

SECTION 1. INTRODUCTION & RESOURCES

Introduction

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INTRODUCTION

The Professional Master of Science and Technology (PMST) Program is a non-thesis, interdisciplinary program that fuses graduate studies in science and mathematics with skills from other professional domains, such as business, management, communication, and data analysis. A key part of the PMST Program degree requirements is developing and completing a Professional Experience (internship) project, which applies the science and business skills learned in the program curriculum.

The degree is offered through the College of Science and the College of Mines and Earth Sciences. The program is administered through The Graduate School.

CONTACT INFORMATION

For questions regarding the PMST program, please contact:

PMST PROGRAM DIRECTOR

- PMST Program Director – Dr. Meghan Dovick, Ph.D.: meghan.dovick@utah.edu

FACULTY PROGRAM DIRECTORS

- Biotechnology - Professor Jennifer Shumaker-Parry, Ph.D.: shumaker@chem.utah.edu
- Computational & Data Science - Professor Elena Cherkaev, Ph.D.: elena@math.utah.edu
- Earth Resource Management - Professor Mike Nelson, Ph.D.: Mike.Nelson@utah.edu
- Environmental Science - Professor Thomas Cova, Ph.D.: cova@geog.utah.edu
- Science Instrumentation – TBD

OFFICE OF THE REGISTRAR

- **Office of the Registrar - Enrollment management and academic affairs**
801-581-5808
registrar.utah.edu



ONLINE ENGAGEMENT

The PMST utilizes several online platforms to engage with current students, alumni, and interested students and to help stay connected and expand our growing network.

We also use these platforms to announce upcoming social events, make program announcements, and share with our community program accomplishments.

EMAIL

Correspondence with the University of Utah (The Professional Master of Science and Technology program, The Graduate School, Faculty, etc.) should be conducted using your U-mail account.

EVENTS AND CALENDAR INVITATIONS

PMST events that require planning will be scheduled using The University of Utah's Umail calendar. Students should accept or decline these invitations based on their availability. They should update their status if their schedule changes. The use of "tentative" is discouraged as it does not provide accurate information to the event planner

PMST CANVAS PAGE

You have been invited to join the University of Utah's canvas program course. Please make sure you accept your invitation. We use this account to make program announcements and as a resource center for program materials or files.

- **Sharing Files:** Files are organized into folders; active folders such as the PMST Handbook are updated regularly while other folders are used to archive information. You should consult the program staff if you have specific questions or need assistance finding specific information.
- **Announcements:** The Canvas site provides a convenient, direct method for program staff to communicate with students. Announcements include, but are not limited to:
- **Upcoming Seminars**
- **Program deadlines or other important dates**
- **Career Fairs:** Job and Professional Experience postings from potential employers and sponsors

PMST canvas page: <https://utah.instructure.com/courses/59055>



PMST SOCIAL MEDIA ACCOUNTS

Please consider joining our social media accounts to help stay better connected to your fellow cohort and to connect with PMST alumni.

- Facebook: <https://www.facebook.com/UofUPMST/>
- Instagram: <https://www.instagram.com/uu.pmst/>
- LinkedIn: <https://www.linkedin.com/groups/3952695/>

DISCLAIMER

Often at PMST social events or special course events, we will take pictures and post them to our social media accounts. If you prefer not to have your photo posted, please notify the PMST program director, and we will not post any images that include your face.



STUDENT RESOURCES & UNIVERSITY POLICIES

INTERNATIONAL STUDENT RESOURCES & SUPPORT

The International Student and Scholar Services office fosters and supports a global campus community as part of the University of Utah's transformation into a global university.

- **International Student & Scholar Services – Office for Global Engagement**
801-587-9122
iss.utah.edu

ENGLISH AS A SECOND LANGUAGE RESOURCES & SUPPORT

If you are an English language learner, there are several resources on campus available to help you develop your English writing and language skills. Feel free to contact:

- **Writing Center**
801-587-9122
writingcenter.utah.edu
- **English for Academic Success (EAS) Program**
801-581-8047
linguistics.utah.edu
- **English Language Institute**
801-581-4600
continue.utah.edu/eli

SAFETY at the U

The University of Utah values the safety of all campus community members. You will receive important emergency alerts and safety messages regarding campus safety via text message.

For more safety information and to view available training resources, including helpful videos, visit safeu.utah.edu.

To report suspicious activity or to request a courtesy escort, contact:

- **Campus Police & Department of Public Safety**
801-585-COPS (801-585-2677)
dps.utah.edu
1735 E. S. Campus Dr., Salt Lake City, UT 84112



WELLNESS at the U

Your personal health and wellness are essential to your success as a student. Personal concerns like stress, anxiety, relationship difficulties, depression, or cross-cultural differences can interfere with a student's ability to succeed and thrive in this course and at the University of Utah.

Please feel welcome to reach out to your instructor or TA to handle issues regarding your coursework.

For helpful resources to manage your personal wellness and counseling options, contact:


- **Center for Student Wellness**
801-581-7776
wellness.utah.edu
2100 Eccles Student Life Center
1836 Student Life Way, Salt Lake City, UT 84112
- **Women's Resource Center**
801-581-8030
womenscenter.utah.edu (Links to an external site.)
411 Union Building
200 S. Central Campus Dr., Salt Lake City, UT 84112

ADDRESSING SEXUAL MISCONDUCT

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status, or genetic information.

If you or someone you know has been harassed or assaulted, you are encouraged to report it to university officials:

- **Title IX Coordinator & Office of Equal Opportunity and Affirmative Action**
801-581-8365
oeo.utah.edu
135 Park Building
201 Presidents' Cir., Salt Lake City, UT 84112
- **Office of the Dean of Students**
801-581-7066
deanofstudents.utah.edu
270 Union Building
200 S. Central Campus Dr., Salt Lake City, UT 84112



To file a police report, contact:

- **Campus Police & Department of Public Safety**
801-585-COPS (801-585-2677)
dps.utah.edu
1735 E. S. Campus Dr., Salt Lake City, UT 84112

If you do not feel comfortable reporting to authorities, the U's Victim-Survivor Advocates provide **free, confidential, and trauma-informed** support services to **students, faculty, and staff** who have experienced interpersonal violence.

To **privately** explore options and resources available to you with an advocate, contact:

- **Center for Student Wellness**
801-581-7776
wellness.utah.edu
328 Student Services Building
201 S. 1460 E., Salt Lake City, UT 84112

AMERICANS WITH DISABILITIES (ADA)

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities.

