Master of Science in Orthotics and Prosthetics

Master’s Project Manual 2016
# Table of Contents

Project Introduction ........................................................................................................ 1  
Research Timeline ......................................................................................................... 2  
Student Responsibilities .............................................................................................. 3  
Research Mentor Responsibilities .............................................................................. 4  
Proposal Presentation and Written Submission ...................................................... 6  
Poster Guidelines ......................................................................................................... 7  
Master’s Paper Preparation ....................................................................................... 9  
Format for References ................................................................................................. 11  
Summary Check List for Completion of Master’s Paper ................................ 14
Appendix ....................................................................................................................... 15
  Master's Project Proposal: Presentation Rubric ....................................................... 18  
  Master's Project Proposal: Written Submission Rubric............................................ 19  
  Master's Project Senior Day 1: Presentation Rubric ................................................ 20  
  Master's Project Poster: Presentation Rubric ............................................................ 21  
  Research Project Final Manuscript Rubric: Product Development ....................... 22  
  Research Project Final Manuscript: Rubric .............................................................. 23  
  Product Pitch: Evaluation and Scoring Form ............................................................ 24  
  Product Prototype: Assessment Rubric .................................................................... 25  
  Application for Approval of Master's Paper ............................................................. 26  
  Request for Extension of the Completion Date for the .......................................... 27  
  Master’s Project ......................................................................................................... 27  
  Contributor and Authorship Standard .................................................................... 28  
  IRB Information ....................................................................................................... 30  
  Contact Information ................................................................................................. 31
Project Introduction

The Master of Science, Orthotics and Prosthetics, program’s mission is to produce future generations of orthotists and prosthetists who:

- Improve the lives of those they have the opportunity to treat
- Serve leadership roles in clinical practice, research, and academia
- Engage in the transfer of the best evidence to clinical practice
- Navigate skillfully the complexities of modern healthcare practice
- Drive the development of leading technology

The Master’s Research Project is designed to develop the student’s abilities to critically analyze and thoughtfully produce research and product development in the field. The project will contribute to evidence-based practice and best practices in orthotics and prosthetics. Additionally, the research and development process will prepare the graduate to participate in research and development while in clinical practice. The project is also intended to be an avenue for publication at professional conferences and within peer-reviewed journals.

The project is contained within the Orthotics and Prosthetics Research sequence, which is divided into four courses. Beginning in the last two terms of the didactic year, the students will identify an area of interest, communicate with project mentors, design protocols, conduct research, produce prototypes, collect and analyze data, produce a written manuscript and present a poster to colleagues at Baylor College of Medicine.

Completion of the project and successful submission of the poster and manuscript are required for graduation from the program.
<table>
<thead>
<tr>
<th>Course</th>
<th>Research Track</th>
<th>Product Development Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPR1</td>
<td>Submit Area for Research</td>
<td>Submit Product Area for Development</td>
</tr>
<tr>
<td>OPR1 and HRM</td>
<td>Complete Background Research and CITI/IRB Training</td>
<td>Complete Background Research and CITI/IRB Training</td>
</tr>
<tr>
<td>OPR1</td>
<td>Meet with Mentor</td>
<td>Meet with Mentor</td>
</tr>
<tr>
<td>OPR1</td>
<td>Submit Specific Research Topic and Early Literature Review</td>
<td>Submit Specific Product for Development and Early Literature Review</td>
</tr>
<tr>
<td>OPR2</td>
<td>Complete Literature Review</td>
<td>Complete Literature and Current Market Analysis</td>
</tr>
<tr>
<td>OPR2</td>
<td>Submit Background Research Manuscript</td>
<td>Submit Background Research Manuscript</td>
</tr>
<tr>
<td>OPR2</td>
<td>Submit Proposed Methodology and Timeline</td>
<td>Submit Developmental Protocol and Timeline</td>
</tr>
<tr>
<td>1st Senior Day OPR2</td>
<td>Meet with Mentor</td>
<td>Meet with Mentor</td>
</tr>
<tr>
<td>1st Senior Day OPR2</td>
<td>Present Refined Research Proposal and Methodology; Submit IRB</td>
<td>Present Refined Product Protocol and Timeline; Submit IRB</td>
</tr>
<tr>
<td>By December OPR2</td>
<td>Final Approval of IRB</td>
<td>Final Approval of IRB</td>
</tr>
<tr>
<td>2nd Senior Day OPR2</td>
<td>Submit Refined Methodology and Schedule Manuscript</td>
<td>Submit Refined Developmental Protocol and Schedule Manuscript</td>
</tr>
<tr>
<td>2nd Senior Day OPR2</td>
<td>Meet with Mentor</td>
<td>Meet with Mentor</td>
</tr>
<tr>
<td>OPR3</td>
<td>Data Collection</td>
<td>Prototype Creation</td>
</tr>
<tr>
<td>OPR3</td>
<td>Data Analysis</td>
<td>Data Collection and Analysis</td>
</tr>
<tr>
<td>OPR4</td>
<td>Meet with Mentor</td>
<td>Meet with Mentor/Intellectual Property Evaluation</td>
</tr>
<tr>
<td>November OPR4</td>
<td>Submit Poster for Printing</td>
<td>Submit Poster for Printing</td>
</tr>
<tr>
<td>December OPR4</td>
<td>Poster Presentation</td>
<td>Poster Presentation</td>
</tr>
<tr>
<td>December OPR4</td>
<td>Submit Final Manuscript</td>
<td>Submit Final Product Promotion Manuscript</td>
</tr>
</tbody>
</table>
**Student Responsibilities**
Orthotics and Prosthetics Program

