that details the research methodology. The proposal should consider issues of sample size, data collection, data management, statistical methods and inference. Format requirements for the concept paper and research proposal are included in Appendix C. These steps are necessary to help facilitate the student's success as, e.g., the format helps to guide the subsequent writing of the publishable paper.

The Supervisory Committee may request revisions to the concept paper or research proposal to address issues of feasibility, scientific integrity, or presentation. When the research proposal is approved, the [Request for Supervisory Committee Form](#) will be signed by each member of the Supervisory Committee and the student may begin the research.

Format of Written Work Product

The research project should be prepared in the format of a manuscript to be submitted for peer-review. Therefore, the written work product should have the following sections: introduction, methods, results, discussion, conclusion, and references. The work product should include ~4-7 informative tables or figures. The work product should include relevant, current references from the peer-reviewed literature and authoritative bodies (e.g., CDC/NIOSH, EPA, etc.).

The final written work product will be approved by the student's Supervisory Committee, and completed forms - Report of the Final Project for the Master's Degree or the Report of the Final

Examination or Certification of Completion for the Non-thesis Master's Degree form to the Graduate Advisor. This form is due by the last day of the semester in which the student expects to graduate.

Final Oral Examination

The student must make a practice defense of the final oral examination presentation of the research to his or her Supervisory Committee. At this presentation, the Supervisory Committee will provide a robust critique to the student, which may lead to requirements for additional research to be conducted, analyses to be performed, and/or changes to consider for the final defense. The final oral examination will not be scheduled until the Supervisory Committee explicitly agrees that the research is presentable and defensible.

The final oral examination is considered a public seminar. In compliance with requirements from the Graduate School, the date and time of the final defense must be widely posted at least 7 days in advance. Wide posting is defined as including, at a minimum: entrances to RMCOEH office areas, the entrance to the RMCOEH classroom, on the bulletin board of the Ergonomics and Safety Program in the Department of Mechanical Engineering, and on the bulletin board of the Department of Family and Preventive Medicine. In addition, the advertisement will be distributed through the OEH Division list-serves (faculty, students and staff) and included in the weekly updates from the Department of Family and Preventive Medicine.

4.4 MSOH with emphasis in Industrial Hygiene

4.4.1 Accreditation

The MSOH Industrial Hygiene emphasis is externally accredited by the Accreditation Board for Engineering and Technology, Inc. (ABET). Students completing the program are well-prepared to sit for the American Board of Industrial Hygiene examination to become a Certified Industrial Hygienist.

4.4.2 Program Educational Objectives

Within 3-5 years of graduation, graduates from the MSOH Industrial Hygiene emphasis are expected to:

1. Engage with professional societies
2. Apply skills to benefit the health and safety of workers and communities
3. Recruit diverse individuals into the profession through outreach and mentorship
4. Seek professional certification and recognition
5. Engage in life-long learning
6. Collaborate in multi-disciplinary teams
7. Translate research into practice
8. Demonstrate ethical principles
9. Communicate with a broad range of audiences

4.4.3 Program Competencies

Upon graduation, graduates from the MSOH Industrial Hygiene emphasis will be able to:

1. Anticipate, recognize and identify hazards based on fundamental principles, existing knowledge, and surveillance
2. Apply qualitative and quantitative methods to assess exposure to occupational and environmental hazards
3. Recommend solutions to occupational and environmental health and safety problems with consideration of the hierarchy of controls, regulations, scientific principles, effectiveness and feasibility
4. Design and evaluate occupational and environmental health and safety management programs with consideration of regulations, continuous process improvement
5. Articulate the value of occupational health and safety to organizations and workers
6. Analyze and interpret diverse data related to occupational and environmental health and safety, including: exposure assessment data, epidemiologic data and experimental data.
7. Conduct applied research activities
8. Communicate occupational and environmental health and safety information with technical competency to diverse audiences
9. Engage in interdisciplinary teams to solve occupational and environmental health and safety problems
10. Apply ethical principles to occupational and environmental health and safety problems, research and professional practice.

4.4.4 Course Requirements

The course requirements and recommended course sequence are shown for the MSOH degree program emphasis in Industrial Hygiene in Table 6. Waivers and/or substitutions of the required courses are rarely allowed, and permission can only be granted with approval of the Chair of the Supervisory Committee, the course instructor, the Industrial Hygiene Program Director and the OEH Programs Director. Pre-approved electives for the MSOH Industrial Hygiene emphasis are shown in Table 5; Any more advanced courses in biostatistics or epidemiology may be strongly encouraged as electives, but these and other courses require written approval from the Industrial Hygiene Program Director.

Table 6. Requirements for the MSOH emphasis in Industrial Hygiene and recommended course sequence.

Course #	Course Title	Credits
First Fall Semester		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6754	Noise and Other Physical Agents (Offered alternate years)	2
First Spring Semester		
	Elective	3
OEHS 6751	Advanced Industrial Hygiene	4
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
First Summer Semester		

OEHS 6800	Occupational Health Practicum	3
Second Fall Semester		
	Elective	3
OEHS 6761	Ergonomics	3
OEHS 6910	Research Project MSOH	3
Second Spring Semester		
OEHS 6715	Occupational Health and Safety Solutions	3
OEHS 6753	Industrial Ventilation (Offered alternate years)	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
Total Required Credits:		42

Table5. Pre-approved electives for the MSOH emphasis in Industrial Hygiene.

OEHS 6756	Hazardous Substances (offered alternate years)
OEHS 6730	Quantitative Exposure Assessment (offered alternate years)
PBHLT 6781	Post-Disaster Community Health
PBHLT 6600	Social and Behavioral Science in Public Health
PBHLT 6320	Qualitative and Mixed Methods in Public Health

4.5 MSOH Occupational Injury Prevention Emphasis Course Requirements

4.5.1 Program Competencies

- a. Demonstrate knowledge of principles and research methods in occupational and environmental health and occupational injury prevention.
- b. Participate in conceiving, designing and/or conducting original research that advances knowledge or practice in OIP.
- c. Convey scientific and technical information to diverse audiences through effective writing or oral communication
- d. Engage with interdisciplinary teams and the scientific community
- e. Disseminate OIP specific research findings or educational content to students, professionals, the public or non-academic organizations.
- f. Apply principles of ethics to Occupational and Environmental Health

4.5.2 Course Requirements

Course #	Course Title	Credits
Required Courses:		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Disease	3
OHES 6750	Fundamentals of Industrial Hygiene	3

MEEN 6110	Introduction to Industrial Hygiene	3
OEHS 6810	Occupational Health Psychology	3
OEHS 7720	Occupational Injury Epidemiology	3
OEHS 6715	Occupational Health and Safety Solutions	3
Elective Courses:		
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
ME EN 7110	Systems Safety	3
OHES 6761	Ergonomics	3
OEHS 6730	Quantitative Exposure Assessment	3
MEEN 7120	Musculoskeletal Functional Anatomy for Engineers	3
OEHS XXX	Occupational Health Law	3
Research and Practicum Requirement		
OEHS 6910	Project Research – MSOH OR	6
OEHS 6911	Thesis Research - MSOH	6
OEHS 6980	Occ. Health Practicum	3
		MSOH-OIP Total Credit Hours: 45-60

4.6 MSOH Ergonomics Emphasis Course Requirements

4.6.1 Program Competencies

4.6.2 Course Requirements

Table 8. Requirements for the MSOH emphasis in Ergonomics and recommended course sequence.

Course #	Course Title	Credits
Required Courses:		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 7100	Advanced Ergonomics	3
OEHS 6715	Occupational Health and Safety Solutions	3
Elective Courses:		
KINES 6390	001-Advanced Biomechanics	3
MEEN 6535	Intro to Biomechanics	3
MEEN 7120	Functional Anatomy	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Research and Practicum Requirement		

OEHS 6910	Project Research – MSOH OR	6
MSOH-Ergo Total Credit Hours:		40+

4.7 MSOH Occupational Safety Emphasis Course Requirements

4.7.1 Program Competencies

4.7.2 Course Requirements

Course #	Course Title	Credits
Required Courses:		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6110	Introduction to Industrial Safety	3
ME EN 7110	Systems Safety	3
OEHS 6715	Occupational Health and Safety Solutions	3
Elective Courses:		
OEHS 6703	Occupational Injuries and Diseases	3
OEHS 6730	Quantitative Exposure Assessment	3
ME EN 7960	Computer Applications & Research Methods in Occupational Injury Prevention	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
MEEN 6960-6	Introduction to Product Safety	3
OEHS 7720	Occupational Injury Epidemiology	3
OEHS 6754	Noise and Other Physical Agents (Offered alternate years)	2
KINES 6390	001-Advanced Biomechanics	3
MEEN 6535	Intro to Biomechanics	3
MEEN 7120	Functional Anatomy	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Research and Practicum Requirement		
OEHS 6910	Project Research – MSOH OR	6
OEHS 6911	Thesis Research - MSOH	6
OEHS 6980	Occ. Health Practicum	3
MSOH-OS Total Credit Hours:		42

4.7.3 Required Courses MOH with Occupational Safety Emphasis

Course #	Course Title	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3

OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 7720	Occupational Injury Epidemiology	3
MEEN 6960-6	Introduction to Product Safety	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6110	Introduction to Industrial Safety	3
OEHS 6715	Occupational Health and Safety Solutions	3
Total Required Credits:		30

Pre-approved electives for the MSOH emphasis in Occupational Safety.

OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Research and Practicum Requirement		
OEHS 6910	Project Research – MSOH OR	6
OEHS 6911	Thesis Research - MSOH	6
OEHS 6980	Occ. Health Practicum	3
MSOH-OS Total Credit Hours:		42

Total Required Credits for MOH Degree:		42
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4.8 MSOH General Occupational Health Emphasis Course Requirements

4.8.1 Course Requirements

Course #	Course Title	Credits
Required Courses:		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6761	Ergonomics	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
MEEN 6110	Introduction to Industrial Safety	3
OEHS 6715	Occupational Health and Safety Solutions	3
Elective Courses:		
OEHS 6703	Occupational Injuries and Diseases	3
OEHS 6730	Quantitative Risk Assessment	3
ME EN 7110	Systems Safety	3
MEEN 6960-4	Work Physiology and Occupational Heat Stress	3
MEEN 6960-6	Introduction to Product Safety	3
OEHS 7720	Occupational Injury Epidemiology	3
OEHS 6754	Noise and Other Physical Agents (Offered alternate years)	2
OEHS 6751	Advanced Industrial Hygiene	4

KINES 6390	001-Advanced Biomechanics	3
MEEN 6535	Intro to Biomechanics	3
MEEN 7120	Functional Anatomy	3
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 6810	Occupational Health Psychology	3
OEHS XXX	Occupational Health Law	3
Research and Practicum Requirement		
OEHS 6910	Project Research – MSOH OR	6
OEHS 6911	Thesis Research - MSOH	6
OEHS 6980	Occ. Health Practicum	3
MSOH-GOH Total Credit Hours:		42

4.9 Summary of Important Dates, Deadlines and Milestones

Table 11 summarizes key milestones for the MSOH degree program, based on matriculation in Fall. Students in all emphases of the MSOH degree program are required to attend the National Occupational Research Agenda New/Young Investigators Symposium hosted at the University of Utah in April of each year. Students are encouraged to attend:

- Annual Utah Conference on Safety & Industrial Hygiene which occurs in the Salt Lake City area in October of every year.
- American Industrial Hygiene Conference & Expo which occurs at different locations around the United States or Canada in May or early June of every year.
- American Society of Safety Professionals Conference.

Students are encouraged to apply for scholarships. Scholarship deadlines that students should anticipate include:

- Early-October: BCSP Foundation Scholarship. One \$5000 scholarship is available to a student in the MSOH Industrial Hygiene emphasis program.
- Late January: American Industrial Hygiene Foundation (AIHF). There are a series of national scholarships and local scholarships (Jeff Lee Scholarship) awarded through this application.
- Early-March: 3M Scholarship. Multiple \$5000 scholarships are awarded to applicants nationally.
- Early-March: WCF Insurance and other local scholarships in amounts ranging from \$1000 to \$5000.