- All written information in this course can be made available in an alternative format with prior notification to the Center for Disability & Access (CDA). CDA will work with you and the instructor to make arrangements for accommodations. Prior notice is appreciated. To read the full accommodations policy for the University of Utah, please see Section Q of the [Instruction & Evaluation regulations](#).

If you will need accommodations in this class, or for more information about what support they provide, contact:

- **Center for Disability & Access**
801-581-5020
disability.utah.edu
162 Union Building
200 S. Central Campus Dr., Salt Lake City, UT 84112



INCLUSIVITY AT THE U

The Office for Inclusive Excellence is here to engage, support, and advance an environment fostering the values of respect, diversity, equity, inclusivity, and academic excellence for students in our increasingly global campus community. They also handle reports of bias in the classroom as outlined below:

Bias or hate incidents consist of speech, conduct, or some other form of expression or action that is motivated wholly or in part by prejudice or bias whose impact discriminates, demeans, embarrasses, assigns stereotypes, harasses, or excludes individuals because of their race, color, ethnicity, national origin, language, sex, size, gender identity or expression, sexual orientation, disability, age, or religion.

For more information about what support they provide and links to other resources, or to report a bias incident, view their website or contact:

- **Office for Inclusive Excellence**
801-581-4600
inclusive-excellence.utah.edu<http://continue.utah.edu/eli>
170 Annex (Wing D)
1901 E. S. Campus Dr., Salt Lake City, UT 84112



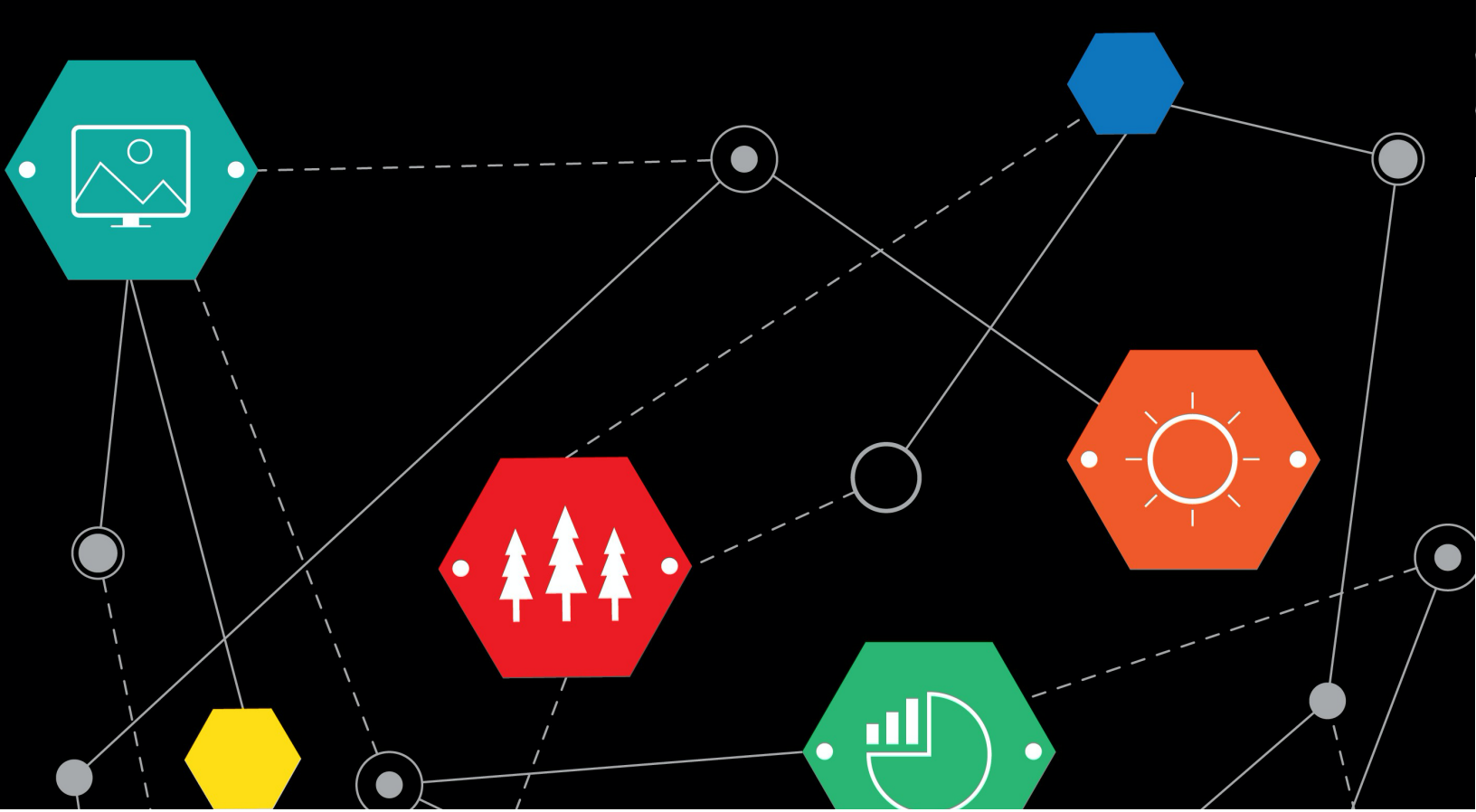
ACADEMIC MISCONDUCT

The PMST Program takes cases of academic misconduct seriously and follows the Policies of the University of Utah for academic misconduct and sanctions. The following information is from the [University of Utah's Code of Student Rights and Responsibilities](#):

“Academic misconduct” includes, but is not limited to, cheating, misrepresenting one’s work, inappropriately collaborating, plagiarism, and fabrication or falsification of information. It also includes facilitating academic misconduct by intentionally helping or attempting to help another to commit an act of academic misconduct.

“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), a grade reduction, a failing grade, probation, suspension or dismissal from a program or the University, or 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.

Students have the right to appeal an academic sanction. The Code of Student Rights and Responsibilities documents the appeal process.



SECTION 2. PMST PROGRAM OVERVIEW

PMST Program Requirements
Coursework Requirements
Coursework Planning
Special Program Circumstances

PMST PROGRAM REQUIREMENTS

PMST PROGRAM TRACKS

The Professional Master of Science and Technology program has five (5) focus track options. Within each focus track are focus areas that students choose to specialize in.