**Primary Role:**
The student will conduct scientific research or product development design in order to complete the requirements for the Master of Science in Orthotics and Prosthetics degree.

**Responsibilities:**

**Academic Development**
- Engage in creativity and critical thinking
- Develop research methods, resources for conducting research or developing a prototype, and collaborations with experts in order to enhance the selected project
- Analyze and interpret data and information with regard to selected project
- Conduct research or product development within ethical and scientific guidelines (IRB completion)

**Research**
- Develop hypothesis, research methods and protocol, market analysis, prototype, and research manuscript
- Complete research deliverables and manuscripts according to deadlines
- Create poster presentation for final presentation of project

**Skill Development**
- Demonstrate planning, time management, and organization of project
- Initiate collaboration and professional relationships to aid in completion of project
- Review and revise aspects of the research project in response to feedback from mentor(s) and collaborator(s)

**Communication**
- Listen to mentor’s concerns and questions regarding project
- Demonstrate a professional and respectful attitude towards mentors, collaborators, subjects, and project
- Respond to communication and be available for communication within reasonable and appropriate timeframes
- Be available for face-to-face meetings with mentor(s) at least four times within the completion of the project
Research Mentor Responsibilities
Orthotics and Prosthetics Program
Primary and Secondary

Primary Role:
The research mentor serves as the primary investigator and guide for the graduate student’s research or product development project. If the primary mentor is not BCM faculty, a BCM faculty member will be the Primary Investigator (PI) and secondary mentor. The BCM faculty member, as PI, is responsible for submission (but not generation) of the IRB.

Responsibilities:
Academic Development
- Encourages both creativity and critical thinking
- Assists with discovery of research methods, resources for conducting research or developing a prototype, and collaboration with local experts in order to enhance the selected project
- Aids in the development of analytical interpretation of data and information in regards to selected project
- Guides the student within a framework of ethical and scientific research and product development
- Reviews and provides feedback on poster and manuscript within a timely manner to ensure graduation deadlines are met
- Communicates progress, issues, and concerns to the Master’s Project Coordinator
- Maintains familiarity with the requirements as set forth in the research project manual

Research
- Provides feedback to student on research methods and protocol
- Assists in fine-tuning hypothesis or product development
- Provides constructive advice on research methods and relationship between hypothesis and protocol

Skill Development
- Takes steps to assist with planning, time management, and organization of project
- Provides constructive and timely feedback on written manuscripts, professional relationships, poster creation and presentation

Communication
- Listens to student concerns and questions regarding project
- Demonstrates a professional and respectful attitude towards student and project
- Responds to communication and is available for communication with student and with Master’s Project Coordinator within reasonable and appropriate timeframes
- Is available for face-to-face meetings with student at least four times within the completion of the project
Proposal Presentation and Written Submission

Project Proposal Presentation Criteria
At the end of your didactic year, you will be giving a 7-10-minute presentation on your research or product development project. This presentation will need to be accompanied by a Power Point presentation which follows the guidelines listed on this page. Please use slide titles to clearly demonstrate that you are incorporating the following information:

A. Topic of Research/Product Development
B. Background Information and/or Market Analysis
   1. Summarize 3 related peer-reviewed articles, including the following:
      a. Title and Authors
      b. Hypothesis and Conclusion
      c. Strengths and Limitations of Study
   2. Include citations for at least 6 articles related to your topic (AMA/ Index Medicus format)
C. Research Question and Hypothesis / Product Design Goals and Targeted Market
D. Project Design
   1. Subjects or Data to be Examined
   2. Inclusion/Exclusion Criteria
   3. Basic Methods Proposal
   4. Project Timeline
E. Identify Mentor(s)

You may use the information above as an outline for your presentation. This will be a brief presentation, so be prepared to be clear and concise. Time limits are mandatory. You will be assessed on content and on your professionalism and quality of presentation.