Table 11. Deadlines and milestones for the MSOH degree program.

Year 1	
Semester 1	Semester 2

<ul style="list-style-type: none"> ❑ Explore and identify research project topic ❑ Form Supervisory Committee and document the Committee with the Academic Advisor ❑ Complete curricular plan form 	<ul style="list-style-type: none"> ❑ Submit 1-page Research Concept proposal to the Supervisory Committee ❑ Consider Dissertation Boot Camp hosted by RMCOEH Sr. Technical Writer ❑ Organize the practicum by April 15th, if required Submit 5+ Page Research Project proposal to the Supervisory Committee
Year 2	
Semester 3	Semester 4
<ul style="list-style-type: none"> ❑ Apply for graduation through the Office of the Registrar (for May graduation) ❑ Conduct research project and begin drafting the written work product ❑ Strongly advised to participate in the Dissertation Boot Camp hosted by RMCOEH Sr. Technical Writer ❑ Take the Summative Exam 	<ul style="list-style-type: none"> ❑ Re-take Summative Exam, if necessary. Failure to pass on the second attempt results in dismissal from the MSOH program. ❑ Prepare and practice oral presentation of research project ❑ Final oral presentation and defense of research project ❑ Complete and submit research project written work product.

5 Doctor of Philosophy (PhD) in Occupational & Environmental Health

5.1 Overview

The Doctor of Philosophy (PhD) trains individuals to conduct research in occupational and environmental health by developing in-depth knowledge in an area of occupational and environmental health and research skills. PhD graduates are prepared to pursue careers as researchers and leaders in the academy, governmental organizations and other types of institutions.

There are three emphases in the PhD program:

1. **General Occupational and Environmental Health.** The occupational and environmental health emphasis allows students to develop a course of study that meets their specific academic, research and career interests, including research focused on environmental health.
2. **Industrial Hygiene.** Industrial hygiene is the art and science of anticipating, recognizing, assessing and controlling hazards in the workplace and community. Industrial hygienists are comprehensively trained to assess human exposures to occupational and environmental hazards.
3. **Occupational Injury Prevention.** Occupational injury prevention uses a multi-disciplinary

approach, including epidemiologic methods and ergonomics, to assess and prevent workplace injuries.

The PhD is intended to be completed in 4 years of full-time study. The Department of Family and Preventive Medicine requires PhD degrees be completed within 7 calendar years. Requests to exceed the established 7-year time limits must be recommended by the student's Supervisory Committee and the Dean of the Graduate School. The recommendation must be accompanied by a detailed timeline, and students must have a GPA \geq 3.0. Further, students whose studies have been interrupted for long periods of time and granted extended time to complete their degrees may be required to complete additional courses, to pass examinations, or otherwise demonstrate that they remain current in their field of study.

5.2 PhD Admissions Process and Requirements

Prospective students are required to submit their application and transcripts electronically to the University of Utah Office of Admission via the Apply Yourself (AY) program platform, along with three letters of recommendation, a statement of purpose, test scores, resume and any other materials to be reviewed by the Graduate Admissions Committee.

The University of Utah Office of Admissions specifies admissions requirements for graduate programs across campus. The requirements include:

1. A bachelor's degree from a regionally-accredited U.S. college or university. The office of Admissions will determine if an applicant's degree, including from international institutions, meets the Graduate School's requirement of a recognized Bachelor's degree.
2. At least a 3.0 or higher undergraduate weighted mean GPA on a 4.0 scale. If the undergraduate GPA is below 3.0, a GPA will be calculated based upon the last 60 semester hours (90 quarter hours) if the student attended a U.S. institution.

In addition to the requirements by the University of Utah Office of Admissions, admission to the PhD in Occupational and Environmental Health requires:

1. A master's degree in occupational or environmental health, epidemiology or related discipline. Students with outstanding academic performance and research experience, but who do not have a master's degree, may be considered for admission.
2. Demonstrated English proficiency, if applicable. International applicants may be required to take the TOEFL to demonstrate English proficiency. The determination of English proficiency is made by the University of Utah Admissions office.
3. Three letters of reference, preferably from teachers, colleagues or mentors that speak to the attributes and characteristics of the applicant that will contribute to his or her success in the PhD degree program and as an occupational or environmental health researcher.
4. A personal statement, not to exceed 500 words, explaining the applicant's interests in occupational or environmental health research, and describing the applicant's professional

goals.

PhD applicants being considered for admission will typically be interviewed by the Occupational and Environmental Health Admissions Committee as part of a campus visit, or via telephone or video conference.

PhD applicants are encouraged to identify faculty with shared research interests, and discuss research opportunities with these faculty prior to and during the application process. Strong preference is given to applicants who can demonstrate research experience or potential for success in research. Students are encouraged to submit a writing sample from a thesis or other substantive work product if a peer-reviewed publication is not available.

Deadlines for admissions are April 1 for Fall semester and November 1 for Spring semester. The Graduate Admissions Committee reviews student applications to the PhD program as they are received, with a goal of making all admissions decisions by April 15 for Fall semester and November 15 for Spring semester.

5.3 General PhD Program Requirements

All Program Courses

Course #	Title	Credit Hours
Core Courses		
OEHS 6100 (6190)	Biostatistics I (Online)	3
OEHS 6370	Intro to Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	2
MEEN 6100	Ergonomics	3
OEHS 6760	Admin and Management of Health and Safety Programs	3
OEHS 7100	Biostatistics II*	3
OEHS 6715	Occupational Health and Safety Solutions	3
<u>Varies (one of:)</u>	Ethics Course (choose one:)* MDCRC 6430 Bioethical Issues in Clinical Research Phil 7550 Research Ethics	1-3
<u>Varies (choose 3 credits total:)</u>	Adv. Epidemiology (choose one+):* FPMD 7300 Epidemiology II FPMD 7720 Occup. Injury Epidemiol. MDCRC 6260 Behav. Community Intervention MDCRC 6160 Pharmacoepidemiology MDCRC 6110 Intermediate Epidemiol. FPMD 7xxx Adv Occup. Epidemiol	3
	Sub-Total	24
Emphasis Specific Requirements: IH		
OEHS 6752	Introduction to Toxicology**	3
OEHS 6751	Advanced Industrial Hygiene**	3

OEHS 6753	Industrial Ventilation**	2
	Sub-Total	8
Emphasis Specific Requirements: OIP		
OEHS 7720	Occupational Injury Epidemiology+	3
OEHS 7xxx	Advanced Occupational Epidemiology+	3
	Subtotal (OIP only)	6
Electives		
OEHS 7300	Epidemiology II	3
FCS 6120	Demographic Methods	3
MDCRC 6240	Community Intervention Studies	2
MDCRC 6160	Pharmacoepidemiology	1
MDCRC 6040	Design and Implementation of Clinical Trials	2
MDCRC 6120	Cost-Effectiveness Analysis	1
OEHS 6311	Research Design	2
OEHS 7310	Advanced Research Design	3
Biostatistics		
MDCRC 6210	Regression Models	1
MDCRC 6130	Introduction to Decision Analysis	1
MDCRC 6140	Intermediate Decision Analysis Modeling	1
MDCRC 6200	Meta Analysis	1
OEHS 6730	Quantitative risk assess	3
OEHS 6106	Categorical Data Analysis	3
MATH 5040	Stochastic Processes and Simulation I	3
MDCRC 6020	Data Management	3
OEHS 6101	Data Analysis using SAS	3
Ergonomics and Safety		
MEEN 6120	Human Factors Engineering	3
MEEN 6110	Industrial Safety	3
MEEN 7100	Advanced Ergonomics	3
MEEN 7105	Advanced Ergonomics Lab	3
MEEN 7110	Systems Safety	3
MEEN 7120	Functional Musculoskeletal Anatomy for Engineers	3
MEEN 6960	Work Physiology and Occupational Heat Stress	2
Management		
OEHS 6400	Public Health Policy and Administration	3
MGT 6051	Managing and Leading in Organizations	1.5-3.0
Toxicology		

OEHS 6752	Introduction to Toxicology**	3
PHTX 7114	Principles of Toxicology	2
PHTX 7620	Analytical Toxicology	2
PHTX 7630	Mechanism of Toxicology	2
Finance		
ECON 7320	Advanced Health Economics	3
ACCTG 5110	Financial Accounting I	3
MDCRC 6230	Health Services Research	3
FINAN 5270	Business Risk Management	3
Hazardous Substance Course		
OEHS 6756	Hazardous Substances	3
Evidence Based Practice Course		
PHIL 7570	Case Studies and Research Ethics	1
PHIL 6540	Engineering, Ethics, and Society	3
OEHS 6504	Clinical Behavioral Aspects of Preventive Medicine	3
Industrial Hygiene, Occupational Injury and Disease Course		
OEHS 6751	Advanced Industrial Hygiene**	3
OEHS 6730	Quantitative Risk Assessment	3
OEHS 6753	Industrial Ventilation**	2
OEHS 6754	Noise and other Physical Agents	2
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Disease	3
Ventilation		
ME EN 6700	Intermediate Fluid Dynamics	3
ME EN 6710	Aerodynamics	3
	Subtotal Electives	24
Dissertation		
OEHS	Dissertation	14
	Total Credits	40 to 64+

*Course generally not taken during MSOH curriculum, but a Core Course for Ph.D. in OEH. Thus, these credits must be added in to the subtotals to account for credit requirements for those with a prior MSOH.

**Required for Ph.D. in OEH (IH emphasis, 8 credits)

+Required for Ph.D. in OEH (OIP emphasis, 6 credits)

‡ At least 40 credits with appropriate master degree and all core courses completed. At least 64 credits without appropriate master degree and no core courses completed.

5.3.1 Program Competencies

In addition to the competencies specified for the respective emphasis, graduates from the PhD

program will be able to:

1. Develop and deliver educational content related to occupational or environmental health to undergraduate or graduate students, or professionals.
2. Conceive, design and conduct original research that innovatively responds to a gap in knowledge and advances the field of occupational and environmental health.
3. Convey scientific and technical information to diverse audiences through writing and oral presentation
4. Engage with interdisciplinary teams and the scientific community
5. Translate and disseminate research findings in occupational and environmental health to the public or non-academic organizations.
6. Apply principles of ethics to occupational and environmental health

5.3.2 General Course Requirements

The PhD program requires 40 credit hours for students with a prior master’s degree that included courses equivalent to the PhD program core curriculum. Otherwise, the PhD program requires 64 credit hours. Some of the 64 required credit hours can be waived if students have previously taken a course or courses equivalent to a course or courses in the PhD program core curriculum, shown in Table 7. Factors used to determine if a credit waiver will be granted for previous coursework include: 1) content of the prior course, 2) student performance in the course, and 3) time since course completion. A minimum of 14 credit hours of dissertation research is required, and 14 credit hours of dissertation research is counted towards the total of 40 or 64 required credit hours.

Courses must be numbered 6000 to be applied towards a PhD degree.

Students should meet with their advisor in the first week of the first semester to begin developing a Program of Study that prepares them to conduct research in their areas of specialty, and meets all requirements of the PhD program and emphasis, if any is selected. The completed Program of Study should be retained by the student, and provided to the Academic Advisor. The core courses required for all students in the PhD program are shown in Table 7.

Table 7. Core courses required for the PhD program, all emphases

Course No.	Course Name	Credits
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
PBHLT 7100	Biostatistics II	3
OEHS 6715	Occupational Safety and Health Solutions	3
OEHS 6761	Ergonomics	3
OEHS 7977	Dissertation Research	14
Ethics Course (Choose one)		
MDCRC 6430	Bioethical Issues in Clinical Research	1

PHIL 7570	Case Studies and Research Ethics	1
PBHLT 7300	Epidemiology II	3
OEHS 7720	Occupational Injury Epidemiology	3
OEHS 6160	Pharmacoepidemiology	3
MDCRC 6260	Behavioral Community Intervention	3
MDCRC 6110	Intermediate Epidemiology	3
Subtotal Core Program Credits		38

5.3.3 Research Training Requirements

5.3.4 Supervisory Committee

Students in the PhD program are mentored by a Supervisory Committee, the chair of which serves the as the student’s primary mentor and advisor. The Supervisory Committee is responsible for approving the student’s academic program, preparing and evaluating the qualifying examination, evaluating and approving the dissertation subject and dissertation, and administering and evaluating the final oral examination (dissertation defense).

