PROFESSIONAL MASTER OF SCIENCE
AND TECHNOLOGY HANDBOOK
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Director’s Message
Since 2002, the Professional Master of Science and Technology program’s guiding principle has been to offer a program of study for students who want to develop the technical and business skills required for management careers in technology based industries, government agencies or non-profit organizations.

“Developing talent” is a major concern as technology companies along the Wasatch Front seek to grow or create businesses with potential for growth. These companies require individuals with strong technical capabilities, but the modern business environment using cross-functional teams also requires employees be effective communicators, understand how their contributions fit within their company’s overall strategy and be able to lead projects to completion.

Professional Master of Science and Technology graduate students, working through their courses of study and the capstone internship project, are able to address these needs. They have the opportunity to increase their technical knowledge in a Science Track aligned with their discipline, develop the business skills required for effective management and then put them into practice.

Following our guiding principle, we will continue to improve the program and increase benefits to its students and the community of businesses that The University of Utah seeks to serve.
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 the development and completion of an 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.
PROGRAM DEGREE REQUIREMENTS

REGISTRATION
PMST Graduate students should register via The University of Utah web site 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 defense of the internship project.

LEAVES 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 the reporting of 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.

**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/](http://gradschool.utah.edu/tbp/tuition-benefit-program-guidelines/)

**Course 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 traditional Master of Science programs require. Instead of a research requirement, PMST students take courses in Advanced Quantitative Skills, Business, Management and complete an internship.

The 36 credit hours required for the degree are fulfilled in a four-part framework:

**Advanced Quantitative Skills (9 Credits)**

Apply computer, modeling, and statistical tools to real-life problems. Three areas of skills are covered: data analysis, productive computing, and reasoning.

**Transferable Skills (9 Credits)**

The Professional Master of Science and Technology program offers courses that provide students with business and management concepts essential for leading activities in a variety of organizations outside of academia. Various leadership, business, and management skills are taught in a series of six PMST courses. Students may fulfill the remaining three Transferable Skills credits required by taking elective courses within the David Eccles School of Business.

**Internship (3 Credits)**

An essential component of this degree is an internship 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.
**Science Track Courses (15 Credits)**

- Biotechnology
- Computational Science
- Environmental Science
- Scientific Instrumentation

**Curriculum Degree Plan Worksheet**

A detailed Excel worksheet is provided for students to plan and track their individual courses of study. This worksheet is available on Canvas website or from the PMST Project Coordinator. The Curriculum Degree Plan Worksheet provides students a tool for planning their course of study. The course of study is reviewed by the Project Coordinator and then approved by the Supervisory Committee.

**Petition for Curriculum Change—Instructions**

If students identify a course they would like to take as part of their course of study that is not part of the Curriculum Degree Plan Worksheets, they may petition to have that course approved. Students fill out the Science Track Curriculum Degree Plan Worksheet in its entirety, including the proposed change.

*Please note that if your petition is approved you will not need to fill out the Science Track Curriculum Degree Plan Worksheet again prior to your graduating semester, provided you adhere to the curriculum plan you submitted.*

Submit a letter/memo to the PMST Program Staff including:

- A course description for the new class
- The reason for the change. Why? How will this help you? How does it relate to your goals, etc.?
- Attach the course syllabus

E-mail or deliver the Science Track Curriculum Worksheet and letter/memo to the PMST Project Coordinator. Please write the memo to the PMST Program Director.

**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. 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.
Contact Information
For questions regarding this protocol, please contact the PMST Program Director, Dr. Ray Hoobler, at 801-585-5630, or the PMST Project Coordinator, Mr. Derek Payne, at 801-585-3650, or contact your respective track director:

**Biotechnology**
Dr. Jennifer Shumaker-Parry: shumaker-parry@chem.utah.edu

**Computational Science**
Dr. Elena Cherkaev: elena@math.utah.edu

**Environmental Science**
Dr. Lindsey Nesbitt: lindsey.nesbitt@utah.edu

**Science Instrumentation**
Dr. Clayton Williams: clayton@physics.utah.edu
**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 of time 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.

**SUPERVISORY COMMITTEE**

Master’s supervisory committees consist of three faculty members, the majority of whom must be tenure-line faculty at the University of Utah.