PMST Focus Tracks and Focus Areas:

- **Biotechnology**
 - Advanced Biochemistry
 - Genetics
 - Molecular Diagnostics
- **Computational and Data Science**
 - *Computational Biology/Chemistry*
 - *Data Science (Big Data)*
 - *Financial Math/Statistics*
- **Earth Resource Management**
 - Mining Engineering
 - Natural Resources
 - Environmental Quality
- **Environmental Science**
 - Environmental Chemistry/Biology
 - Hydrology
 - Sustainability
- **Scientific Instrumentation**
 - Process Control
 - “Internet of Things,” Medical Devices
 - Physical and Chemical Measurements

PROGRAM OBJECTIVES

- Provide professional scientists an opportunity to earn a graduate science or math degree that increases their core scientific knowledge and quantitative skills.
- Develop leadership and management skills that will be highly valued by industry, government, and non-profits.
- Include a Professional Experience Project (Internship), facilitated by an external sponsor and reviewed by a student’s Supervisory Committee, which integrates the practical application of scientific and professional knowledge.

REGISTRATION

PMST graduate students register via The University of Utah website to secure their classes.



MINIMUM CONTINUOUS REGISTRATION

All PMST graduate students must be registered for at least one course from the time of formal admission through completion of all requirements for the degree they are seeking unless granted an official *leave of absence* (see Leaves of Absence section, below). Students not on campus and not using University facilities are not expected to register for summer term. Students must, however, be registered during summer term if they are taking examinations. If students do not comply with this continuous registration policy and do not obtain an official leave of absence, they will be automatically discontinued from PMST graduate study. In this case, students will be required to reapply for admission to the University through Graduate Admissions upon approval of the home department. Students should be registered for graduate level courses (5000-6000 level) until they have completed all requirements for the degree, including the Presentation of the Professional Experience (Internship) Project.

LEAVE OF ABSENCE

Students who wish to discontinue their studies for one or more semesters (other than summer term) must complete a *Request for Leave of Absence Form* (available from the Office of the Registrar). The form must be approved and signed by the Supervisory Committee Chair (if established) and the Program Director.

Requests for leaves of absence may be granted for up to one year for circumstances related to:

- a serious health condition of the student or family member,
- parental leave to care for a newborn or newly adopted child,
- a call to serve in military service, or
- other compelling reasons that the student's department believes is in the best interests of both the student and the University.

Students who experience a medical condition associated with their pregnancy and need accommodations recommended by their medical provider should contact the University's

Title IX Coordinator, who will work with the student, cognizant faculty, and administration to determine what accommodations are reasonable and effective

The form requesting a leave of absence for a current semester must be completed by the student and received in The Office of the Registrar by the last day of classes of that semester. Leaves of absence are not granted retroactively. Students must officially withdraw from classes in any semester for which a leave is granted; failure to formally withdraw results in reporting E or EU grades for all classes.

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 one year at a time and may be renewed by submitting a new *Request for Leave of Absence* form to The Office of the Registrar. The leave of absence is void if a student registers for classes in a semester for which a leave was granted.



TIME LIMIT

All work for the master's degree must be completed within four consecutive calendar years. On recommendation of the student's supervisory committee, the Dean of The Graduate School can modify this requirement. If the student exceeds the time limit and is not granted a modification or waiver, the PMST Executive Committee has the option to discontinue the student. Students whose studies have been interrupted for long periods and who have been granted extended time to complete their degrees may be required to complete additional courses, to pass examinations, or otherwise to demonstrate that they are current in their field.

MINIMUM ACCEPTABLE GRADES

PMST students are required to maintain a 3.0 or higher GPA in course work counted toward the degree. Failure to maintain a 3.0 or higher GPA for two consecutive semesters may lead to students being discontinued from the PMST Program after review by the Program Director and consultation with the Executive Committee and Dean of The Graduate School. A grade below C- is not accepted for credit toward a graduate degree.

MAXIMUM HOURS

No candidate for a graduate degree is permitted to register for more than 16 credit hours in any single semester. A schedule of nine hours is considered a full load for master's candidates. Requests for exceptions to this policy should be submitted in writing to the Dean of The Graduate School by the student's supervisory committee chair. Students in the Tuition Benefit Program (TBP) are advised to refer to the [TBP information page](#) to review policies related to maximum hours. <http://gradschool.utah.edu/tbp/tuition-benefit-program-guidelines/>

COURSEWORK REQUIREMENTS

The Professional Master of Science and Technology Program is a science and/or mathematics graduate degree; students in the program take approximately the same number of graduate-level science and mathematics courses as required by traditional Master of Science programs. Instead of a research requirement, PMST students take courses in Advanced Quantitative Skills, Business, and Management, and complete a Professional Experience Project.

A minimum of 36 credit hours, 18 credit hours being STEM, are required for degree fulfillment. These requirements are met through a four-part framework:

Advanced Quantitative Skills (6 Credit Hours)	Transferable Skills (12 Credit Hours)
Professional Experience Project (Internship) (3-4 Credit Hours)	
Graduate Focus Area Coursework (15 Credit Hours)	

ADVANCED QUANTITATIVE SKILLS: 6 required credits

Students must complete **MST 6600 Applied Statistical Techniques** and one additional elective (3 credits) that focuses on computer modeling, data analysis, or productive computing.

MST 6600 – Applied Statistical Applications

Description: This case/example-based course introduces exploratory data analysis (EDA) using R. No prior knowledge of R is assumed. A primary objective is for students to apply graphical EDA techniques (including: scatter plots, box plots, histograms, probability plots, residual plots, and mean plots) to representative data sets using the RStudio platform. Additionally, students evaluate data using standard, quantitative statistical techniques. Practical exercises and industry cases are used throughout the term. Students are encouraged to bring laptops to class.

Learning Objectives: By the end of this course, students will:

- Understand the differences between Exploratory Data Analysis (EDA) and classical, quantitative statistical analysis
- Apply graphical EDA techniques (including: scatter plots, box plots, histograms, probability plots, residual plots, and mean plots) to representative data sets using RStudio
- Construct a hypothesis test to refute a specific claim about a population parameter based on the sample data
- Manipulate complex data within the R/RStudio software environment as required for graphical and numerical analysis

Semester Commonly Offered: Fall

TRANSFERRABLE SKILLS: 12 required credits

Why Transferrable Skills?

Transferrable skills, also known as leadership, soft, business, or managerial skills, are highly desirable by employers. Particularly in the STEM professional field, transferrable skills are valued as much, if not more, than an employee's technical competency. The Professional Master of Science and Technology program recognizes this workforce demand and offers courses that provide students with these transferrable skill concepts essential for leading activities in a variety of organizations outside of academia. In a curated series of four MST courses (12 credit hours) students develop, enhance, and practice a broad range of these skills. Students are required to take a minimum of 3 MST transferrable skill courses (9 credit hours) with the option of substituting the last transferrable skill course (3 credit hours) from another approved department in writing, communication or courses offered from the David Eccles School of Business.