The Supervisory Committee for PhD students consists of five faculty members, the majority of whom must be tenure-system faculty in the student’s major department (N.B., all faculty above in Table 2 have been approved by the Graduate school to fill those roles). Faculty from Mechanical Engineering are pre-approved to count as being from the student’s major department for students in the OEH PhD program. One member of the supervisory committee must be from another department at the University of Utah or another institution. Committee members who are not faculty at the University of Utah must be approved by the Dean of the Graduate School: A current vita must be provided. If a member of the Supervisory Committee does not hold a terminal degree, a letter must be provided to describe that members’ experience and qualifications to serve.

The Supervisory Committee should be formed in the first year of study in the PhD program, and *no later than* the beginning of the second year of study in the PhD program. At the time of admission, each PhD student will be assigned a faculty member to serve as the initial advisor: The student is not required to retain this faculty member on the Supervisory Committee.

5.3.5 Progress Monitoring

Time flies in a PhD program, so students and their Supervisory Committee need to closely monitor and have shared expectations about student progress. As a result, students are strongly encouraged to maintain close, regular communication with their Supervisory Committee Chair – meetings twice per month are recommended once students begin preparing their research proposal through graduation. All Supervisory Committee members should meet with the student at least once per semester, preferably as a group.

Each semester, the student and the Supervisory Committee Chair will complete a Progress Evaluation form that documents: 1) progress in the previous semester, 2) goals for the next semester, 3) challenges encountered or anticipated, 4) achievements, 5) significant deviations from the research proposal, and 6) planned financial support for the student. The entire Supervisory Committee must participate in at least one of these meetings annually. The purpose of this form is to ensure that the

student and Supervisory Committee Chair share an understanding of the student's progress and activities. A copy of this form will be submitted to the OEH Director of Graduate Studies and the Academic Advisor; and the student or Supervisory Committee Chair can provide additional confidential written comments to the OEH Director of Graduate Studies.

5.3.6 Research Proposal

All PhD students must prepare a research proposal that describes the research that is planned for the PhD. The research proposal will be reviewed by the student's Supervisory Committee to evaluate: scope, feasibility, and scientific merit of the work. In general, the scope of the research proposal should be consistent with 3 peer-reviewed publications. The research proposal must be completed before the student can sit for the Qualifying Examination, and should be completed by the end of the second year in the PhD program. Students should work closely with their Supervisory Committee during the preparation of the research proposal.

Overall, the proposal should be consistent with requirements for the R-series funding mechanisms (e.g. R03) the National Institutes of Health. The proposal should include the following sections (length is a suggestion, single spaced):

1. Specific aims (1 page) – Propose 2-4 specific aims, and provide a short rationale for the aims.
2. Significance (1-2 pages) – Describe the significance of the problem being studied to occupational or environmental health, and identify knowledge gaps addressed by the research. Refer to funding announcement from a relevant federal agency for criteria used to define significance in your area of research.
3. Innovation (0.5 pages) – Explain how the research topic and/or research method is innovative and relative to the work of others.
4. Approach (4-8 pages) – Explain the methods that will be used to collect and analyze data to achieve the study objectives. Provide power calculations, if relevant. Describe any preliminary data to demonstrate feasibility of the research. Identify alternative methods, and justify your choice. Name the statistical tests proposed, and explain how the results of the tests will answer the research questions.
5. References (as needed) – Please list all cited references.
6. Timeline (0.5 pages) – Identify which research activities will be done when, to demonstrate the work can be completed in a reasonable point of time.
7. Budget and Budget Justification (1 page) – Identify and justify any expenses required to conduct the research.
8. Human subjects (1 page) – If the research involves human subjects, discuss the risk and benefits to participants, inclusion and exclusion criteria, the recruitment and consent process, methods

to protect the privacy and rights of participants, and identify the status of the IRB review. If the research does not involve human subjects, but it involves people, explain why the research is exempt from review. If the research involves animal subjects, provide similar information. Refer to guidelines for the NIH for definitions related to human subjects research.

9. Data management (1 page) – Explain how data will be stored. Explain quality control and assurance procedures for data entry and data analysis.

Consistent with guidelines for grant proposals from the National Institutes of Health,

- Use appropriate, informative headings and subheadings;
- Use informative table and figure captions;
- Use 11-point Arial font, single spacing, and 0.5-inch margins.

5.3.7 Qualifying Examination

The qualifying examination is intended to evaluate whether the student is prepared to conduct the proposed research, and should be completed by the end of the second year of study in the PhD program. After the Supervisory Committee approves the research proposal, the student will work with the Supervisory Committee Chair to schedule the qualifying examination. The qualifying examination (whole or part) may be repeated once, at the discretion of the Supervisory Committee; failure of the qualifying examination will result in dismissal from the PhD program. Students that successfully pass the qualifying examination advance to candidacy and become *Doctoral Candidates*.

The qualifying examination includes an oral component and written component. With respect to the written component, the committee will prepare 6-10 questions for the student to answer in a take-home examination (to be completed within 7 calendar days). The questions may cover: 1) learning outcomes from required coursework, 2) topics and methods related to the research proposal or students' PhD program emphasis. Each question will be evaluated on the basis of Satisfactory or Unsatisfactory. With respect to the oral component, the student will meet with the Supervisory Committee and will 1) give an oral defense of the research proposal, and 2) respond to questions about the written component of the examination or the research proposal. The oral component will be evaluated on the basis of Satisfactory or Unsatisfactory.

The final outcome of the qualifying examination will be communicated in writing to the student, to the OEH Director of Graduate Studies, and the Academic Advisor by the Supervisory Committee Chair within 28 calendar days of the oral presentation.

5.3.8 Dissertation and Final Oral Examination

Doctoral Candidates must prepare a written dissertation that is responsive to the research proposal. Any substantive deviations from the research proposal need to be approved by the Supervisory Committee in advance. The dissertation should include an introductory chapter, three chapters responsive to the study aims, and a conclusions chapter. The Introductory chapter should describe the: 1) importance of the problem addressed in the research to occupational or environmental health, and 2) the current state of knowledge and knowledge gap that motivates the research. Each of the three chapters responsive to the study aims should stand alone as manuscripts of publishable quality; the expectation is that at least one of these chapters will have been submitted for publication prior to

graduation. The conclusion chapter should: 1) link the three papers together and place the findings in the context of occupational or environmental health, 2) identify strengths and limitations of the completed research, 3) identify new or remaining knowledge gaps related to the research, and 4) propose future directions for research on this topic.

The Graduate School determines the policies and procedures, including submission procedures and formatting requirements, for the dissertation, and these are described in *A Handbook for Theses and Dissertations*, which is available at: [Graduate School Thesis Handbook](#)

During the preparation of the dissertation, Doctoral Candidates are strongly encouraged to share drafts with their Supervisory Committee, particularly their Supervisory Committee Chair, so as to receive timely feedback. The Supervisory Committee must receive a copy of the final dissertation at least 3 weeks before the final oral examination.

The purpose of the final oral examination – the dissertation defense – is to evaluate whether the Doctoral Candidate can support the methods, results, interpretation and impact of their research amongst a group of peers. The final oral examination is scheduled by the Supervisory Committee and is chaired by the Chair of the Supervisory Committee. The oral examination involves a ~~and~~ public presentation of the research by the student (approximately 30 minutes) and questions from the public, followed by private questioning by the Supervisory Committee.

The final oral examination is considered a public seminar. As such, the Graduate School requires the date and time of the final defense to be widely posted at least 7 days in advance. Wide posting is defined as including, at a minimum: entrances to the RMCOEH, office areas, the entrance to the RMCOEH classroom, on the bulletin board of the Ergonomics and Safety Program in the Department of Mechanical Engineering, and on the bulletin board of the Department of Family and Preventive Medicine. In addition, an email announcement must be distributed to the Occupational and Environmental Health Division list serve (faculty, staff and students) and the event announced in the weekly announcements from the Department of Family and Preventive Medicine.

At the conclusion of the final oral examination, the Supervisory Committee may require changes to the dissertation, and may require another final oral examination. When any required changes have been made and the Supervisory Committee determines the work is complete, the Supervisory Committee must sign the Supervisory Committee Approval form indicating that the dissertation has been found satisfactory for the PhD. A majority vote of the Supervisory Committee is required. Finally, the Chair of the Supervisory Committee and the Department Chair or Dean sign the Final Reading Approval form, which certifies that the final dissertation has been read, approved, and that all materials are in order for submission to the Graduate School.

The approved dissertation must be submitted to the Thesis Office in the Graduate School for format approval no later than 7 weeks prior to the closing date of the semester (the last day of final examination), and no later than 8 weeks prior to the closing date of the semester for dissertations in excess of 200 pages.

5.3.9 Teaching

Training in and experience with teaching is required for PhD students, pursuant to the program competency 1, *Develop and deliver educational content related to occupational or environmental*

health to undergraduate or graduate students, or professionals. This specifically entails:

1. Participation in teaching training activities, such as a formal class, seminar or workshops offered across campus. The specific training activity should be selected in consultation with the Supervisory Committee Chair, and documented upon completion in the regular progress reporting.
2. Delivery of at least 2 hours of educational content to undergraduate or graduate students, or professionals. The teaching may be integrated into a formal class. The student is expected to develop: learning objectives, a teaching plan, and an assessment. The student is expected to use at least two pedagogical techniques, such as lecture and a small group activity. The assessment may be formal (e.g., a quiz or writing activity completed outside of class) or may be informal (e.g., journaling in class, discussion).

The delivery of educational content must be observed and evaluated by a faculty member – the Supervisory Committee Chair, instructor of the course or the Director of Graduate Studies. The faculty member will provide a letter containing constructive feedback, and discuss this feedback with the student. The letter will be provided to the Academic Advisor for retention in the student file.

5.4 Requirements Specific to the PhD Emphasis in General Occupational and Environmental Health

The PhD emphasis in General Occupational and Environmental Health does not have any courses specifically required beyond the core courses for all PhD students (Table 7). Students should work with their Supervisory Committee to identify a series of courses that prepares them to conduct research in Occupational and Environmental Health, which may include classes from diverse departments and schools at the University of Utah.

5.5 Requirements Specific to the PhD Emphasis in Industrial Hygiene

Most students entering the PhD program with emphasis in Industrial Hygiene will have had previous graduate training in Industrial Hygiene or a closely related field. In addition to the PhD program core courses (Table 7), three courses are required for the emphasis in Industrial Hygiene (Table 8). Some of the courses required for the Industrial Hygiene emphasis (Table 8) may be waived based on previous coursework or work experience. Students should work with their Supervisory Committee to identify a series of elective courses that prepares them to conduct research in Industrial Hygiene, which may include classes from diverse departments and schools at the University of Utah.

Table 8. Required Courses for the PhD emphasis in Industrial Hygiene.

Course No.	Course Name	Credits
OEHS 6751	Advanced Industrial Hygiene	4
OEHS 6752	Introduction to Industrial and Environmental Toxicology & Physiology	3
OEHS 6753	Industrial Ventilation	3
Total IH Emphasis Credits		10

5.6 Requirements Specific to the PhD emphasis in Occupational Injury Prevention

Students in the Occupational Injury Prevention program come from a diverse background and previous training, including epidemiology, public health, mechanical engineering, nursing, medicine, health, kinesiology, psychology, and environmental health. In addition to the PhD program core courses (Table 7), courses are required for the emphasis in Occupational Injury Prevention (Table 9). Some of the courses required for the Occupational Injury Prevention emphasis may be waived based on previous coursework or work experience. Students should work with their Supervisory Committee to identify a series of elective courses that prepares them to conduct research in Occupational Injury Prevention, which may include classes from diverse departments and schools at the University of Utah.