The supervisory committee is responsible for approving the student’s internship proposal, attending the proposal presentation, evaluating the written report, attending the project review meeting, attending the final presentation and assigning a grade to the internship. Students should review their Internship Report one month prior to the final presentation. The chair of the supervisory committee leads the committee.

All University of Utah faculty members including tenure-line, career-line, adjunct, visiting and emeritus are eligible to serve as supervisory committee members. The faculty member must hold an academic or professional doctorate, the terminal degree in the relevant field, and/or must have demonstrated competence to do research and scholarly work in the student’s general field. Persons not from the University of Utah may also serve as committee members upon approval of the Dean of The Graduate School (a vita for the proposed committee members must accompany the request). Committee chairs must be selected from tenure-line faculty. Immediate family members are not eligible to serve on a student’s supervisory committee.

The supervisory committee is formed prior to starting the student’s internship. 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 have the right, for justifiable academic reasons, to refuse to serve on a student’s supervisory committee.

Exceptions to these guidelines must be recommended and justified by the director of the PMST Program, and approved by the Dean of The Graduate School.
**INTERNSHIP**

A key part of the PMST Program degree requirements is the development and completion of an internship project, which applies the science and business skills learned in the program curriculum.

**Prerequisites**
MST 6010, MST 6011, MST 6012, MST 6020, MST 6021, MST 6022, MST 6500, plus 6 additional credits, must be completed prior to the internship project.

**Internship Opportunity**
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 internship opportunities as soon as possible after entering the PMST Program.

**Supervisory Committee**
Graduate students are responsible for assembling their supervisory committee and submitting the *Supervisory Committee Information Form* to the project coordinator.

The following three documents are provided to members of the supervisory committee:

1. Supervisory Committee Guidelines
2. Internship Proposal Objectives and Summary Guidelines
3. Internship Proposal Guidelines

These forms are available on the PMST Program Canvas site and as Appendices in this handbook.

**Written Internship Proposal**
Graduate students should carefully review the Internship Proposal Guidelines. The written Internship Proposal should include both a science and business component.

A one-page Internship Proposal Objectives and Project Description will be submitted to the appropriate Program Coordinator and Program Director for review and the Track Director for approval. Upon approval of the Internship Proposal Objectives and Project Description, graduate students proceed to write the formal proposal. The Internship Proposal is submitted to the PMST Project Coordinator for review by the Program Coordinator, Program Director and Track Director. The written Internship Proposal is submitted to the Supervisory Committee for approval. This document should be submitted approximately 6 weeks prior to the beginning of the internship project to allow sufficient time for review.

Final versions of the proposal and summary documents are submitted to your supervisory committee and internship supervisor at least one week prior to your Internship Proposal Presentation.

**Internship Proposal Presentation**
The *Internship Proposal Approval Form* with the internship supervisor’s signature must be completed and submitted to the Project Coordinator prior to scheduling the presentation.
Graduate students will coordinate a meeting time to present the internship proposal to the student's Supervisory Committee. Students should also invite the Science Track Director, Program Director and Project Coordinator to the Internship Proposal Meeting. Required attendees are the Supervisory Committee, and either the Science Track Director, Program Director or Program Coordinator who serve as facilitators.

After presenting the Internship Proposal, the graduate student must have the Supervisory Committee and the Science Track Director or Program Director sign the Internship Proposal Approval Form. This is completed before beginning the internship.

The Internship Proposal and Presentation process is outlined in figures 1 through 3.
Internship Proposal and Presentation
Step 1: Identify Sponsor and Establish Supervisory Committee

Figure 1. Internship Proposal and Presentation process flow chart. Step 1 is to identify an Internship Sponsor and members to serve on the Supervisory Committee.
Figure 2. Internship Proposal and Presentation flow chart. Step 2 is to have the Proposal Objectives and Project Description approved, and to write the proposal.
Internship Proposal and Presentation
Step 3: Presentation and Approval

Figure 3. Internship Proposal and Presentation flow chart. Step 3 is to prepare and present the proposal to the Supervisory Committee.
Each process in the Internship Proposal and Presentation process flow diagrams are represented as a “box.” Brief descriptions are provided below:

- **Advanced Quantitative and Transferable Skills**: Graduate Students must complete the MST Transferable Skills and Advanced Quantitative Skills courses prior to starting their internship.

- **Identify Sponsor**: Graduate Students are responsible for identifying a sponsor. The Track Director and Program Director can provide guidance if needed.