Transferrable Skill Course Outcome Expectations

To better understand what transferrable skills you can expect to develop within each of the MST courses, we have identified the major transferrable skill outcomes from each course.

Transferrable Skill Course Outcome and Expectation				
	MST 6200	MST 6100	MST 6110	MST 6210
Communication Skills	X	X	X	X
Professional Writing Skills	X	X	X	X
Team/Project Management	X			X
Emotional Intelligence	X	X		
Leadership	X		X	
Mindfulness and Self-Awareness	X			
Time Management/ Goal Setting	X		X	X
Entrepreneurship/Intrapreneurship			X	X
Finance/Accounting/Economic Considerations		X	X	X

Transferrable Skill Course Descriptions

The PMST program offers four (4) MST courses that fulfill the 12 credit hours of transferrable skills coursework. Students may choose to take all four courses for the required 12 credit hours, or take three MST courses and substitute one course (3 credit hours) from another approved department in writing, communication or courses offered from the David Eccles School of Business.

To better understand the focus of each MST course, we have provided course descriptions, commonly offered semester, and learning objectives of each course in the following gray boxes.

MST 6200 - Professional Development for STEM Professionals

Description: This course offers strategies for effective communication and leadership that are essential for managers and other decision-makers. Students will develop skills in communication, collaboration, negotiation, and persuasion. Students will examine best practices of managing meetings, facilitating group problem solving, and consensus building within cross-functional teams that are commonly found in STEM professions.

Learning Objectives: By the end of this course, students will be able to:

- Communicate skills across various platforms and situations: technical, non-technical, workplace environment, interviews, negotiation, and feedback.
- Demonstrate refined writing skills: technical, non-technical, articulation, and clarity
- Identify and assess their personal IDP (individual development plan)
- Better understand the value of mindfulness, emotional intelligence, and self-awareness in a professional setting.

Semester Commonly Offered: Fall

MST 6100 - Policy and Society for STEM Professionals

Description: This course will provide students a broad perspective on how government policies and regulation impact the work of scientist and engineers, their companies, and industries. Students will be introduced to federal and state regulatory processes, government-private partnerships, and the role of non-governmental organizations. Comparison of policy and regulations across disciplines will be presented with opportunities to explore areas of environmental impact, ethics, and social responsibility.

Learning Objectives: By the end of this course, student will be able to:

- Explain the difference between *science for policy* and *policy for science*
- Demonstrate the knowledge of how policy is made, how it is influenced, and the role scientists have in creating policy
- Critically discuss the challenges and ethics of science and data-driven evidence in regulatory and policy decision-making
- Demonstrate the ability to analyze science policy debates and make evidence-based recommendations

Semester Commonly Offered: Spring

MST 6210 - Operations and Project Management for STEM Professionals

Description: This course focuses on the management of value creation through effective and efficient process design and project management. The course will cover operational design and theory within the planning, organizing, implementing, and monitoring functions of management, the fundamentals of traditional project management and agile processes. The goal of this course is to provide students with context and tools to increase their ability to function within and improve organizational processes.

Semester Commonly Offered: Spring



MST 6110 - Business Development for STEM Professionals

Description: This course provides an introduction to Business Development as practiced in technology-focused companies. Concepts of strategy (vs. strategic planning), the role of deliverables of marketing organizations within companies that focus on business-to-business sales, and the fundamentals of accounting and finance that are essential for managers and other decision-makers will be presented. The course focus is on how scientists and engineers support and work with business development teams.

Learning Objectives: By the end of this course, students will be able to:

- outline the Product Life Cycle
- apply the kernel method to communicate strategy
- construct a product scorecard based on customer metrics
- design a Markets Requirements Document
- demonstrate a SWOT analysis
- prepare a product forecast
- specify the different roles of buyers in sales
- analyze the tools used for Business-to-Business sales
- demonstrate how the time value of money impacts financial decisions and metrics.
- describe the differences in business models between startups and established companies.

Semester Commonly Offered: Summer

Additional courses offered through the PMST program

MST 6963 – Environmental Field Methods and Analysis for STEM Professionals (fulfillment of a STEM elective for ES track students and/or Advanced Quantitative Skills)

Description: This course will provide the skill set needed to properly collect field samples and integrate problem-solving methods related to complex environmental challenges. This course will utilize Great Salt Lake wetlands as its field site for sampling, data collection, and application. This course has a collaborative and working relationship with The Nature Conservancy and Utah Geological Survey and will collaborate with them in a professional setting for data and interpretation contribution. Analysis and interpretation of field samples will use an interdisciplinary approach including, but not limited to, the fields of geology, biology, geography, mathematics, and social sciences.

Learning Objectives: By the end of this course, students will be able to:

- Collect and measure a range of environmental variables;
- Analyze and interpret data results from field results;
- Consider the implications of our data results to Great Salt Lake stakeholders around the areas of environmental integrity, economic security, and social equity.
- Produce a final report for The Nature Conservancy use and ongoing data collection.

Semester Commonly Offered: Summer

PROFESSIONAL EXPERIENCE: 3-4 required credits

An essential component of this degree is a Professional Experience Project in industry, non-profit, or government agency. These activities will engage students in real-world work situations involving technical problems, teamwork, communication skills, and decision making. Students are encouraged to take MST 6974 Professional Experience Project Planning (1 credit hour) before enrolling in MST 6975 (3 credit hours).

MST 6974 – Project Planning

Description: Students will complete planning activities associated with the Professional Experience Project (MST 6975), this includes: identifying a project sponsor, documenting the project objectives and project description, writing a formal project proposal and formal presentation. (1 Credit)

Learning Objectives: By the end of this course, students will:

- Demonstrate the use of S.M.A.R.T. objectives in defining the scope of your project proposal.
- Collect and assess prior work related to your proposed project, creating an annotated bibliography for your project.
- Construct a work breakdown structure, estimate effort and duration of work packages, create a network diagram, and generate a project schedule that shows the critical path.
- Prepare a written proposal for your Supervisory Committee.

Semester Commonly Offered: Fall/Spring

MST 6975 – Professional Experience Project

Description: The Professional Experience Project is designed to give practical, hands-on training and experience in a meaningful work environment, with both science and business content. The project engages students in the issues, techniques, current practices, climate and culture of a particular industry sector. Eligible students are required to have taken a minimum of 15 credits of coursework, including MST 6974. The project must be approved following the program guidelines. A final exam/presentation, which is evaluated on a pass/fail basis, is given at the end of the project. The presentation is open to the public. A final report is prepared by the student, which is considered a public document. The student's supervisory committee assigns a grade when the project, final presentation, and final report have been completed.