Table 9 . Required courses for PhD in OEH, Emphasis in Occupational Injury Prevention

Specific Occupational Injury Prevention-Occupational Injury Epidemiology Emphasis PhD Program Requirements

FPMD 7720	Occupational Injury Epidemiology	3
FPMD XXXX	Specific Program Electives (estimate)	10*
	Subtotal OIP emphasis credits	13
	Total Semester Hours	49

*depending on MS workload

Electives		
PBHLT 7300	Epidemiology II	3
FCS 6120	Demographic Methods	3
MDCRC 6240	Community Intervention Studies	2
MDCRC 6160	Pharmacoepidemiology	1
MDCRC 6040	Design and Implementation of Clinical Trials	2
MDCRC 6120	Cost-Effectiveness Analysis	1
PBHLT 6311	Public Health and Clinical Research Methods	2
PBHLT 6320	Qualitative and Mixed Methods in Public Health	3
PBHLT 7310	Advanced Research Design	3
Biostatistics		
MDCRC 6210	Regression Models	1
MDCRC 6130	Introduction to Decision Analysis	1
MDCRC 6140	Intermediate Decision Analysis Modeling	1
MDCRC 6200	Meta Analysis	1
OEHS 6730	Quantitative risk assess	3
PBHLT 6106	Categorical Data Analysis	3
MATH 5040	Stochastic Processes and Simulation I	3
MDCRC 6020	Data Management	3

PBHLT 6101	Data Analysis using SAS	3
Ergonomics and Safety		
MEEN 6120	Human Factors Engineering	3
MEEN 6110	Industrial Safety	3
MEEN 7100	Advanced Ergonomics	3
MEEN 7105	Advanced Ergonomics Lab	3
MEEN 7110	Systems Safety	3
MEEN 7120	Functional Musculoskeletal Anatomy for Engineers	3
MEEN 6960	Work Physiology and Occupational Heat Stress	2
Management		
MGT 6051	Managing and Leading in Organizations	1.5-3.0
Toxicology		
OEHS 6752	Introduction to Toxicology**	3
PHTX 7114	Principles of Toxicology	2
PHTX 7620	Analytical Toxicology	2
PHTX 7630	Mechanism of Toxicology	2
Finance		
ECON 7320	Advanced Health Economics	3
ACCTG 5110	Financial Accounting I	3
MDCRC 6230	Health Services Research	3
FINAN 5270	Business Risk Management	3
Hazardous Substance Course		
OEHS 6756	Hazardous Substances	3
Evidence Based Practice Courses		
PHIL 7570	Case Studies and Research Ethics	1
PHIL 6540	Engineering, Ethics, and Society	3
OEHS 6504	Clinical Behavioral Aspects of Preventive Medicine	3
Industrial Hygiene, Occupational Injury and Disease Courses		
OEHS 6751	Advanced Industrial Hygiene**	3
OEHS 6730	Quantitative Risk Assessment	3
OEHS 6753	Industrial Ventilation**	2
OEHS 6754	Noise and other Physical Agents	2
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Disease	3
Ventilation		
ME EN 6700	Intermediate Fluid Dynamics	3
ME EN 6710	Aerodynamics	3

5.7 Occupational Injury Epidemiology Competencies for the PhD program

- a. Demonstrate knowledge of principles and research methods in occupational and environmental health and occupational injury prevention.
- b. Develop and deliver OIP specific educational content to undergraduate or graduate students, or professionals.
- c. Conceive, design and conduct original research that responds to a gap in knowledge and advances knowledge in the field of occupational and environmental health.
- d. Convey scientific and technical information to diverse audiences through writing
- e. Demonstrate effective oral communication
- f. Engage with interdisciplinary teams and the scientific community
- g. Translate and disseminate research findings in occupational and environmental health to the public or non-academic organizations.
- h. Apply principles of ethics to Occupational and Environmental Health

5.8 Additional Funding-Based Requirements

PhD students may receive financial support for their studies through a variety of mechanisms, some of which come with additional requirements (Table 3). The source of funding should be clearly indicated on any offer letters, along with the funding-based requirements. All PhD students are able to participate in activities, but the activities are only required for students receiving financial support through that specific funding mechanism.

Table 3. Activities required by specific funding mechanisms

Activity	Required for students who are:
Present at Journal Club once per year	Supported by the Rocky Mountain Center for Occupational and Environmental Health NIOSH Education and Research Center grant
Participate by providing an educational component in the Targeted Research Training Seminar twice	Supported by the Targeted Research Training program in the Rocky Mountain Center for Occupational and Environmental Health NIOSH Education and Research Center grant
Be either a Research Assistant or Study Coordinator for a Research Study or Project	Supported by either the Occupational Injury Prevention Research Training program or Targeted Research Training program in the Rocky Mountain Center for Occupational and Environmental Health NIOSH Education and Research Center grant
Be a Teaching Assistant for a Course	PhD students Supported by either the Occupational Injury Prevention Research Training program or Targeted Research Training program in the Rocky Mountain Center for Occupational and Environmental Health NIOSH Education and Research Center grant

5.9 Summary of Important Dates, Deadlines and Milestones

A 4-year timeline of student activities, with key milestones and deadlines, is shown in Table 105. By the second year of study, PhD students should have formed a Supervisory Committee and be meeting with

that committee at least once per semester: The student and Supervisory Committee chair must document student progress once per semester.

Students are strongly encouraged to present their work at conferences and to publish papers in the peer-reviewed literature throughout their time in the PhD program.

Table 10. Deadlines and milestones for completion of the PhD.

Year 1
<ul style="list-style-type: none"> <input type="checkbox"/> Form a Supervisory Committee, and submit relevant paperwork to the Academic Advisor <input type="checkbox"/> Develop a Program of Study for approval by the Supervisory Committee <input type="checkbox"/> Begin developing research proposal ideas
Year 2
<ul style="list-style-type: none"> <input type="checkbox"/> Prepare research proposal <input type="checkbox"/> Complete Qualifying Examination <input type="checkbox"/> Start dissertation research <input type="checkbox"/> Meet with Supervisory Committee and submit Progress Evaluation form each semester <input type="checkbox"/> Consider: writing a grant to support your dissertation research, such as the Pilot Project Training Program grants from RMCOEH; attending at Dissertation Boot Camp hosted during Fall and Spring Breaks by the Graduate School and/or Dissertation Boot Camp hosted by RMCOEH Sr. Technical Writer; submitting an abstract to a conference
Year 3
<ul style="list-style-type: none"> <input type="checkbox"/> Continue dissertation research <input type="checkbox"/> Prepare and submit a paper for publication <input type="checkbox"/> Submit an abstract to a conference <input type="checkbox"/> Meet with Supervisory Committee and submit Progress Evaluation form each semester <input type="checkbox"/> Consider: writing a grant to support your dissertation research, such as the Pilot Project Training Program grants from RMCOEH; attending at Dissertation Boot Camp hosted during Fall and Spring Breaks by the Graduate School and/or Dissertation Boot Camp hosted by RMCOEH Sr. Technical Writer; submitting an abstract to a conference
Year 4
<ul style="list-style-type: none"> <input type="checkbox"/> Candidate's Program of Study with approval by the Supervisory Committee must be submitted to the Graduate School no later than one semester prior to graduation. <input type="checkbox"/> Apply for graduation through the Office of the Registrar for May Graduation <input type="checkbox"/> Complete dissertation <input type="checkbox"/> Complete final oral examination <input type="checkbox"/> Submit papers for publication <input type="checkbox"/> Meet with Supervisory Committee and submit Progress Evaluation form each semester <input type="checkbox"/> File dissertation with the Graduate School

6 Graduate Certificate of Occupational Safety and Health

a. Admissions Requirements

Application materials will be screened for suitability for graduate work by the OEH Program's Admissions Committee. Materials may include GRE scores, transcripts, and reference letters. Applications are reviewed through the same process as MSOH Applications, which is outlined above in section I. a. i.

b. Program Coursework

The purpose of the Graduate Certificate of Occupational Safety and Health (COSH) is to help meet graduate-level regional and national needs for personnel trained in areas related to Occupational Safety and Health. The COSH will require students to complete at least 15 credit hours of graduate level coursework. Students elect to participate in one of the following options:

- COSH with emphasis in Ergonomics and Safety (E&S)
- COSH with emphasis in Industrial Hygiene (IH)
- COSH without emphasis (General OSH, (G))
- COSH with emphasis in Occupational Health (OH)

Students in the Graduate Certificate of Occupational Safety and Health Program will typically have completed a baccalaureate degree in chemistry or biology or physics. Many of these students already have jobs with occupational health and safety responsibilities and will be seeking improved knowledge and skills to better perform or advance in their careers.

Some COSH students will wish to continue beyond the COSH to masters or doctoral studies in occupational health and safety. The COSH will be of interest and value to professionals outside of those working in industrial hygiene, safety, ergonomics, occupational health, or related fields. This certificate will benefit physicians and nurses working in occupational health.

COSH with emphasis in Industrial Hygiene

Course #	Course Title	Credits
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
Sub-Total		9
Elective Courses: Select at least two of the following courses		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6752	Introduction to Industrial Toxicology and Physiology	3
OEHS 6751	Advanced Industrial Hygiene	3
OEHS 6753	Industrial Ventilation	3
OEHS 6754	Noise and Other Physical Agents	2
OEHS 6756	Hazardous Substances	3
OEHS 6730	Quantitative Exposure Assessment	3
Total Number of Credits		15

COSH with emphasis in Occupational Health

Course #	Course Title	Credits
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3

OEHS 6760	Administration and Management of Health and Safety Programs	3
Sub-Total		9
Elective Courses: Select at least three of the following courses		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6752	Introduction to Industrial Toxicology and Physiology	3
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Diseases	3
Total Number of Credits		15

COSH with emphasis in Ergonomics and Safety

Course #	Course Title	Credits
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
OEHS 6761	Ergonomics	3
ME EN 6110	Introduction to Industrial Safety	3
Total Number of Credits		15

COSH without emphasis

Course #	Course Title	Credits
OEHS 6370	Occupational Epidemiology	3
OEHS 6750	Fundamentals of Industrial Hygiene	3
OEHS 6760	Administration and Management of Health and Safety Programs	3
Sub-Total		9
Elective Courses: Select at least two of the following courses		
OEHS 6000	Applied Occupational Biostatistics	3
OEHS 6752	Introduction to Industrial Toxicology and Physiology	3
OEHS 6703	Clinical and Behavioral Aspects of Occupational Injuries and Diseases	3
OEHS 6751	Advanced Industrial Hygiene	3
OEHS 6753	Industrial Ventilation	3
OEHS 6754	Noise and Other Physical Agents	2
OEHS 6756	Hazardous Substances	3
OEHS 6730	Quantitative Exposure Assessment	3
OEHS 6761	Ergonomics	3
ME EN 6110	Introduction to Industrial Safety	3
ME EN 6120	Human Factors Engineering	3

c. Important Deadlines

For graduation deadlines please visit: <https://registrar.utah.edu/graduation/>

7 Targeted Research Training Program

The goal of the Targeted Research Training (TRT) program is to graduate ground-breaking, independent researchers in occupational safety and health who have received advanced research training. This is accomplished through a curriculum that includes supplementary training activities. Students in the Occupational and Environmental Health PhD program (any emphasis) and in the Mechanical Engineering PhD program (Ergonomics & Safety emphasis) may receive financial support through the TRT program at the RMCOEH. Any other PhD student may also participate in TRT program activities.

The TRT program is organized around three themes: 1) Exposure Science, 2) Transportation Safety and 3) Occupational Biomechanics. Students receiving financial support through the TRT program should align their research with one of the three themes. Students may propose other themes if sufficient expertise and interest is available among the faculty.