- **Establish Supervisory Committee**: Graduate Students assemble their Supervisory Committee following Graduate School guidelines
  
  - **Supervisory Committee Information Form**: This deliverable documents the members of the Supervisory Committee. The committee reviews the Project Proposal and grades the final Project Report and Presentation.

- **Project Objectives and Summary (email)**: Project Objectives must be approved, first by the Program Director and second, by the Track Director.

- **Write Proposal**: The Internship Project Proposal is written prior to starting the internship. Graduate Students should seek input from the Organization or Company Sponsor, Track Director, Program Director and/or Project Coordinator. The Internship Proposal should be reviewed with members of your Supervisory Committee prior to the presentation. This can be done via email, one-on-one meetings, or a formal review meeting with the committee.
  
  - **Proposal**: This document is a deliverable; a copy of the Project Proposal is submitted to the Project Coordinator.

- **Send copy of your proposal to members of your Supervisory Committee (email)**

- **Schedule Proposal Presentation with Supervisory Committee**: In addition to the Supervisory Committee, invite your Track Director, the Program Director and the Project Coordinator

- **Prepare Proposal Presentation**
  
  - Present Proposal Presentation to Supervisory Committee

  - **Proposal Presentation**: This document is a deliverable; a copy of the Proposal Presentation is submitted to the Project Coordinator.

  - **Internship Proposal Approval Form**: This document is a deliverable; a signed copy of the Internship Proposal Approval Form is submitted to the Project Coordinator.

The Graduate Student can start their Internship after the above steps are completed.

Note, the following documents are **DELIVERABLES**:

- **Supervisory Committee Information Form**
- **Internship Proposal**
- **Internship Presentation**
- **Internship Proposal Approval Form**
Internship Project
The Internship Proposal must include a schedule for updates to the Supervisory Committee.

Contact your committee as soon as possible to clarify new expectations that will enable you to fulfill the program academic requirements, if an internship requirement, deliverable, or expectation for the project unexpectedly cannot be met as anticipated.

Final Report
Graduate students submit a final report based on their Internship Project. The Internship Report should be reviewed with the Program Coordinator and Program Director prior submitting to the Supervisory Committee. Students provide a copy of the Final Report to the Supervisory Committee and schedule a review meeting with their Supervisory Committee after completion of the internship project. This should be approximately one month prior to your anticipated final presentation. This meeting should be used to discuss your internship work and review the Final Report of the internship work. Ideally, graduate students will provide a Final Report for review that only needs minor edits.

After review of the Final Report with the Supervisory Committee, the graduate student will schedule and present the Internship Final Report Presentation to the Supervisory Committee. In addition to the Supervisory committee, the Science Track Director or Program Director are required to attend.

Graduate Students submit the final version of the Internship Report to the Supervisory Committee, Track Director, Project Coordinator and Program Director at least 1 week before the final presentation.

Final Presentation
Confirm the date, time and location of the Final Presentation with the Supervisory Committee.

Fill out the Announcement/Abstract Form (available on the PMST Program Canvas site and as an Appendix in this document) and submit the form to the Project Coordinator one week before your final presentation. Note: The final presentation is open to the public.

Submit a hardcopy of your final report to the project coordinator. Note: The final report is considered a public document.

* Additional general information regarding assembling a supervisory committee can be found at the following Graduate School URL: http://gradschool.utah.edu/graduate-catalog/degree-requirements/.

The Internship Report and Presentation process is shown in figures 4 through 6.
Internship Report and Presentation
Step 1: Draft Report

Figure 4. Internship Report and Presentation flow chart. Step 1 is a draft report for review by PMST program staff.
Internship Report and Presentation
Step 2: Supervisory Committee Review of Report

Figure 5. Internship Report and Presentation flow chart. Step 2 is to review the final report with the Supervisory Committee approximately one month prior to the final presentation.
Internship Report and Presentation

Step 3: Internship Presentation

Figure 6. Internship Proposal and Presentation flow chart. Step 3 is to present the report to the Supervisory Committee and submit the final report to the PMST project coordinator.
Note, the following documents are **DELIVERABLES**:

- *Announcement and Abstract Form*
- *Internship Presentation*
- *Internship Report*
**GRADUATION**

Students submit a completed Curriculum Degree Plan worksheet to the Project Coordinator. The Supervisory Committee and Program Director approve the completed program of study. The Supervisory Committee Chair will approve the Final Report (exam). Note: this is done through Grad Tracking within The Graduate School Office.