Semester Commonly Offered: Fall/Spring

Graduate Focus Area Coursework: 15 required credits

Each PMST Focus Area has specific STEM core and elective coursework requirements. Students will need to consult their respective focus areas to determine what coursework they need to complete for graduation. Focus track-specific coursework and requirements can be found on the PMST website, the curriculum degree plan worksheet, or focus area curriculum documents on canvas. Students should consult the Program Director or Faculty Track Director for additional advisement or curriculum questions.



COURSEWORK PLANNING

Planning *what* courses and *when* you intend to complete each course are vital to ensure your success in this graduate program. Students should begin this planning process during their first semester. The PMST program provides several resources to help students understand coursework options and pathways to fulfill each Focus Area requirement. These resources include:

- PMST Intended Program of Study Form
- PMST Curriculum Degree Plan Worksheet (Excel)
- PMST Focus Area Course Option Documents
- PMST Program Checklist
- PMST Program Advisement

PMST INTENDED PROGRAM OF STUDY FORM

The PMST Program provides an Intended Program of Study form for each student to complete. Once complete, students should upload and submit this form to the PMST Canvas Program of Study assignment. This is a working document and is expected to change with course availability, schedules, and areas of interest. This document will be used by the PMST Program Director and Faculty Track Director for advisement and final program of study review.

CURRICULUM DEGREE PLAN WORKSHEET


The PMST Program provides an Excel worksheet for students to plan and track their individual courses of study. This Excel file is available on the Canvas website or from the PMST Program Coordinator. The Program Coordinator can provide guidance on completing the worksheet. Once complete, students should review their proposed course of study with their Track Director. When completed, the Program Coordinator enters the program of study into the University Grad Tracking system; the Supervisory Committee approves the program of study using the Grad Tracking system.

PMST FOCUS TRACK AND FOCUS AREA COURSE OPTION DOCUMENTS

The PMST Program provides a complete list of all Focus Area course options in a single document for reference. This is updated annually and serves as a reference for when students are planning their program of study. These documents can be found on the Canvas website.

PMST PROGRAM CHECKLIST

The PMST Program provides a concise and basic checklist overview for students to reference. This checklist should be used throughout a student's time within the program to ensure they fulfill each



milestone requirement on their path toward graduation. This checklist can be found on the Canvas website.

PMST PROGRAM ADVISEMENT

The PMST Program provides individual student advisement throughout a student's time within the program. Advisement can be from the PMST Program Director or a student's Faculty Track Director. It is highly recommended that students meet for advisement once the PMST Intended Program of Study form is complete and submitted to Canvas.



SPECIAL PROGRAM CIRCUMSTANCES

CREDITS EARNED BY NON-MATRICULATED STUDENTS

Credits earned by non-matriculated students may or may not apply to the PMST graduate degree program. You must submit a petition if you wish to receive credit for non-matriculated credits, second bachelor's degree credits, or transfer of credits from another institution. Additionally, students are required to submit a signed statement indicating that such credits have not been used and will not be used to meet requirements for another degree. Students should follow the Petition for Curriculum Change Instructions above. Only nine semester hours of non-matriculated credit, taken no more than three years prior to approval, can be applied toward a graduate degree. An exception to either of these requirements must be requested by the Program Director or supervisory committee chair and approved by the Dean of The Graduate School.

CREDIT/NO-CREDIT GRADING

Graduate students are granted the option, subject to approval by the PMST program and review by the Dean of The Graduate School, to enroll in courses and be graded on a credit/no-credit (CR/NC) basis instead of receiving a letter grade.

The CR/NC option intends to free students to extend their studies to areas outside their program of study and to take classes they otherwise might not take if they had to compete with students from that department for a letter grade. The following applies to taking classes CR/NC:

- The PMST program does not allow students to take CR/NC classes during their first year of study.
- After their first year in the PMST program, a student may request permission from the Program Director (Director of Graduate Studies) or the Supervisory Committee Chair to register for no more than one class per semester on a CR/NC basis.
- The PMST program has flexibility to plan the best possible program with the student. The choice of courses to be taken CR/NC is subject to the approval of the Program Director or the Supervisory Committee Chair acting on behalf of the PMST program.
- Graduate 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.
- Graduate 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.

Additional considerations:

- CR/NC should not be used for any core course (focus area) or defined option (elective) required by the PMST degree.
- CR/NC is not counted towards the student's GPA. Taking courses CR/NC places a "higher risk" on the remaining graded coursework.

PETITION FOR CURRICULUM CHANGE - INSTRUCTIONS

Students who identify a course not listed in the Curriculum Degree Plan Worksheet can petition to have that course approved as part of their program of study. Students must complete the following steps:

1. Complete the Science Track Curriculum Degree Plan Worksheet in its entirety, including the proposed change.
2. Using a University email account, send the following information to the Program Director in the body of the email:
 - Course Prefix, Course Number, and the course description from the catalog.
 - A brief statement that addresses the request and how it relates to your professional goals. Your email should be written using a standard business format.
3. Attach your proposed Curriculum Degree Plan Worksheet and a recent copy of the syllabus for the course.

The Program Director will review the Petition for Curriculum Change for completeness. When complete, the Petition for Curriculum Change will be forwarded to the appropriate PMST Track Director or the student's Supervisory Committee Chair for approval.

If your petition is approved, you will not need to fill out the Science Track Curriculum Degree Plan Worksheet again before your graduating semester, provided you adhere to the curriculum plan you submitted.

REQUEST TO CHANGE SCIENCE TRACKS

A student submits a petition to the PMST Executive Committee, which includes a formal letter justifying the request and describing how their professional goals have changed since being accepted into the program. The petition must also include an updated Curriculum Worksheet showing the proposed plan of study. To initiate the change, the student must reapply to the PMST Program, selecting the desired track.

A petition to change tracks is not automatic, and approval to change tracks does not guarantee acceptance into the new program of study.

Finally, the Executive Committee and appropriate Track Directors will review and approve the use of courses from one track to satisfy the requirements of the new track.

The Office of the Registrar will officially record the change if the petition request is approved and the new application accepted.



SECTION 3. PMST PROFESSIONAL EXPERIENCE PROJECT

Professional Experience Introduction
Project Ideation
Supervisory Committee
Pre-Proposal
Proposal
Project Proposal Presentation
Project Implementation
Professional Experience Project Written Report
Professional Experience Project Presentation



PROFESSIONAL EXPERIENCE INTRODUCTION

What is a Professional Experience project?