Students receiving funding through the TRT program are required to:

1. Participate in *TRT Seminar* (OEHS 7800, 1 credit hour) three times
2. Complete five Research Administration Training Series (RATS) Core Courses. The five required RATS courses are:
 - a. Getting Published: Responsible Authorship and Peer Review
 - b. Proposal Preparation, Processing, and Review
 - c. Budget Preparation and Development
 - d. Grants Management Essentials
 - e. Seminars in Leadership, Teamwork and Motivation
3. Completion of *Occupational Health and Safety Solutions* (OEHS 7715)
4. Completion of one the following courses, based on the student's research theme:
 - a. *Quantitative Exposure Assessment* (OEHS 6730)
 - b. *Research Methods in Transportation* (OEHS XXXX)
 - c. *Advanced Occupational Biomechanics* (MEEN 7100)

Upon completion of the RATS courses, students must send a copy of the certificate of completion to the Academic Advisor.

8 Details about Extra-Curricular Training Requirements

8.1 Research Administration Training Series Core Courses

The Research Administration Training Series (RATS) Courses are offered by the Office of the Vice President. There are dozens of courses available about different aspects of research management. Courses may be online and/or in person. All courses require online registration. Online classes are offered through the online learning management system, Canvas/Instructure. For more information

about RATS courses and to sign-up for courses, please see the following web-site:
<https://education.research.utah.edu/research-education-training-series.php>.

To document completion of any RATS course, students must send a copy of the certificate of completion to the Academic Advisor.

8.2 Protection of Human Subjects

IRB CITI Training for the protection of human subjects is required for all students, faculty, and staff in the RMCOEH. The RMCOEH has extensive research studies, patient care and other information that requires careful attention to the protection of human subjects. Accordingly, training is required for all RMCOEH faculty, students and staff. Training can be completed [here](#).

9 University Policies

9.1 Leave of Absence/Family Medical Leave & Parental Leave Policies

Students are required by the Graduate School to be enrolled in at least one class per semester.

Students who wish to discontinue their studies for one or more semesters (other than Summer semester) may request a leave of absence to postpone their studies for up to 1 year. The leave of absence must be approved by the student's Supervisory Committee Chair, the Director of Graduate Studies or Department Chair, and by the Dean of the Graduate School. Students must complete a [Graduate Leave of Absence Form](#), which is available through the Office of the Registrar.

Requests may be granted on a yearly basis for the following circumstances:

1. Illness, military service, pregnancy, child care, residence outside the State of Utah, and work in progress in which students are not in continual contact with their Supervisory Committee or other members of the faculty.
2. When students, in the judgment of their Supervisory Chair, are engaged in work considered beneficial to their academic goals, such as temporary teaching or professional employment, that allows the student ultimately to complete the degree.
3. For other reasons when the student's Supervisory Chair believes the leave is in the best interest of both the student and the University.

Students must apply for leaves of absence for a current semester by the last day of classes of that semester. They also must officially withdraw from classes in any semester for which a leave is granted. Failure to withdraw formally results in the reporting of E or EU grades for all classes. For more information about official withdrawal, see Grading Policies [here](#). The period during which a leave of absence is granted does not count toward the period allowed to complete the degree. Leaves are granted for a maximum of 1 academic year at a time. The leave of absence is void if a student registers for classes in a semester for which a leave was granted.

RMCOEH provides up to twelve (12) weeks of parental leave to graduate students in good standing in the MOH, MSOH and Ph.D. programs, provided they have not yet defended their theses or dissertations. Ordinarily this twelve-week period will begin with the birth date of the child but

adjustment may be made to accommodate any issues that may arise prior to the birth. In some circumstances, men who are the primary caregiver within the family may qualify and may petition the chair for such consideration. Students who qualify for this leave will be paid at their normal rate. Should additional medical complications arise that require longer term medical care, affected students should seek a leave under the policy for graduate student leaves.

9.2 Minimum Grades

Candidates for graduate degrees at the University of Utah are required to maintain a 3.0 or higher GPA in coursework counted toward the degree. In addition, a grade below B- is not accepted for credit for a required class) needed for any of the OEH graduate degrees (MSOH/MOH/PhD), and indicates a student has not demonstrated competence in a discipline necessary for success within that RMCOEH Program. Please refer to the Graduate School Grading and Credit Policies at <https://gradschool.utah.edu/graduate-catalog/grading-and-credit-policies/>.

The following actions will be taken when students receive lower than a B-:

1. Students who receive a grade lower than a B- in a required course are on probation. The student will be notified in writing that they are on departmental probation.
2. These students will be allowed to retake the class 1 time and must earn a B- or higher grade in the course or they will be automatically dismissed from the program.
3. A student who receives a grade of below B- in a core course will be permitted to take other program courses for which this core course is not a prerequisite. Students will not be permitted to accrue more than 15 additional credit hours before retaking the core course.
4. A student who earns a grade below B- in 2 core courses will not be permitted to enroll in any further courses until they have retaken both courses and receives grades of B- or better.
5. If a student receives an unacceptable grade in three or more core courses, they will be automatically dismissed from the program.
6. Two grades lower than a B- in elective courses will also be a consideration for dismissal.

Actions arising from the minimum grades policy may be appealed by the student using the appeals process outlined by the University of Utah in the Code of Student Rights and Responsibilities ([Policy 6-400](#)).

9.3 Credit/No-Credit Policy

The intent of the credit/no-credit (CR/NC) option is to free students to extend their studies to areas outside their major or specialty and to take classes they otherwise may not have taken if they had to compete with majors for a letter grade. Some sources of financial support are unable to be used to pay for tuition to cover courses taken CR/NC (including the RMCOEH's NIOSH training grant), so students must check with the Academic Advisor and the Program Director to verify that courses taken CR/NC are eligible for tuition benefit.

The following applies to taking classes CR/NC:

1. During the first year in graduate school at the University of Utah, the student, if the department concurs, may register for one class each semester on a CR/NC basis.

2. Of the first year's work, courses taken for CR/NC grades may not exceed approximately 25% of the student's total credits and generally should be less than 25%. In some cases, especially if the student plans to do doctoral work, the Director of Graduate Studies or Chair of the student's Supervisory Committee may determine it is desirable that all classes be taken for letter grades the first year. If so, the program should be outlined accordingly.
3. After the first year, the student may request permission from the Director of Graduate Studies to register for more than one class per semester on a CR/NC basis.
4. Students may not elect to register for CR/NC courses for core OEH Programs courses unless a course is offered only on a CR/NC basis.
5. All courses earning credit of 1 hour are graded on a CR/NC basis, unless use of regular letter grades is approved by the Graduate Council.
6. Students should earn a grade of C or better to be entitled to credit. Students who do not wish to register for credit, either for a letter grade or CR/NC, should audit the course.
7. Students enrolled in a class for CR/NC may change to a letter grade any time before the Monday of the last week of classes. Graduate students are cautioned that it is important they receive letter grades in order to build a graduate GPA. This is especially important if students apply for fellowships or traineeships on a competitive basis or later transfer to another institution.
8. All data collected as part of the thesis or research project must be submitted to the committee chair before final grades will be issued.

9.4 Petition for Graduate Credit

OEH graduate students may be allowed to receive credit (≤ 6 credit hours or two courses) towards their graduate degree for select certain graduate-level courses (5000 level and above) taken while enrolled as an undergraduate student for which a B grade or better was received. Courses must have been taken no more than three years prior to the petition. Credit used to earn the undergraduate degree may not be counted toward a graduate degree. The request is submitted using the [Undergraduate Petition for Graduate Credit](#) form, available from the Office of the Registrar. The head of the undergraduate program must verify that the courses were not required as part of the undergraduate major or minor.

9.5 Transfer of Credit

Graduate credit may be transferred from other institutions, and used for only one University of Utah degree. Up to 6 semester hours of transfer credit may be applied toward fulfillment of graduate degree requirements if:

1. The student received a high letter grade (A or B grade only)
2. The transfer is recommended by the student's Supervisory Committee (including review of the syllabus by the relevant course for which credit is requested) and the Director of the OEH Graduate Program, and
3. The courses were taken no more than four years prior to the petition.

Courses will be reviewed on a course-by-course basis, using the course syllabus and course materials, to determine sufficient coverage and/or overlap with courses required by the student's OEH graduate program. The transfer of credit and substitution for a required course must be approved by the instructor and the Director of the OEH Graduate Programs. In the case where the student is receiving a NIOSH-funded traineeship, the student's Program Director must also approve the transfer of credit and substitution.

9.6 Limits on Credit Hours

A schedule of 9 credit hours per semester is considered full-time for graduate students. No student in a graduate program is permitted to register for more than 16 credit hours in any single semester. Graduate students electing to register for 17 credit hours or more must file a formal petition to the Dean of Graduate Studies. This petition must include:

1. A completed [Petition Form](#)
2. Two letters of support from their Committee members
3. An approval letter from the Program Director

Credit earned by non-matriculated students may apply to a graduate degree program, but it must be approved by the OEH Graduate Program Director. Non-matriculated credit that can be applied toward a graduate degree is limited to 9 semester hours. Applying more than 9 hours of non-matriculated work to the degree requires approval of the Dean of The Graduate School.

10 Financial Information

10.1 Tuition Waivers

<https://financialaid.utah.edu/tuition-and-fees/tuition-waivers.php>

Tuition waivers normally are awarded for two semesters per academic year. Students may utilize their scholarships during summer terms if they enroll full time (9 hours); however, no student may receive a tuition waiver for more than eight semesters. Incompletes, repeated hours, withdrawals, correspondence courses, and audited hours are not acceptable to count towards renewal of scholarships.

Students may receive only one University of Utah full tuition waiver scholarship. If a student is awarded more than one such scholarship, it will be necessary to indicate a preference for one and to decline all others. In addition, students on tuition waiver scholarships are required to take a minimum of 12 credit hours per semester.

10.2 Financial Support Policies

https://regulations.utah.edu/academics/revisions_6/6-420.pdf

(POLICY 6-420 Scholarship, Grant, Fellowship and Tuition Waiver Policy: The purpose of this policy is to enhance the overall coordination of Scholarship, Grant, Fellowship and Tuition Waiver and related forms of financial aid for students, as between individual academic colleges and departments, service

departments, and all personnel involved in the student financial aid awarding process. Public confidence in University stewardship of these resources is achieved when the highest ethical standards of impartiality and fairness are maintained through all stages of processing awards and when internal controls operate effectively.)

10.3 Scholarships through RMCOEH

There are multiple scholarship opportunities for students at the University of Utah. RMCOEH students are also eligible for, and frequently receive national awards. Scholarship opportunities limited to the RMCOEH's students are listed below. All applications for these scholarships must be submitted to Toni Chambers by **March 1**—The RMCOEH Center Director, on the recommendation of a scholarship committee, has the discretion to determine which student(s) shall receive scholarships and the amount awarded.

The **DR. RICHARD E. JOHNS ENDOWED SCHOLARSHIP** was established by the family of Dr. Johns in his memory and to honor his legacy of education and scholarship. Dr. Johns was the Occupational Medicine Director for RMCOEH from 1987-1989 and Medical Director for ATK Thiokol. RMCOEH will award individual scholarship(s) with a value of up to \$1,000 for use for tuition, fees, and full-time academic expenses while pursuing graduate studies. To be eligible, an entering student must: meet all admissions requirements to the OEH program for which the student is a candidate *OR* be a current student:

- Have an overall undergraduate GPA of 3.0 (on a 4.0 scale) or better.
- Write a personal statement. (1-page maximum, 12 pt. Arial or Times New Roman)
- Demonstrate the potential to excel in graduate-level programs by work/life experiences, etc.
- Complete the Dr. Richard E. Johns Scholarship Application form.
- Academic year only.

Selection criteria include: 1) past academic performance; 2) professional, work or personal experience; 3) financial need; and/or 4) potential to complete the program and contribute to worker health and safety.

The **R. JESSICA HANFORD, MD, MPH SCHOLARSHIP** is also known as the *Rocky Mountain Center for Occupational and Environmental Health Random Poetry Prize*. Applications for this scholarship consist solely of the submission of an original poem on the subject of occupational health and safety. One scholarship recipient in good standing will be chosen by random drawing, with the only additional requirement being that the winner will be awarded the prize upon acceptance of the poem for publication. Dr. Hanford generously provided this award to encourage creativity and to “playfully protest all the required non-winning scholarship essays I didn’t have time for.” Her requirements include that the “length of the poem should not exceed 65 words by more than five words. Spelling and punctuation count. It should be of publishable quality.”