**ADDITIONAL PROGRAM AND UNIVERSITY REQUIREMENTS**

Internship Report submitted to Project Coordinator.
SUPERVISORY COMMITTEE GUIDELINES

The following two pages should be printed out and reviewed with members of the Supervisory Committee.
Supervisory Committee Guidelines for the Professional Master of Science and Technology Program

Dear Committee Member,

Thank you for serving as a supervisory committee member for Jeremy Ramos.

The supervisory committee works with the student to:

- Establish internship expectations at the proposal stage
- Approve the internship proposal
- Offer guidance or feedback to the student during the internship
- Provide feedback and input on the final report
- Approve the final report and readiness for the student’s internship presentation
- Attend the final presentation
- Assign a grade to the internship project and submit the grade to the Program Director

Decisions regarding approving the internship proposal, evaluating the final examination and assigning an internship grade are made by a majority vote within the Supervisory Committee.

Students in the PMST program take approximately the same number of graduate-level science and mathematics courses as traditional Master of Science programs require; however, instead of a research requirement, PMST students take courses in professional domains and complete an internship that provides practical, hands-on training and a meaningful work experience which includes science, technical and business content. Students demonstrate their business (i.e., communication, management, decision-making, and leadership), science and technical skills within their internship project.

Your role in the supervisory committee is invaluable for our students. It provides students with a foundation from which they can seek council and expert feedback, which enriches their scholastic experience. For more information about our program, please visit our website at pmst.utah.edu.

Sincerely yours,
Ray J. Hoobler, Ph.D.
Director, Professional Master of Science and Technology
(801) 585-5630
ray.hoobler@utah.edu
Student Internship Expectations

Students are expected to:

Obtain approval from the Track Director and the Supervisory Committee before beginning the internship and provide the Supervisory Committee members with the following documents:

1. Supervisory Committee Guidelines
2. Internship Proposal Guidelines
3. PMST Internship Proposal

Additionally, PMST Graduate Students are expected to:

- Follow through on the project expectations outlined within the proposal
- Restate expectations/requirements set at the time of the internship proposal presentation in an email to the Supervisory Committee
- Communicate with the Supervisory Committee if a requirement or expectation and/or deliverable cannot be met, to enable the Supervisory Committee and the student to devise a modification to the original plan to fulfill the project objectives
- Schedule the required meeting with the Supervisory Committee one month prior to the final presentation to discuss the content of the final report/presentation
- Submit a final version of the final report to the committee at least one week before the final presentation to provide enough time for the committee to review the report.
Internship Grading Guidelines

The internship process is broken down into four categories listed below. Each component and its weight is given along with factors to consider when grading the internship.
Proposal
The following grading rubric can be used to assess the student’s written proposal.

Proposal: 20%

1. Was the difficulty of the project appropriate for a professional graduate program?

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2. The quality of proposal (writing, organization, and planning) was

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3. How well were the project objectives defined?

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4. How well were the science and technology objectives integrated into the proposal?

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5. How well were the business objectives integrated into the proposal?

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Internship Execution
The following grading rubric can be used to assess how effectively the student’s executed their internship.

Internship Execution: 40%

1. Was the student able to implement the proposal and meet the project objectives?

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2. Did the student demonstrate a high level of involvement in the internship?

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3. Did the student effectively communicate and provide updates to all stakeholders (the sponsoring organization, internship supervisor, supervisory committee, PMST staff) during the internship?

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Final Presentation
The following grading rubric can be used to assess the student’s internship presentation.

Final Presentation: 20%

1. Rate the clarity and organization of the presentation.

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2. Rate the delivery of the presentation, including preparedness, vocal projection, eye contact, etc.

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3. Was the student able to speak of the subject area in a manner suitable for the audience?

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4. Did the student present material relevant to the projects objectives?

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5. Was the student knowledgeable and able to effectively respond to questions?

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<tr>
<td>Not at all</td>
<td>Marginal</td>
<td>Somewhat</td>
<td>Mostly</td>
<td>Yes</td>
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Final Report
The following grading rubric can be used to assess the student’s final report.

Final Report: 20%

1. Rate the quality of the writing, including content, organization and grammar.

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2. Did the student demonstrate understanding of the science and technology components of the project?