A crucial part of the PMST Program degree requirements is the development and completion of a Professional Experience Project. The expectation is that students do more than merely serve as an intern. A project is "a temporary endeavor undertaken to produce a unique product, service or result." (PMI Guide to PMBOK®, 2000) The PMST program requires that graduate students plan and execute a project with a sponsor external to the university setting, usually a local industry partner, government agency, or non-profit organization. The process includes:

- Identifying a project relevant to the sponsor and meeting the University's requirements for a master's project;
- Working with the sponsor in proposing a solution;
- Implementation of the project;
- Evaluating the effectiveness of the solution.

Our goal is for students to complete their projects during a single semester. To meet this goal, students need to plan their projects (and have the project approved by the program director, track director, and supervisory committee) in the preceding semester.

The project scope will vary from project to project; however, most projects require a time commitment of 12-18 hours per week. This weekly time commitment translates into 180 – 270 hours for a 15-week semester. The project must include a science (or STEM) and transferable skills (business) component related to their program of study. Students enroll in MST 6975 to receive credit for their projects.

A template for the final report with information on content is available on the PMST Canvas site.

PROJECT IDEATION

What should I do for my Professional Experience project?

Coming up with or finding an appropriate Professional Experience (PE) project should be viewed as an opportunity for advancing your professional goals. Consider what skills you would like to develop or enhance and how your PE project can help you achieve that goal. Understanding program requirements will also help direct you in forming your PE project. Below are the first steps in beginning your PE project.

Program Prerequisites

Prior to beginning your PE project, you must complete certain coursework prerequisites. This includes completing the following courses and credits:

- | | | |
|--|--|--|
| <input type="checkbox"/> MST 6600 | <input type="checkbox"/> MST 6110 | <input type="checkbox"/> MST 6100 |
| <input type="checkbox"/> MST 6200 | <input type="checkbox"/> MST 6210 | <input type="checkbox"/> And 6 Focus Area Credits |

Identifying a Professional Experience project sponsor

Graduate students are responsible for identifying a sponsoring organization or company and developing a suitable project with a supervisor of the organization or company. Students are encouraged to seek out and explore Professional Experience opportunities as soon as possible after entering the PMST Program. There are several ways in identifying a PE sponsor. We have listed the most common pathways below:

- **Current Employer** Students can explore professional experience opportunities with their current employers. *NOTE: If a project is done with your current employer the project must be outside of your day-to-day job duties.*
- **Outside Current Employer** Students can explore professional experience opportunities outside of their current employer.
- **Internships** Students can pursue professional experience opportunities through internship programs.

PROJECT IDEATION SUMMARY CHECKLIST:

- Consider what skills you would like to achieve through a PE project
- Complete the required coursework prerequisites
- Identify a Professional Experience project sponsor
- Work with your sponsor to frame out a PE project that meets the needs of your sponsor and meets the requirements for the PMST program.

SUPERVISORY COMMITTEE

What is the purpose and role of a Supervisory Committee?

A Supervisory Committee is a group of faculty members or appropriate and approved non-University of Utah faculty to help guide and give expertise relating to your Professional Experience project. This committee will approve your PE project proposal, attend your PE proposal presentation, provide feedback on your final PE project report, attend your PE project presentation, support you in your PE project process, and will determine whether your final PE project reports merits the PMST program requirements.

How do you form a PE Supervisory Committee?

There are several steps to form an approved Professional Experience project Supervisory Committee. These steps are listed below.

1) Composition of Supervisory committee

The Supervisory Committee consists of three faculty members with the majority (2 out of 3 faculty) being tenure-line faculty at the University of Utah. A tenure-line faculty member serves as Chair of the Supervisory Committee. Exceptions to these guidelines must be recommended and justified by the PMST Program Director and approved by the Dean of The Graduate School.

Non-University of Utah faculty can serve as a member of a Supervisory Committee. The student sends a formal request (via email) to the PMST Program Director and must include a CV of the proposed member and justification. If approved, the Program Director will make an official recommendation to the Dean of The Graduate School, who makes the final decision to allow the non-University faculty to sit on the Supervisory Committee.

2) Network and reach out to faculty members

It is the responsibility of the student to approach prospective committee members to determine their willingness and availability to serve in such a capacity. Faculty members have the right to refuse to sit on a student's supervisory committee for justifiable academic reasons.

3) Send prospective committee members an e-mail with supervisory committee documents

- Supervisory Committee Guidelines
- Professional Experience Project Objectives and Summary Guidelines
- Professional Experience Proposal Guidelines
- *Note: These forms are available on the PMST Program Canvas page*

4) Confirm Supervisory Committee members

It is the responsibility of the student to confirm willing members to participate as part of their PE project Supervisory Committee. This confirmation can come in the form of an acknowledgment of guidelines and agreement in an email or another informal written or verbal understanding.



5) Fill out the Supervisory Committee Form, and submit it to the Program Coordinator

These forms are found on the program Canvas page under Files > Required Forms > Supervisory Committee and Professional Experience Project Approval Forms

SUPERVISORY COMMITTEE SUMMARY CHECKLIST:

- Consider who would be appropriate to be a part of your PE project Supervisory Committee
- Send an e-mail to prospective Supervisory Committee members with applicable documentation
- Confirm Supervisory Committee members
- Submit Supervisory Committee Form to Program Director

PRE-PROPOSAL

What is a Professional Experience project pre-proposal?

A Professional Experience project pre-proposal is a brief (less than one-page) email that describes the broad objectives of your PE project. Your description should include a science and business component. This email should be sent to the PMST Program Director and your Faculty Track Director. Upon approval, graduate students proceed to write the formal proposal.

Professional Experience Project Pre-Proposal Email Template

Recipient: PMST Program Director, Faculty Track Director
Email Subject: PRE-PROPOSAL, TITLE OF PROJECT

Dear [PMST Program Director] and [Faculty Track Director],

I would like to submit my PMST Professional Experience project pre-proposal for your review and approval. The following describes my identified sponsor information and project objectives. Please let me know if there is any clarification or questions you have upon your review.