Written Proposal Criteria
In addition to the Power Point, you will be required to submit a formal written proposal on the day of your presentation. The purpose of the written proposal is to begin the process of scientific writing. The written proposal must include all of the above information, yet should expand upon what you might present to the class. The written proposal should be written in Times New Roman, 12 pt. font, double-spaced, and with clear subject headings and references. Please see the instructions for Master’s Paper Preparation and Written Proposal Rubric for additional information.
Poster Guidelines

- The project’s title and authors must appear at the top of the poster. Please reference the example poster for formatting. All contributing authors and mentors should be on the poster with their respective institutions and locations listed. Reference the Contributor and Authorship Standard in the appendix of this document.

- A poster template will be emailed to you by the research coordinator. If you choose not to use the template provided, please set your PPT slide to 70cm width by 100cm height in the Page Setup Menu (A1 Poster Size).

- The narrative of the poster presentation must include the following sections (clearly labeled):
  - Introduction/Purpose
  - Background/Market Research*
  - Research Objectives/Design Goals*
  - Methodology/Prototype Construction and Testing (if applicable)
  - Results
  - Conclusion(s)
  - References

All lettering for these section headings must be in bold type and at least one-half inch high (headings are usually 48-88 font, text should be between 28-32 font).

- All illustrations (graphs, pictures, figures, and/or tables) should be large enough for easy observation. Expand the view on your computer screen to at least 150% to make sure images are not blurry. Use matte finish on graphs or pictures to reduce glare. All figures and tables should have brief captions.

- The background of the poster should be white.

- Each student presenter must be present throughout the session to answer questions about his/her research.
Master's Paper Preparation

The final manuscript, including tables and references, must be typewritten, double-spaced, using a 12-point font on 8 ½ x 11” white bond paper with one-inch margins on all four sides. The pages must be numbered consecutively, beginning with the first page of text labeled Introduction. The page number should be centered in one-inch margin at the bottom of each page. The main text should not exceed 25 double-spaced pages, excluding the abstract, references, and tables.

Other manuscript considerations are as follows:

1. The final paper is to be written in past tense.
2. The paper must be written in third person. Avoid first person pronouns, i.e., “We investigated…”
3. The paper must be free of typographical errors, misspelled words, grammatical mistakes, and one sentence paragraphs or the paper will be returned for correction before review for content.
4. One digit numbers, such as the number “7”, should be spelled out, as “seven”. Two digit numbers (or larger) should be presented numerically, such as “77”. An example is: “The study involved retrospective review of 77 medical records of which seven were excluded because of missing data.”
5. Any information containing summaries of patient/subject data must be free of individual identifiers.
6. For assistance with grammar, punctuation, and spelling, www.dictionary.com is recommended.

The outline for writing the Master’s Paper and the format for references are presented below. The final paper must be presented in this format and approved officially by the Dean, School of Allied Health Sciences, to meet graduation requirements. The format will need to be revised to meet journal specifications to submit it as a manuscript for publication, or tailored to conference guidelines for presentation at a professional meeting. Please reference the Contributor and Authorship Standards in the Appendix.

Standard Format for Abstract and Master’s Paper

The final draft of the Master’s Paper must follow the order of presentation outlined below. Papers submitted in any other format may be automatically returned for revision, delaying the project completion date. The abstract will be submitted for the poster presentation and must be resubmitted with the final paper.

Cover Sheet (Include title, student name, date of final submission to mentor)

Abstract (Must be single-spaced and limited to one page with the following components):

- Title of paper (all capital letters)
- Author (name of student)
- Introduction
- Objectives/Purposes of research or development
- Methodology (briefly stated)
- Results
- Conclusion
Introduction
• Introduction of the topic
• State overall purpose(s) of research
• Review of literature supporting need for study
• Review of literature on related studies (and review of market, if applicable*)
• Conclude with summary of need for study

Research or Development Objectives and/or Hypotheses
• Specific objectives of the study/product development project
• Specific hypotheses to be tested