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3. Did the student demonstrate understanding of the business component of the project?

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4. Did the student provide an Executive Summary or Abstract?

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**INTERNSHIP PROPOSAL OBJECTIVES AND PROJECT DESCRIPTION GUIDELINES**

The Internship Proposal Summary defines the internship project objectives prior to writing the formal Internship Proposal and is provided to the Track Director for review and approval. This can be done via email.

**Project Objectives**

Use the S.M.A.R.T method to define your project objectives.

| Specific: | Explicit, clear, understandable |
| Measureable: | Quantifiable (business metrics, quantity, quality, cost, or time) |
| Attainable: | Reachable, within capabilities |
| Realistic: | Relevant, right approach |
| Time-bound: | Specific time period |

(The SMART method provides a simple framework for stating the Project Objectives. Objectives must relate to the science or business components of the project. Both a science and business component are required for the Project.)

Example 1 (not SMART): Project aims to develop a robust in-house method for analyzing nutritional supplements.

Example 2a (SMART): Develop an in-house method for analyzing amino acid levels in nutritional supplements using reverse phase, ultra-high performance liquid chromatography in 10 weeks.

Example 2b (SMART): Prepare a “cost-of-analysis” report that compares the cost of in-house testing versus the current cost using external laboratories. This report will be a deliverable of the project (10 weeks)

**Project Description**

1. Identify the problem and make it clear why it is important.
2. Provide a brief summary of the project including the resources needed.
3. Include a brief summary of the organization you will be working with and the name, title and contact information (phone number and email address) of the organization’s project sponsor.
4. List the deliverables for both the
   a. Sponsoring organization
   b. Supervisory Committee
5. Indicate whether or not the proposed project will take place at your current place of employment and if so, how it will differ from your current responsibilities.
**INTERNSHIP PROPOSAL GUIDELINES**

Information below is provided as a general guide. A specific format is not required; however, a template is provided on the PMST Canvas web site. The Internship Proposal should include:

**Project Objectives**
Use the S.M.A.R.T method to define your project objectives.

- Specific
- Measurable
- Attainable
- Relevant
- Time-bound

Objectives must relate to the science and/or business components of the project. Both a science and business component are required for the Project.

**Introduction**
Identify the larger problem and make it clear why it is important. The introduction should be written to engage a wide audience. Include a brief summary of the organization you will be working with.

(Note: The first part of the written proposal is based on the proposal objectives and summary discussed in the previous section.)

**Detailed Project Description**
Provide a detailed description of your project and your specific challenges. Clearly state what will be the important results from your work.

**Project Plan**
A good proposal will include a detailed project plan. The plan should include:

- Objectives – the desired outcome of the efforts and aligned with project objectives
- Requirements – specific attributes of the deliverables that will satisfy the objective
- Deliverables – the project deliverable is the Internship Report; interim deliverables are the outcomes of tasks and activities within the project
- Project schedule – define the major milestones, duration of work efforts, start and end dates for every work component. Project schedules can be represented using Gantt charts.
- Milestones – events or points in time when a deliverable or set of deliverables is available; completion of a phase.

The baseline plan will be used as the reference point for project execution.

**References**
Provide the list of references used to develop your proposal. Use a format consistent with your discipline.
**INTERNSHIP REPORT GUIDELINES**

Information below is provided as a general guide. A specific format is not required; however, a template is provided on the PMST Canvas website. The Internship Report should include:

**Executive Summary**
The executive summary captures the essence of the entire project in one or two pages.

**Introduction**
Identify the larger problem and make it clear why it is important. The introduction should be written to engage a wide audience. Include a brief summary of the organization you will be working with.

**Project Objectives**
Restate the project objectives based on your original proposal. Identify any changes to the project objective that occurred during the internship. The objectives must relate to the science and/or business components of the project. Both a science and business component are required for the Project.

**Project Description**
Describe the specific challenges you worked on during your internship.

**Results**
Report the important results from your work.

**Conclusions**
What did you learn? What were you able to change or implement as a result of your internship?

**References**
Provide the list of references used in your report. Use a format consistent with your discipline.

**Appendix**
Large data sets or complex figures and tables that interrupt the flow of a report in an Appendix at the end of the report.
**INTERNSHIP PRESENTATION GUIDELINES**

Presentations should, as a general rule, NOT follow the flow of an academic paper (Introduction, Methods and Materials, Results, Conclusions) as they are not intended to be “stand alone” documents.