Sincerely,
[NAME]

Sponsor Information:

[A brief introduction to the organization. (1-3 sentences)]

[Name, title, and contact information of the organization project sponsor]

Project Objectives

Objective 1: [The first objective should be a STEM-based component of the proposed project. Using the SMART framework is helpful in writing clear, meaningful objectives. (1-3 sentences)]

Objective 2: [The second objective should be a non-STEM-based component of the proposed project. This is often a "business" deliverable but can be related to any topic covered as part of the Transferable Skills curriculum. (1-3 sentences)]

PRE-PROPOSAL SUMMARY CHECKLIST:

- Using the PE Project Pre-Proposal Email Template, compose a concise email describing your PE project objectives that include a science and business component
- Email your pre-proposal to the PMST Program Director and your Faculty Track Director
- Wait for approval from the PMST Program Director and Faculty Track Director
- Submit a copy of the approved pre-proposal to Canvas



PROFESSIONAL EXPERIENCE PROPOSAL

After approval of the Professional Experience Pre-Proposal, students write a formal Professional Experience Proposal.

What is the purpose of the Professional Experience proposal?

The PE proposal intends to articulate the project's objectives, methods, expected outcomes, required resources, and expected timeline. Within this framework, you should be able to provide evidence that you are meeting the PMST program STEM and business component requirements and have done some preliminary research for proof of concept (e.g., literature references, previous works, workforce needs, etc...). Your Supervisory Committee must approve the PE proposal prior to *officially* beginning your professional experience project.

Guidelines for writing the Professional Experience Proposal document

A PMST Proposal Template document can be found on Canvas and should be used when preparing the Professional Experience proposal. The final proposal should be well-written, free of grammatical errors, and kept to 10 pages or less.

In short, your Professional Experience Proposal should include the following:


- Executive summary
- Project Objectives
- Methods
- Expected Outcomes
- Resources Requirements
- Timeline
- Sponsor Information
- References

Professional Experience Proposal Review

When a polished proposal draft is written, students should seek review and feedback from the PMST Program Director, Faculty Track Director, or sponsor to ensure project clarity and that it meets program guidelines. Consider any feedback, revise, and prepare a final version.

Supervisory Committee Proposal Submission

The reviewed and revised Professional Experience Proposal can then be submitted to the Supervisory Committee. This document should be emailed to your Supervisory Committee before beginning the project with sufficient time for committee review and feedback (about six weeks before your project start date). Consider any feedback and revise. The final, revised project proposal document must be submitted to the Supervisory Committee **at least one week** before your Professional Experience.



Project Proposal Presentation. Upload the final, approved version of your proposal to Canvas (this usually occurs *after* a student's Proposal Presentation).

PROFESSIONAL EXPERIENCE PROJECT PROPOSAL SUMMARY CHECKLIST:

- Write project proposal following program guidelines
- Submit to Project Sponsor, PMST Program Director and Faculty Track Director for feedback
- Consider any feedback provided and revise
- Email final Proposal document to the Supervisory Committee for review - about six weeks prior to the intended project start date
- Consider any feedback provided and revise
- Email revised final Proposal document to the Supervisory Committee at least one week prior to your Professional Experience Project Proposal Presentation



PROJECT PROPOSAL PRESENTATION

What is the purpose of a Project Proposal Presentation?

The purpose of a project proposal presentation is to describe the objectives and deliverables of your Professional Experience project to your Supervisory Committee and to seek feedback through a group discussion post presentation. The proposal presentation should mirror the proposal document but offer a concise and articulated version of the written proposal.

Scheduling the Project Proposal Presentation

The student is responsible for coordinating a meeting time to present their proposal to their Supervisory Committee. Students should also invite the PMST Program Director to the proposal presentation. Required attendees are the Supervisory Committee and either the PMST Program Director or Faculty Track Director, who serve as facilitators.

Proposal presentation guidelines:

The presentation should highlight the main components of the proposal document using a visual aid, such as slides. The presentation should be kept to 15-25 minutes. Students should come well-rehearsed and be able to articulate the various components of their project.

Post Proposal Presentation Actions

After the Proposal Presentation, the Supervisory Committee will discuss, along with the student, feedback or areas of the project that needs clarification. Once a consensus between the Supervisory Committee is reached, the *Professional Experience Proposal Approval Form* with the Professional Experience sponsor's signature is approved at the end of the Professional Experience Project proposal presentation and then submitted to the PMST Program Director.

PROFESSIONAL EXPERIENCE PROJECT PROPOSAL PRESENTATION SUMMARY CHECKLIST:

- Create a Proposal Presentation following the PMST Proposal Presentation Guidelines
- Schedule the Proposal Presentation once the Project Proposal document is ready for review
- Present Proposal Presentation to Supervisory Committee and Program Director/Faculty Track Director
- Fill out *Professional Experience Proposal Approval Form* and submit it to the PMST Program Director
- Submit Professional Experience Proposal Presentation Slides to Canvas
- Submit approved Project Proposal Document to Canvas

PROJECT IMPLEMENTATION

The Professional Experience Project is generally executed during a graduate student's final semester in the PMST Program. The student should be enrolled in **MST 6975 – Professional Project**.

Things to consider during Project Implementation

- Time constraints
- Proper allocation of resources
- Writing final report throughout the last semester
- Creating tables and figures as the project is carried out.

PROJECT IMPLEMENTATION SUMMARY CHECKLIST:

- Register for MST 6975 – Professional Project
- Consider project implementation timeline constraints



PROFESSIONAL EXPERIENCE PROJECT WRITTEN REPORT

What is the difference between a project proposal and a project report?

The project proposal document describes what you intend to do for your professional experience. This document goes through several points of feedback and discussion prior to project implementation. The project report describes what was *actually* accomplished. Projects will often change in their objectives and outcomes due to time constraints or circumstances beyond your control. The final report allows you to showcase what was achieved and the final outcomes. The final report also gives you another opportunity to enhance your writing skills by presenting complex ideas in written form.

PMST Professional Experience Project Written Report Guidelines:

A PMST Professional Experience Template document can be found on Canvas and should be used when preparing the Professional Experience Report. The final report should be well-written, concisely articulated, and free of grammatical errors.

Professional Experience Project Report Review

PMST students submit a final report based on their Professional Experience Project. A final draft of the report should be reviewed with the PMST Program Director before submitting it to the Supervisory Committee. After this initial review and feedback, students should revise their final report.

Supervisory Committee PE Project Report Review

Students provide a copy of the final draft to the Supervisory Committee *AND* schedule a review meeting with their Supervisory Committee after completion of the project. This should be **approximately one month** before their anticipated final presentation. Ideally, the final draft provided for review will only need minor edits.

After review of the final draft with the Supervisory Committee, the students will schedule and present the Professional Experience Final Report Presentation to the Supervisory Committee. In addition to the Supervisory Committee, the Program Director is required to attend.