The **ROYCE MOSER, JR. AND LOIS H. MOSER ENDOWED SCHOLARSHIP IN OCCUPATIONAL HEALTH** is awarded to an outstanding student who has been accepted into a Graduate Degree Program in one of the RMCOEH's Occupational and Environmental Health and Safety programs at the University of Utah. For purposes of this scholarship, occupational health fields include: Industrial Hygiene, Occupational Medicine, Occupational Injury Prevention, Ergonomics and Safety, and Aerospace Medicine. If not enrolled in one of the RMCOEH's degree programs at the University of Utah, the student must demonstrate substantial interest in occupational health. The scholarship will be awarded based on

outstanding academic achievement, financial need, and for academic year only.

The **DALLAS BRADFORD ENDOWED SCHOLARSHIP IN OCCUPATIONAL HEALTH** is awarded to an outstanding student who has been accepted into a Graduate Degree Program in one of the RMCOEH's Occupational and Environmental Health and Safety programs at the University of Utah. For purposes of this scholarship, occupational health fields include: Industrial Hygiene, Occupational Medicine, Occupational Injury Prevention, and Ergonomics and Safety. The scholarship will be awarded based on outstanding academic achievement and/or financial need.

The **DR. PAUL S. RICHARDS WCF INSURANCE SAFE WORKPLACE SCHOLARSHIP** was established by WCF Insurance in an effort to serve the 19,000 Utah employers and their employees in Utah. The scholarship is intended for graduate students studying Occupational Medicine, Safety and Ergonomics, Industrial Hygiene and Occupational Injury Prevention at RMCOEH. WCF funds and awards individual scholarships valued up to \$5,000 for use towards ~~for~~ tuition, fees, and full-time academic expenses while studying at RMCOEH. **The program is administered by WCF Insurance.** Completed application forms, transcripts and letters of recommendation must be received at WCF Insurance, 100 West Towne Ridge Parkway, Sandy, Utah 84070, **Attention Steffanie Pickup Campasano – Legal Dept. by March (TBD).** The applicant is solely responsible to assure all materials are received at WCF Insurance's office by the deadline. If you have questions, please contact Toni Chambers or Dr. Hegmann.

Selection criteria include:

- Past academic performance;
- Professional, work or personal experience;
- Financial need; and
- Potential to complete the program and contribute to worker health and safety. Selections will be made by a panel chosen by WCF Insurance.

Additional Helpful Resources

Getting to Campus	
<p>Getting to Research Park: TRAX: Take the Red Line Train to University South Campus Station, then ride the Purple University of Utah shuttle bus to the intersection of Wakara Way and Chipeta Way UTA Bus: Route 228, 313, 455 and 473 drop off in Research Park. For the most up to date bus schedules visit: rideutah.com</p>	
UTA Transit Pass	commuterservices.utah.edu/mass-transit/
Parking Services	https://commuterservices.utah.edu/
New to the U Resources	
UCARD Services (University ID)	ucard.utah.edu
New Student Guide from University Information Technology (UIT)	<p>Includes: Free/ discounted software, connecting to the university's wireless network, security policies, sign-up for and other helpful IT resources. https://it.utah.edu/help/it_guides/new_student_guide.php</p>
Campus Safety	
Campus Alert System	alert.utah.edu
Department of Public Safety	dps.utah.edu
Health Care	
Student Health	studenthealth.utah.edu
University Counseling Center	counselingcenter.utah.edu
Subsidized Health Insurance	gradschool.utah.edu/tbp/insurance-information/

Financial Resources	
Direct Deposit Information	https://www.hr.utah.edu/payroll/paycheck.php
Pay Period Calendar 2019 2020	https://www.hr.utah.edu/forms/lib/hrlpaycalFY2020.pdf
Subsidized Health Insurance	https://gradschool.utah.edu/tbp/insurance-information
Residency for Tuition Purposes	https://admissions.utah.edu/apply/residency
Tuition Benefit Program Requirements	https://gradschool.utah.edu/tbp/tuition-benefit-program-guidelines/
Personal Money Management Center	financialwellness.utah.edu
Resources Specific to Graduate Students	
The Graduate School	https://gradschool.utah.edu/
Marriot Library Graduate Resources	lib.utah.edu/services/education/gradstudents
Writing Center	https://writingcenter.utah.edu/

Additional Resources	
Student Success Tips from the Dean	deanofstudents.utah.edu/support/success.php
LBGT Resource Center	Includes a map of gender-free restrooms lgbt.utah.edu
Office of Equal Opportunity, Affirmative Action and Title IX	oeo.utah.edu
Women's Resource Center	womenscenter.utah.edu
Veterans Support Center	veteranscenter.utah.edu
International Student Services	iss.utah.edu
Childcare Resources	childcare.utah.edu
Contacting Professors	
Professional E-mails	http://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay
Scheduling appointments with Outlook	https://support.office.com/en-us/article/schedule-a-meeting-with-other-people-5c9877bc-ab91-4a7c-99fb-b0b68d7ea94f

A: Graduate Student Conduct and Dismissal Policy

A.1 Student Performance Expectations

The graduate programs sponsored by the Rocky Mountain Center for Occupational and Environmental Health (RMCOEH) within the Department of Family and Preventive Medicine (DFPM) at the University of Utah maintain the highest academic standards and abide by the general Standards of Behavior (Section III) and expectations of Professional and Ethical Conduct (Section VI) outlined in the University's Student Code of Rights and Responsibilities (University Policy # [6-400](#)). All graduate programs sponsored by RMCOEH within the DFPM also take measures to ensure that the Standards of Academic Performance (Section IV) and Academic Conduct (Section V) are met.

A.2 Unacceptable Academic Performance

Unacceptable or incomplete academic performance includes, but is not limited to:

- 1) Failure to pass all courses (including core, elective and remedial) with a grade of B- or better; and
- 2) A cumulative GPA of less than 3.0.

Unacceptable academic performance could lead to a maximal sanction of dismissal from the academic program.

A.3 Academic Misconduct

In a research environment, there is an absolute need for trust between a student and their mentor, consequently the RMCOEH and the DFPM take cases of academic misconduct very seriously. Cases of academic misconduct include, but are not limited to:

- 1) plagiarism,
- 2) cheating,
- 3) misrepresenting one's work,
- 4) fabrication or falsification of information,
- 5) disobeying any rule as specified by the program rules for exams and homework assignments (see below), and
- 6) intentionally helping, or attempting to help, another person commit an act of misconduct.

Students committing misconduct can expect up to three levels of sanction: sanctions imposed by the instructor(s), sanctions imposed by the RMCOEH/DFPM, and sanctions imposed by the university. An instructor may impose a maximum sanction of failing the student in the course. The RMCOEH/DFPM may expel the student from their chosen graduate program of study, and the university may expel the student from the university entirely, or even revoke a previously awarded degree. For each level of sanction, the student has the right to appeal. All cases of misconduct will be documented and placed in the student's file. *Adapted from the University of Utah Policy [6-400](#) and the University of Utah Bioscience PhD program.*

The RMCOEH/DFPM faculty reserve the right to use electronic software to scan reports, essays, papers, theses/dissertations, proposals and any other written material for evidence of plagiarism.

A.4 Program Rules for Coursework

The following rules apply to all examinations and written assignments for courses in the OEH graduate programs unless given specific direction otherwise by the course instructor:

1. A student must work entirely alone or in assigned groups/teams
2. A student may not share information about any aspect of the exam with any student who has not already taken the exam this year, or its equivalent in future years
3. A student must direct all questions concerning the exam or homework assignment to the course instructor
4. It is the student's responsibility to obtain clarification from the course instructor if there are questions concerning how these requirements apply within a particular course
5. A student shall not plagiarize. Plagiarism includes, but is not limited to: i) presenting another's writing, ideas, research, etc. as one's own original work; ii) using a figure, table, or data from another's work and failing to acknowledge the source; iii) lengthy paraphrasing without appropriate acknowledgement, including one's own previous work if published; and iv) use of images, tables, data, text, etc. from open sources without crediting the source and citing in accordance with the publisher's wishes

Please refer to the following definitions, as those students funded by training and research grants must also abide by federal standards.

Definitions

Since many graduate students are funded by training and research grants and must abide by federal standards, it is important to know the definition of scientific misconduct as defined by the U.S. government.

National Academy of Sciences Definition of Misconduct in Science: Misconduct in science is defined as fabrication, falsification, or plagiarism, in proposing, performing, or reporting research. Misconduct in science does not include errors in the recording, selection, or analysis of data; differences in opinions involving the interpretation of data; or misconduct unrelated to the research process. All students should be familiar with the rights and responsibilities articulated in the Code of Student Rights and Responsibilities, University Policy [6-400](#).

The following definitions, found in Section I.B. are particularly important to academic conduct within the Programs and are taken from University of Utah's Code of Student Rights and Responsibilities, University Policy [6-400](#).

1. Academic misconduct includes, but is not limited to, cheating, misrepresenting one's work, inappropriately collaborating, plagiarism, and fabrication or falsification of information, as defined further below. It also includes facilitating academic misconduct by intentionally helping or attempting to help another to commit an act of academic misconduct.
2. Cheating involves the unauthorized possession or use of information, materials, notes, study aids, or other devices in any academic exercise, or the unauthorized communication with another person during such an exercise. Common examples of cheating include, but are not limited to, copying from another student's examination, submitting work for an in-class exam that has been prepared in advance, violating rules governing the administration of exams, having

another person take an exam on one's behalf, or violating any rules relating to academic conduct of a course or program.

3. Misrepresenting one's work includes, but is not limited to, representing material prepared by another as one's own work.
4. Plagiarism means the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation. Plagiarism includes, but is not limited to, representing as one's own, without attribution, any other individual's words, phrasing, ideas, sequence of ideas, information, tables, figures, images, data or any other mode or content of expression.
5. Fabrication or falsification includes reporting experiments or measurements or statistical analyses never performed, manipulating or altering data or other manifestations of research to achieve a desired result, falsifying or misrepresenting background information,
6. Academic sanction means a sanction imposed on a student for engaging in academic or professional misconduct. It may include, but is not limited to:
 - Requiring a student to retake an exam(s) or rewrite a paper(s)
 - Issuance of a grade reduction or even a failing grade
 - Probation, suspension or dismissal from a program
 - Probation, suspension or dismissal from the university
 - Revocation of a student's degree or certificate

It may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.

Dept/College Research Policies

Please refer to the Policies and Compliance section of the [Office of Sponsored Projects](#).

Orderly Dismissal from Research Group, Program

See above.

Dispute resolution

The RMCOEH/~~the~~ DFPM, and the University of Utah encourage informal resolution of minor problems involving academic standards. Students are urged to discuss problems with the involved instructor(s), the Academic Advisor and the Director of Graduate Studies. Faculty may place letters of concern of conduct in the student's file if warranted.

Formal dispute resolution

A more formal process is required when there is a serious violation or if a student is charged with a second instance or multiple instances of academic misconduct. All accusations of cases of misconduct that are verified in the program review process will be documented in the student's file.

First Authorship

In all cases, and in a phases of publication, the student (and/or recent graduate of the RMCOEH) must coordinate publication(s) with the student's Supervisory Committee.

All RMCOEH students are directly and/or indirectly supported by funding from CDC/NIOSH and the State of Utah; thus, there is an imperative to publish the results of the research in return for the implicit trust placed in the RMCOEH by the U.S. and Utah taxpayers. As a general principle, students will be the first author on a publication that is the direct result of their thesis/dissertation. There are exceptions to first authorship which should be defined with the student and agreed upon early in the course of the identification of a thesis/dissertation topic; reasons could include (1) the student is for some reason unlikely to be able to defend the work in public; and (2) the research is the central thrust of the faculty member's research career, with clear expectations of follow-on grants to continue that line of work (thus, first authorship is heavily assistive in grant reviews as the author of the publication is the same as the PI of the grant submission).

If the student's research is not published by the student's graduation date, the latest manuscript copy (or copies) (ies), datasets, and data analyses must be forwarded to the student's Supervisory Committee Chair prior to graduation.