Presentation structure discussed in “Strategic Storytelling: How to Create Persuasive Business Presentations” by Dave McKinsey (CreateSpace Independent Publishing Platform, North Charleston, 2014) follows:

- Situation
- Complication
- Resolution

The method discussed is concise and follows the presentation flow common in business meetings where data is being reviewed.

An excellent text on slide design and data presentation is “Slide:ology: The Art and Science of Creating Great Presentations” by Nancy Duarte (O’Reilly, Sebastopol, 2008, Ch. 4).

Both of these texts emphasize the benefits of outlining or “storyboarding” and these techniques provide a framework to build effective presentations.

Finally, give yourself enough time to develop the presentation. Effective presentations require time. A time estimate from Duarte (p. 13) includes:

- Organize the ideas/material: 1 hour
- Outline and/or storyboard: 2 hours
- Build the slides: 20+ hours
- Rehearse, rehearse, rehearse: 3+ hours

While the total is less than 30 hours, it shouldn’t be completed in one or two sittings.

A PowerPoint template is provided on the PMST Canvas web site.
IMPORTANT FORMS

The following forms are provided below and can be printed as needed:

- Supervisory Committee Information Form
- Request to Change Supervisory Committee Form
- Internship Proposal Approval Form
## Supervisory Committee Information Form

### Student Information

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Student ID number</th>
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<table>
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<tr>
<th>Track (check one)</th>
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<tbody>
<tr>
<td>Biotechnology</td>
<td>Environmental Sciences</td>
</tr>
<tr>
<td>Computational Science</td>
<td>Scientific Instrumentation</td>
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</tbody>
</table>

### Supervisory Committee Members (Name, Department, email address, phone number)

**Chair**
- Name: 
- Department: 
- Email: 
- Phone number: 

**Member**
- Name: 
- Department: 
- Email: 
- Phone number: 

**Member**
- Name: 
- Department: 
- Email: 
- Phone number: 

### Approvals:

**Supervisory Committee Chair:**

**Science Track Director or Program Director:**
**Request to Change Supervisory Committee Form**

Note: This form should only be used when requesting a change to a Supervisory Committee and not when initially organizing a committee.

### Student Information

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Student ID number</th>
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<tr>
<td>Computational Science</td>
<td>Scientific Instrumentation</td>
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</table>

### Current Supervisory Committee Members

<table>
<thead>
<tr>
<th>Chair</th>
<th>Member</th>
<th>Member</th>
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Indicate with a check which member is being removed.

### Proposed Supervisory Committee Members

<table>
<thead>
<tr>
<th>Chair</th>
<th>Member</th>
<th>Member</th>
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Indicate with a check which member is being removed. Committee members being added must sign this form.

### Justification for change (100 words):

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### Approvals:

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<th>Supervisory Committee Chair:</th>
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<tr>
<th>Science Track Director:</th>
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<tr>
<th>Program Director:</th>
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### Internship Proposal Approval Form

Submitted by (Print first, last name)

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<tbody>
<tr>
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<tr>
<td>Computational Science</td>
<td>Scientific Instrumentation</td>
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This internship proposal has been read and has been found to be satisfactory by:

**Internship Supervisor**

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
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<tr>
<td>Department</td>
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**Supervisory Committee Members**

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**PMST Science Track Director or Program Director**

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<th>Print Name</th>
<th>Signature</th>
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<tr>
<td>Department</td>
<td>Date:</td>
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<tr>
<td>Ray J. Hoobler, Ph.D.</td>
<td>Derek Payne</td>
</tr>
<tr>
<td>--------------------------------------</td>
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</tr>
<tr>
<td>Program Director</td>
<td>Project Coordinator</td>
</tr>
<tr>
<td>(801) 585-5630</td>
<td>(801) 585-3650</td>
</tr>
<tr>
<td>Building 44, Room 223</td>
<td>Building 44, Room 126</td>
</tr>
<tr>
<td><a href="mailto:Ray.Hoobler@utah.edu">Ray.Hoobler@utah.edu</a></td>
<td><a href="mailto:Derek.Payne@gradschool.utah.edu">Derek.Payne@gradschool.utah.edu</a></td>
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