Methods
• Study design/Prototype development*
• Protocol (summarized, with reference to IRB approval number, if required)
• Study population/sample
• Instruments/surveys/questionnaires (may be referenced here and included in appendix)
• Prototype testing*
• Statistical analyses used

Results
• Organized by objective or design goals*/question/hypothesis
• Data and results clearly stated
• Text must refer to each chart and graph included in “Tables and Figures”

Discussion
• Describe implications that are directly related to your findings
• Compare/contrast your results with results of other related research
• Discuss limitations of your methods/results/prototype*

Conclusion
• The overall results of your research (briefly stated) and areas for future research

References

Tables and Figures

Appendix
• Copy of IRB approved protocol
• Copy of surveys used
• Additional pertinent information

*All topics marked with an asterisk are related to product development projects. Most product development projects will also include the other topics outlined.
Format for References

All references and abbreviations are to follow the guidelines of the School of Allied Health Sciences. References must be typed single-spaced, and **arranged by number in the Reference list in order of their appearance in the text.** The titles of the sources should be in italics, and journals should be abbreviated according to the style used in *Index Medicus.* Do not use underlining when typing references. A few examples of correct form of references are given below.

**In the text:**

- **References are numbered** consecutively in the order they are first mentioned in the text. Place each reference number throughout the text in superscript. If the same reference is used again, reuse the original number. *(See number 3 in the example below)*
- **Direct quotes** are to be used very sparingly. If a direct quote is necessary, place quotation marks around the quote and number the reference as usual. *(See number 6 in the example below)*
- **Tables are numbered** consecutively. Supply a title for each table that is brief but accurately describes what information the table includes and give each row and column a short heading. Be sure that the table is mentioned in the text. If the data is taken from another source, cite the source in the table to match a source in the list of references at the end of the paper. Place explanatory matter in a note or legend, not in the heading, using symbols as superscripts (in the following sequence) to refer to each explanation in the note: *, +, **, ++, etc.
- **Internet sources** may, in time, be deleted, changed, or moved, so it is a good idea to keep a hard copy for your records. Also, take care to critically evaluate the reliability of the information.
- **Personal communication** used as a reference should be avoided, unless it provides essential information not available from a public source. Do not number this type of reference; instead cite the name of the person and date of communication in parentheses in the text. Use this method to cite a conversation or to cite notes you have taken in class. *(See the example below)*

**Example:**

Recently, the health sciences community has reduced the bias and imprecision of traditional literature summaries through the development of rigorous criteria for both literature overviews and practice guidelines. Even when recommendations come from such rigorous approaches, however, “it is important to differentiate between those based on weak vs. strong evidence.”

Recommendations based on inadequate evidence often require reversal when sufficient data become available, (John Doe, April 1, 2002) while timely implementation of recommendations based on strong evidence can save lives.

**On the References page:**

The last page of your paper is entitled REFERENCES. No footnotes or bibliography are used.

- **Numbering:**
  List all references in order of appearance in text by number, not alphabetically. Each reference appears only once in the reference list, since the same number is used throughout the paper.
• **Authors:**
  List each author's last name and initials; full first names are not included. List all authors, separated by commas, but if the number exceeds six, give the first six followed by "et al." before the final colon. (See examples below.) For books whose chapters have separate authorships, list the authors of the chapter first, then the chapter title, followed by "In:", the editors' names, and the book title. (See example below.)

• **Book titles, chapter titles:**
  Capitalize the first letter of the first word in the title. The rest of the title is in lower-case, with the exception of proper names, followed by a period. The title of the book is *italicized*. Do not underline the title.

• **Journal citations:**
  List the abbreviated journal title (*italicized*), period, year, semi-colon, volume, issue number in parentheses*, colon, page range, and a period (with no spaces from the year to the period). Capitalize only the first letter of the first word in the article’s title.
  To find the Index Medicus abbreviation for journal titles go to [PubMed Medline's Journals Database](https://www.ncbi.nlm.nih.gov/books/) and search by journal title. If the title is not found, abbreviate according to the style used in Medline.

  * The issue number may be omitted if the journal is paginated continuously through the volume.

• **Pages:**
  For journals, the entire page range of an article or chapter is given, *not* the specific page on which the information was found. For books, no page numbers are given, with two exceptions: the page number of a dictionary entry is included, as well as the page range of a chapter with its own author.