If after graduation and up to 6 months after graduation, the student continues to work with the Supervisory Chair to lead the efforts to publish the results, then the student may retain the right of first authorship.

If the timeline exceeds 6 months after the date of graduation and/or the work to publish falls on the RMCOEH faculty/staff, then the student will be removed from the position of first author.

In all cases, and regardless of first authorship by the student, the Corresponding Author will be the Supervisory Committee Chair. This is due to the problems of students moving, naturally being too busy in a new career, family demands, etc.

C: Scientific Writing and Research Project Paper Style Expectations

C.1 Requirements and Guidance

The following guidelines apply to all writing conducted as part of the MSOH, MOH, and PhD Programs unless provided other specific directions by an instructor. A helpful reference is *How to Write and Publish a Scientific Paper, 6th Edition* by RA Day and B Gastel (Westport CT: Greenwood Press, 2006).

A specific organization and formatting style are required for the final written research work product for the MSOH and MOH degree programs, unless otherwise approved by the Chair of the Supervisory Committee and the OEH Programs Director. Exceptions may be given to conform with a specific journal if the work will be submitted for peer-reviewed publication. Failure to follow the prescribed formatting style guidelines will result in required revisions, irrespective of the content.

The formatting style for PhD dissertations is specified by the Graduate School in [A Handbook for Theses and Dissertations](#). Incorrect formatting may result in the Graduate School rejecting a dissertation, delaying graduation.

C.2 General Principles

The following general principles apply for all sections of writing, as well as other documents such as letters, reports and other forms of communication in your careers.

1. Compose paragraphs.
 - a. There is to be one subject per paragraph.
 - b. There should be a main sentence for that paragraph, which is usually the first sentence.
 - c. Paragraphs should not be unduly long.
 - d. Avoid rambling, including unnecessary repetition.
2. Outline the thoughts you want to make in each section. They will form your main sentences for each of a succession of paragraphs.
3. There are rare instances where a paper should not be constructed in chronological order.
 - a. Sequencing a paper's paragraphs in non-chronological order will tend to be illogical. Invariably, it is difficult to follow as the reader is challenged to ascertain the sequencing, likely confusing the reader.
4. Use positive language.
 - a. Start by noting what you did and how.
 - b. Avoid beginning sections with what you did not do, or limitations and weaknesses.
5. Formal language at all times.
 - a. Do not use contractions (other than a contraction within a required quotation).
6. Simple sentences are desirable in scientific writing (this differs from fictional writing). Remember the goal is to provide clear communication.
 - a. Use precise, direct language.
 - b. Do not assume something is known.
 - c. If it can be written in a shorter sentence, it is better. It will be more clearly understood. On the other hand, if a person who is a student in a program, or otherwise in life, if someone else writes in a long, wordy manner with multiple conjunctions and rambles

in the belief this will help the writing style; and/or there is a belief this is a more advanced mode of communication; the student will have succeeded in producing a sentence the reader dislikes and makes the reader work harder which is not cognitive-ergonomically correct and not so infrequently, is somewhat confused about what the real intent of that given, rambling sentence, which can produce a series of interesting reactions in the reader that range the gamut from impatience to disgust to confusion to anger to a deep sigh, especially if the problem is repeated in other sentences and elsewhere, again in a mistaken belief of actually helping foster clarity of thoughts.

- d. Minimize negative sentences.
 - e. Avoid double negatives unless essential.
 - f. Avoid semi-colons. They have almost no use in formal scientific writing as they are by definition compound sentences. Compound sentences invariably invite more difficulty in reading and confusion, which is exactly what is to be avoided. The sole, infrequent exception is the use of semicolons to separate compound fragments in a list after a colon.
 - g. Colons should almost never be used other than to precede a list of items that follows.
7. Avoid excessive wordiness. The shorter the words used the better provided they convey the same meaning. For example, consider the following clause: "...at right angles in reference to the airflow inside the sample chamber." This may be simplified to: "perpendicular to the chamber airflow" without loss of information, while reducing the reading burden from 12 to 5 words.
 8. Spell check carefully. Do not solely rely on the automated spell/grammar checkers, as they are particularly inadequate for scientific terms.
 9. Avoid extreme language. Use extreme language only when unequivocally apropos.
 - a. "Very" is a very bad word to use.
 - b. Other extreme language is a warning flag for problems with exaggeration (e.g.):
 - i. Always, constantly continuously, continually, permanently;
 - ii. Never, nothing;
 - iii. Invariably, perpetually;
 - iv. Clearly, obviously, plainly, unmistakably.
 10. Avoid extending beyond what your data allow.
 - a. Results, Discussion and Conclusions should all be directly related to the methods and data you produced.
 - b. Avoid making statements or conclusions that extend beyond your data.
 - c. There are exceedingly few papers that are so strong that policy issues can come out of them. Speculating on policy issues in the discussion section of the paper generally raises questions about biases, raises concerns about where else the author exaggerated, paradoxically reduces persuasion, and invites rejection. This is rather thin ice that should be cautiously, if at all, trod upon especially if other papers in that journal do not speculate in policy. A better process is to not speculate on policy in a scientific paper, then let the editor and peer reviewers decide if such language is to be invited.
 11. Data are plural and datum is singular. Watch verb tenses, as your spell/grammar checkers will unequivocally not catch your errors. Data errors make you look non- scientific.
 12. e.g., (*exempli gratia*) is "for example." i.e., is (*id est*) is "that is." N.B. is (*nota bene*) is "note well." Please do not confuse these terms.
 13. With rare exceptions, use metric units and put (English units) in parentheses, if included at all.

14. Do not use abbreviations without defining them. For example, hydrogen sulfide (H₂S).
15. Use generic names, rather than trade names where possible. If a specific type of equipment is used to produce the results and it is important for the reliability of the results to specify the type of equipment, then note that name in one location in the methods where first mentioned in the methods section. Elsewhere, use a generic term. For medications or trade name chemicals, only use the trade name if absolutely essential or if that name is the name that is nearly universally used and use of the generic would produce confusion.
16. If the number is less than 1, use a zero in front of the decimal place so the reader sees the 0 (e.g., 0.05).
17. Do not start a sentence with a number. (It is acceptable to spell out the number, e.g., “One”).
18. Graphs should be made without color unless absolutely essential. Use other types of lines and boxes/circles. Color is costly, and you may be asked to pay for color figures to be published. Yet, if color is the only method to make the figure clear, then be sure to use it.

C.3 MSOH/MOH Research Project Structure and Formatting

When starting a research project, it is important to keep track of information continuously and systematically. This includes, but is not limited to: writing a formal study protocol, writing down methods that deviate from your study protocol, recording data, documenting statistical analyses, and noting what you are thinking as you were reading literature, collecting data or performing analysis. This will minimize the risk that necessary information is missing after the data collection or research project is finished, and you will have a lot of words already written down.

Titles: Titles explain research results succinctly.

Journal Selection: Carefully consider 1) the strength and generalizability of your results and 2) what journal(s) have published similar work previously. Select the target journal with input and approval from your Supervisory Committee. Format the article based on the “Instructions for Authors” for that journal. The journal you select may also influence the amount or type of background and introductory material needed, and the framing of the research.

Spacing: All manuscripts must be double spaced throughout, no exceptions.

Font: Use a nice, readable font like Arial or Times New Roman in 12-point size.

Margins: Use 1-inch margins.

Abstracts: Abstracts vary in length, but generally are approximately 250 words in length and structured using subheadings. All students should use a structured abstract with four subheadings – Introduction, Methods, Results, Conclusions – even if the target journal does not use one. The subheadings can be later deleted, yet the content will be preserved. (Lack of structuring most frequently results in omissions or attempts to combine things into one sentence, resulting in lack of writing clarity.)

Introduction: Usually one and sometimes two sentences that include the purpose. Alternately, the one sentence introduction may set up the first sentence of the methods to state the purpose of the research project.

Introductions are usually about 3 to 5 well referenced paragraphs, with a 3-paragraph minimum. The trend over the past several decades is towards more succinct but complete introductions. The most successful strategy for paragraph construction usually involves the following 3 (or more) paragraphs that have sometimes been described as “telescoping”:

1. Overview paragraph with the major outcome [e.g., numbers of people affected, prevalence rate, incidence rate, costs of the ‘big’ problem, morbidity, disability (e.g., how many people worldwide are affected by silicosis, how many people die per year from silicosis)],
2. Second paragraph that reviews what is known specifically about the area of this research project [i.e., identify what is known but also what the ‘hole’ in the knowledge base is (e.g., prior studies of solubility of silica to produce silicosis)] and
3. Third paragraph is the hypothesis for this research project. Depending on the specific topic, there may be a requirement for more paragraphs than the three above to sufficiently review the background material for your hypothesis.

As with other paragraphs in the paper, each introductory paragraph should include a main summary/topic sentence. Data should be quantified where possible in the sentences. All facts should be well referenced. It is generally better to use higher quality, original references rather than systematic or other reviews. No more than one subject per paragraph. (A background section may be required by your Committee. If so, it is to be attached as an appendix. See below.)

Methods: A succinct summary of the results. Must include the study design in the first sentence. Must include animals/cells/samples/population studied. Usually includes data collection methods. Independent and dependent variables must be specified. Important confounders or covariates should be mentioned, though all confounders are generally not able to be included in succinct abstracts. Basic analytical approach should be included.

The study IRB approval (or animal subjects) should be noted in the first sentence, including the approval number.

The study design is stated.

The methods should be reviewed in chronological order (so the reader can follow the research ‘story’).

- Study setting, location, dates data were collected, exposure, follow-up
- Before IH or safety studies can collect exposure information the study must be approved by the IRB

The cell, animals, human subjects, population studied is specified in detail.

- Inclusion and exclusion criteria
- How was your population selected?

The exposure(s) [independent variable(s)] should be described in detail.

- Make sure to explain all the variables presented in your tables and figures (how where they collected, where they manipulated and if so – how?)

The dependent variable(s) should be described in detail.

- How where they collected? Did you manipulate your variables?

Covariates should be described. (For epidemiological studies, these are often discussed in one or two paragraphs with the exposures above).

- How were covariates chosen and why?

The analytical methods used to measure should be included in the above paragraphs.

Statistical methods should be described in a complete, but succinct, paragraph or two at the end of the methods section. The statistical package used should be noted, including the version. Statistical testing generally follows a well-defined, sequential plan. The text should convey that systematic, logical, sequential approach.

- Did you have missing data? How were missing data points addressed?
- Were data points imputed? How? How many data points (N or %)?
- Did you check for interactions? Normal distribution? Correlations?

Results: Succinct summary of the main results. Generally, report only multivariate model results in the abstract. Should include main quantified results and confidence bounds, not merely qualitative results.

The sequence is essentially always chronological.

For epidemiological studies, the first paragraph describes the basic epidemiology (e.g., prevalence, distribution of demographic variables). The basic descriptive variables are usually in Table 1.

- How many subjects were enrolled? Did you exclude subjects in your final analyses – why?
- Consider using a flow diagram.

Univariate analyses are in Table 2. A paragraph describes key univariate findings, though not all findings. Multivariate analyses are in Table 3. A paragraph (or more) describes key multivariate findings, though not all findings.

- What did you adjust for and why?

There may be more than one paragraph for each of the above components of the results, but rarely more than two paragraphs. Recognize that some readers start with the tables, thus all tables should be clearly labeled. They should be viewed as stand-alone ‘tables of results,’ which means that the tables should have informative captions and no undefined abbreviations; footnotes may be used to define abbreviations, denote statistical significance, identify the statistical test, identify covariates in a multivariate model, or other information as necessary.

Figures should be included where they help the reader understand the methods, equipment, or results. That which is not well conveyed other than through a figure should be represented in a figure. Figures/graphs should not be made in color unless absolutely necessary. Like tables, figures should be able to be understood without the text, and require informative captions.