Students submit the **final version** of the Professional Experience Report to the Supervisory Committee, Program Coordinator, and Program Director **at least one week** before the final presentation.

PROFESSIONAL EXPERIENCE PROJECT WRITTEN REPORT SUMMARY CHECKLIST:

- Write the Professional Experience Project Report using the PMST program guidelines
- Send final draft to Project Sponsor, Faculty Track Director, and PMST Program Director for review
- Consider feedback and revise draft
- Send final draft to Supervisory Committee for review - *approximately one month prior to final presentation*
- Consider feedback from the Supervisory Committee and revise final draft
- Email a final version of the Professional Experience Report to the Supervisory Committee, PMST Program Director and Project Sponsor for review at least one week before the Project Presentation

PROFESSIONAL EXPERIENCE PROJECT PRESENTATION

What is the purpose of a Professional Experience Project Presentation?

The final Professional Experience Project Presentation allows you to present a summary of your work in a formal presentation and written final report. The Project Presentation should mirror the final written report but offer a concise and articulated version.

PMST Professional Experience Project Presentation Guidelines and Expectations:

The Project Presentation should summarize the work accomplished using a visual aid, such as slides. The presentation should be kept to 20-30 minutes. Students should come well-rehearsed and be able to articulate the various components of their project. After the student presentation, the Supervisory Committee and the public are welcome to ask questions lasting 10-15 minutes. After the public questioning period, the public, non-Supervisory Committee members, and the student will be asked to leave while the Supervisory Committee convenes on the merits of the Professional Experience Project. Once the Supervisory Committee comes to a consensus, they will invite the student to rejoin and discuss the committee's decision. Generally, this includes minor revisions or edits to the Final Project Report.

Scheduling the Project Presentation

This should be scheduled approximately one month from the day students submit their final draft for review to their Supervisory Committee. Confirm the date, time, and location of the Project Presentation with the Supervisory Committee approximately one week before the scheduled presentation.

Announcement/Abstract Email Submission

Fill out the Announcement/Abstract Form and submit the form to the PMST Program Director (via email) one week before your final presentation. The Announcement/Abstract information will be used on canvas to invite other PMST students. **NOTE: The final presentation is open to the public**

Presentation Announcement/Abstract Email Template

Recipient: PMST Program Director
Email Subject: FINAL PE PROJECT PRESENTATION ANNOUNCEMENT/ABSTRACT

Dear [PMST Program Director],

I would like to formally submit my PMST Professional Experience Project. Presentation Announcement/Abstract for your review and distribution. Please let me know if there is any clarification or questions you have upon your review.

Sincerely,
[NAME]

Presentation Announcement/Abstract Email Template (cont.)

Presentation Announcement/Abstract:

Project Title:

Your Name:

Date and time of Presentation:

Location:

Description: One to two-paragraph abstract summarizing the Professional Experience (Internship). This information will be posted to Canvas as an Announcement.

What to expect after the Project Presentation

After discussing the requests from the Supervisory Committee, the student should revise or edit their final Project Report to satisfy those requests. When a final Project Report is complete, the student should submit a copy to their Supervisory Committee and the PMST Program Director. Students should also upload a copy of their Final Presentation Slides and Report to Canvas. Finally, a printed-out, hard copy of the Final Report should be delivered to the PMST Program Director. This hard copy will be stored in the PMST Alumni Professional Experience Library and referenced by future PMST students. **NOTE: The final report is a public document**

PROFESSIONAL EXPERIENCE PROJECT PRESENTATION SUMMARY CHECKLIST:

- Create a Professional Experience Project Presentation using the PMST program guidelines
- Schedule the Final Project Presentation
- Email the Announcement/Abstract to the PMST Program Director using the Presentation Announcement/Abstract Email Template
- Present Final Project Presentation
- Consider feedback/requests from the Supervisory Committee and revise the final report.
- Email a final report with edits/requests to the Supervisory Committee, PMST Program Director, and Project Sponsor
- Upload a copy of the final report and presentation slides to Canvas
- Print out a hard copy of the final report and deliver it to the PMST Program Director



SECTION 4. GRADUATION

Graduation Introduction
Graduation Checklist
Post-Graduation

GRADUATION INTRODUCTION

When should I start preparing for graduation?

Students must complete the Application for Graduation the semester *before* graduating. For example, if you intend to graduate at the end of the Spring semester, you will need to complete your Application for Graduation before the end of the prior Fall semester. Important dates and additional requirements are published online: <https://registrar.utah.edu/graduation/>

GRADUATION CHECKLIST

Before applying for graduation, you will need to ensure you have completed all the PMST and graduate school requirements. If these requirements are not complete, you will not be able to apply for graduation.

GRADUATION CHECKLIST:

- PMST program requirements met
- Verify that your major, and degree are correct in CIS
- Meet with the Program Coordinator to confirm candidacy information in the Graduate Tracking System is correct
- If applicable, verify that all transfer work has been posted to your academic record
- Review your transcript; make sure all coursework has been completed
- Complete the Application for Graduate Degree
- Complete final coursework
- GRADUATE!

ADDITIONAL CONSIDERATIONS / RESOURCES...

- > Requirements must be completed before the conferral date
- > Meet with the Program Coordinator at the beginning of the semester before the semester you are planning to graduate
- > I and T grades must be changed before graduation
- > - Visit <https://registrar.utah.edu/graduation/>
-Apply for graduate degree
-Follow instructions for submitting the application
NOTE: The Office of the Registrar accepts late applications. A late application needs to be e-mailed from your U-mail account to graduation@utah.edu.
- > Optional: Walk or attend convocation:
<https://commencement.utah.edu/convocations.php>

POST-GRADUATION

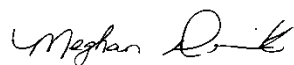
Congratulations! You have successfully completed your Professional Master of Science and Technology graduate degree. You will receive a printed-out diploma within 8-12 weeks post-graduation. It will be mailed to the address listed on your CIS profile.

A final note of gratitude from the Program Director...

Dear PMST Graduate,

Thank you for being a part of the PMST program. We hope that by being a part of this program, you have enriched and advanced your career as a STEM professional. We value your connection to this program and hope that you will consider participating in future program events as an alumnus. We frequently hold social events for past and current PMST students as well as offer our alums the opportunity to engage with the program as guest speakers or as part of the alumni advisory committee. Finally, if you have ideas, internship opportunities, or would like to be a guest lecturer please reach out to us! You and our PMST community are what help to make this program a lasting and impactful experience.

Sincerely,



Meghan Dovick, PhD
PMST Program Director