Discussion: The first paragraph should summarize the main results. The first sentence should hit the main conclusion of the entire research paper. Do not refer to a specific table or figure, however, discuss the results. The second paragraph generally includes how the results compare with prior results, the degree of significance. Again, do not refer to a specific table or figure, however, discuss the results. Either a paragraph on the study strengths or including the study strengths either in the first paragraph above or in the beginning of a paragraph with limitations below is usually necessary. There must be a paragraph on limitations. This paragraph should include how the limitations were addressed, where appropriate. A cautious, rational statement regarding whether the results should stand despite the limitations is appropriate. Sometimes, the strengths and limitations are combined in one paragraph. That is only appropriate when there are few to discuss, otherwise confusion and poor

writing are the predictable results of that approach. Sometimes, additional research is suggested. However, since so many have made that statement, it has become rather stale. The last paragraph of the discussion should succinctly summarize your results. Avoid direct duplication of prior sentences. No more than one subject per paragraph.

Conclusions: Usually a one sentence conclusion and occasionally two sentences. Do not speculate beyond the boundaries of your data. What is your take home message?

References: A list of all printed literature, websites, e-journals, videos, conference proceedings, posters, radio and television programs, laws and statutes, codes and standards, personal communications or any other sources from which information was used and/or cited within the text formatted consistently and according to the guidelines of the journal targeted for publication.

References should be numbered in the order they appear in the manuscript. If there is a clear journal that your Committee wishes you to utilize, then follow the referencing style for that specific journal. Otherwise, follow the APA style. Make sure the references are complete. In addition to each reference entry being complete, pay special attention to how/where the journal uses bold, italics, capitalization, and quotation marks to convey specific publishing information. For example, journal titles usually use a headline style capitalization scheme, whereas article titles are placed in quotation marks or use a sentence style capitalization scheme. It is recommended to use Endnote for referencing

Background: A background section contains information that is not publishable, yet is necessary to conduct the research. It may include definitions of TLV, PEL or similar terms. It may describe the purposes and limitations of statistical tests used in the research. It may describe the history of the test. In short, the background section includes a relatively long and tangential discussion of various aspects of the research that are typically NOT found in a research publication.

As the background section would make the paper 'unpublishable,' it is to be included as an appendix only if your Committee feels some information needs to be included. Then, it can readily be omitted to submit it without having to re-sequence the references in the text or otherwise substantially re-work the paper.

If your Committee does not require a background section, recognize some questions during the defense often originate with this background material. In short, know everything there is to know about your topic.

C.4 PhD Dissertations

Dissertations typically take the three paper format. Students should coordinate their efforts with their faculty advisor.

E: PowerPoint Slide Presentation Guidelines

The first step with PowerPoint slides presentations is to determine what the desired outcome or "goal" is for the learner. The goal of the presentation is something which is broad, and generally describes the ideal outcome of the presentation. The goal is supported by objectives.

Objectives are best phrased as learner-centered and contain an action verb at the appropriate learning level which is typified by Bloom's taxonomy (e.g., Recall/Know, Apply, Analyze, Synthesize, or

Evaluate), and specify the outcome the learner should achieve. Note that the educational content must match the level of education in your presentation (e.g., one cannot ask learners to apply an ergonomic job analysis method if we only describe it to convey knowledge about it). Countless examples of objectives are available in course syllabi. It is not essential, and indeed may be distracting to include those objectives in the presentation; however, an excellent presentation will invariably incorporate these principles.

To accomplish the development of the overall goals and objectives, determine the three main points the learner should recall from the presentation. Ensure that those three main points are: a) detailed in the presentation, generally not more than one major point per slide and generally with the main subject in the title of that slide, and b) summarized adequately in the final conclusions slide, again generally no more than one major point per bullet.

Plan your talk to leave some time for questions and answers. Recognize that experience has repeatedly shown you will need at least 1 minute per slide, regardless of how fast you go through them during your review. The following are guidelines for formatting of slides:

1. Generally, use dark background and light print. If you choose the reverse, about one size larger font size is required for the same reading ability in the audience. Light backgrounds for prolonged time also produce more eye strain. Pick a background that complements the text.
2. Include pictures, graphs, and tables. Use them where they help to illustrate points. These 'liven' a presentation.
3. Tables of data should be legible and not full of incomprehensible numbers. The amount of information should be sufficient to make your quantitative point. For example, consider using large font for the point estimate and smaller font for the 95% confidence bounds. Consider using underlining or bold text to draw the audience to statistically significant results.
4. Be careful of video clips. Use the length of a video clip necessary to make the point rather than allow a video or two to become your talk. Use video clips when all of the following conditions are met:
 - a. they are the best method to illustrate the point,
 - b. that point is important for understanding the topic AND
 - c. there is sufficient time to ensure they function prior to the talk.
5. Avoid being too "cute" with special effects, e.g., fly-ins, music, etc. E.g., the Power Point presentations in more than one company became so elaborate with special effects that the company limited all future presentations to words only with no special effects.
6. Do list the source to credit copyrighted information. Delete those copyrighted materials from handouts.
7. Generally, try to place a picture as well as text on the same slide, rather than merely a picture on a slide. This allows the inclusion of key bullets and the reader both sees the words and image they are to recall. Exceptions include the need for the entire slide to visualize the information on the picture.
8. Know the audience. Be careful of including any jargon. Beware of including excessive scientific terms if they are beyond the average learner. Minimize including acronyms. Spell out a common acronym on a slide the first time used. Do NOT expect an uninformed audience to be able to track 3 acronyms throughout a presentation; you can a priori assure yourself you 'lost' them in gibberish.

9. Size of font should generally not be less than 24 pt (e.g., Times New Roman, Times, Arial, Helvetica). Twenty-two (22) pt is quite small, and should be used only when the room environment is well understood (i.e., lack of bright lighting especially on/behind/near the screen, large screen available, seats not too far removed from the screen). Try limiting to only eight lines per slide in addition to title.
10. The inclusion of an illegible slide with the common phrase of "I know this slide is not legible but" is unacceptable and may be considered an insult to the audience. A polished presenter will either adjust the table/figure/slide or otherwise make changes to make the slide readable, e.g., instead summarizing the desired point(s) in one or two lines. If there is a copyrighted diagram that is unacceptably small on a slide, it is often suboptimal but may be reasonable to provide a printed copy with time to explain it during the presentation.
11. Use bullets, not sentences.
12. Do not use whole sentences on a slide--instead list topics you will discuss. The goal is to place essential information on the slides. Useless or relatively useless words distract the reader from listening to you and they may get lost in the text.
 - a. E.g., remove nearly all articles from the slides. "The" and "a" are almost never needed. They add reading burden without useful information.
 - b. Carefully evaluate prepositional phrases. They are often able to be eliminated without loss of information.
13. It is always a good idea to have someone else review your presentation to see if they identify errors. At minimum, review it on a completely different date so your eyes are a bit fresher to hopefully catch errors or lack of clarity.

Lastly, revisit the content to ensure the presentation meets your goal(s) and objectives. Confirm the length of the talk. Remember the 1 slide per minute rule. Jamming more slides in usually gives a rushed appearance. A better solution is to reduce the number of slides without sacrificing the evidence in support of those 3 main points. Be sure you incorporated sufficient time for questions and answers. Finish your presentation on time!

F: Oral Presentation Guidelines

Do:

1. Make sure all electronics, adequate sound/microphones, lighting and room environment issues are satisfactorily addressed in advance. Assure the PowerPoint or other presentation materials are fully functional in that room's system.
2. Talk to the audience not to the screen. If there is no screen in front of the presenter on the podium and the screen is behind the speaker, there are ~3 options: i) know the presentation well enough such that only a glance at the screen is required prior to speaking to the audience, ii) have the PowerPoint slides printed out on paper and hold that for guidance to better facilitate speaking to the audience, and/or iii) use a separate computer screen to speak from ~~on~~ the podium even if it is not connected with the projector.
3. Seek to use a friendly, non-confrontational speaking style. Confrontational speaking styles may inadvertently occur when individuals either lack public speaking experience and/or have relatively low level of familiarity with the subject matter. Subject content review and practice helps reduce these issues.

4. Make eye contact. Typically pick out a few individuals around the room to talk with as others will think you are talking with them too.
5. Consider judiciously, skillfully incorporating people in the audience into the talk if helpful. This should be cautiously done as it can be confrontational. However, an example includes giving thanks to someone who has taught a major point is a strong positive.
6. Do use an anecdote(s). Listeners typically respond well, if not better to anecdotes than routine didactic material. Seek to use perhaps one or two in a 45-minute presentation. Avoid excessive use as it will detract from the main messages. One brief anecdote is typically sufficient for a 20-minute presentation. Some presentations, such as thesis defenses may not lend themselves to any anecdotes.
7. Do consider brief use of humor. Humor provides some variety that helps maintain attention. However, do avoid excessive or prolonged humor as it implies a lack of seriousness.
8. Do consider polling audiences or otherwise involve audiences in presentations, especially if beyond 20-30 minutes. This may not be reasonable for 20-minute presentations such as ~~theses~~ thesis defenses. However, for longer presentations, audience involvement, polling for multiple choice questions, asking questions and seeking raised hands all encourage attention and improve learning with retention.
9. Students should refer to every slide at some point during the presentation. Use a laser pointer discretely, not continuously. Do not use the pointer to wander in circles over slides. Optimal use is to point to, or focus on a feature on a picture that cannot be readily described or to a specific topic you will discuss. Most of the time, the pointer should Not be used as it becomes a distraction. Continuous use is inappropriate.
10. Practice your presentation. Use a camera or phone to record your presentation one to three times. View the recording(s) to ensure your body language conveys confidence (no folded arms or hands tightly clasped in front of the body), your voice is easily heard (no awkward pauses, mumbling, or too soft spoken to be heard), and there are no distracting ticks in your body language, eye contact, or speech (no stiffness or gesticulating gestures; no looking down or making eye contact to briefly or too long; no ums, uhs, etc.).
11. Be sure to do a final run-through the presentation the night before. Sleeping on it overnight seems to jell the presentation and facilitates a smoother, polished style.
12. Pace yourself. Know when you are approximately 1/3 or 1/2 way through the presentation and compare with the time allotment.
13. Give thanks to the audience for their time, input, help or other assistance as appropriate at the end of the presentation.

Don't

1. Do not read word for word from a slide.
2. Do not use ums, uhs, heys, ya' knows, and other "space-fillers." It is better to not say anything and collect your thoughts than use a space filler that distracts and detracts.
3. Do NOT go over time. Time is money, and going over-time can be fatal for you, your thoughts, your proposal, your application and/or your program.

G: Guidelines for Use of Social Media

Use of social media is prevalent among students. OEH Programs students (includes MSOH/MOH/PhD and other RMCOEH-associated degree programs) should be aware that unwise or inappropriate use of social media can negatively impact educational and/or career opportunities. To avoid these negative impacts, students should consider the following:

- Post content that reflects positively on you, RMCOEH and the University. Be aware not only of the content that you post, but of any content that you host (e.g., comments posted by others on your site). Content you host can have the same effect as content you post.
- Though you may only intend a small group to see what you post, a much larger group may actually see your post. Be aware that your statements may be offensive to others, including classmates, faculty members, or prospective employers who may read the post.
- Employers and others increasingly use social media to evaluate applicants. Choosing to post distasteful, immature, or offensive content may eliminate job opportunities.
- Once you have posted something via social media, it is out of your control. Others may see it, repost it, save it, forward it, etc.
- If you post content concerning the University, make it clear that you do not represent the University and that the content you are posting does not represent the views of the University.
- Make sure the content you post is in harmony with the ethical or other codes of your program and field. In certain circumstances, your program may have made these codes binding on you, and violations may result in action against you.
- Essentially all RMCOEH students eventually obtain or see confidential information, e.g., about businesses, workers and/or patients. Never disclose confidential information. The University may take action against you for disclosures of confidential information.
- Realize that you may be subject to action by the University for posting or promoting content that substantially disrupts or materially interferes with University activities or that might lead University authorities to reasonably foresee substantial disruption or material interference with University activities. This action may be taken based on behavioral misconduct, academic performance, academic misconduct, or professional misconduct, and may range from a reprimand or failing grade to dismissal from a program or the University.