**Examples:**

• **Standard Journal Article**
  o Print Article (use month of publication if no volume or issue number is listed)


  o Online Article (use page numbers if also available in print)


• **Book**

• Published Proceedings Paper


• Agency Publication


• Web-based Citation (include both publication and updated date, if given)


• Book Chapter


• For other examples, see

http://www.oandp.org/jpo/authorinfo/INSTRUCTIONS_FOR_AUTHORS.pdf


• Note: The above links are just for examples. The format should ultimately follow the guidelines set forth in this document.
Summary Check List for Completion of Master’s Paper

The checklist below may be used to track each step toward completion of the Master’s Paper. Be sure to ask for guidance and/or assistance and anticipate problems to avoid issues that could threaten the success of the research. It is also recommended that copies be made of references, data, results, surveys, paper drafts, and computer files, to avoid having to re-enter and re-analyze data due to computer malfunction.

- Potential research topic identified (Spring 1).
- Literature review completed to clarify research question/hypothesis (Spring 1).
- Proposal presentation and written manuscript submitted to research coordinator for approval by deadline (June, Spring 1).
- Proposal revisions and methods section manuscript submitted to Master’s Project Coordinator for review by Senior Day 1 (September, Fall 2).
- BRAIN application submitted for IRB review and approval as indicated (Fall 2).
- Approval to initiate research received from IRB (No later than early Spring 2).
- ABSTRACT submitted for mentor review and revised accordingly (October, Fall 3).
- COMPREHENSIVE draft of revised Master’s Paper submitted for primary mentor’s review (November of graduating year or earlier).
- COMPREHENSIVE revised draft submitted for secondary mentor’s review (November of graduating year or earlier).
- FINAL MASTER’S PAPER submitted to the Master’s Project Coordinator. (Day of Poster Presentations, early December of graduating year or earlier)

- Granted Approval from the Dean, School of Allied Health Sciences (No later than December 31 of graduating year) ***The program director and/or Master’s Project Coordinator will submit reviewed and approved papers to the Dean for final review.

Each step along the way to final approval requires time. Do not wait until the last minute to prepare the written document. Allow a minimum of two weeks for primary mentors to review and critique the paper in its comprehensive draft form. Faculty and administration availability and accessibility to read and approve papers during the November and December holiday season may be problematic, so the approval process should be timely to assure completion of all requirements by December 31st.
Appendix
Mentor Meeting Log (In Person or Via Phone)

Student:__________________________   Mentor:___________________________________

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Meeting Agenda</th>
<th>Topics Discussed</th>
<th>Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please use multiple sheets if needed.

Signature of Student:___________________________________________________

Signature of Mentor:___________________________________________________
Group Project Contribution Outline (Classes of 2015 and 2016)

Students:_________________________________________________________________

<table>
<thead>
<tr>
<th>Student</th>
<th>Responsibilities Established</th>
<th>Completed Items</th>
<th>Additional Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please use multiple sheets if needed. Please remember that group projects are intended to be two coordinating individual projects. Each member must demonstrate sufficient independent contributions to the project to constitute an individual project. Please ask the Master’s Project Coordinator if you need clarification.

Signature of Student 1:___________________________________________________
Signature of Student 2:___________________________________________________
Orthotics and Prosthetics Program  
Master’s Project Proposal: Presentation Rubric  

<table>
<thead>
<tr>
<th>Proposal Elements</th>
<th>Points Possible</th>
<th>Points Earned</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic of Research or Product Development: Indicates synthesis of knowledge and analytical thought</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background Information and/or Market Analysis: Demonstrates depth of knowledge; cites at least 6 related articles, including at least 3 peer-reviewed articles which are critically examined</td>
<td></td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Research Question and Hypothesis: Clearly states question and defines hypothesis OR Product Design Goals and Market: Clearly identifies product outcomes and relevant population</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Project Design: Outlines project and general information on subjects (inclusion/exclusion criteria), methodology suitable to research question, and reasonable timeline</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Identification of Mentors</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Presentation: Power Point is well-organized; presenter adheres to time limits</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format of Presentation: Slide headings coordinate to presentation criteria; citations are in Index Medicus format</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Professionalism: Demonstrates professional demeanor and attire during presentation</td>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Total Points** | **100** | | |
### Orthotics and Prosthetics Program

**Master’s Project Proposal: Written Submission Rubric**

<table>
<thead>
<tr>
<th>Written Submission Elements</th>
<th>Points Possible</th>
<th>Points Earned</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title Page includes Project Title, Student Name, Name(s) of Mentor(s), Date of Submission.</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction discusses overall context of research topic, research question, hypothesis, and purpose of research.</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background investigation includes highlights and synthesis of all articles cited (at least 6). Content demonstrates synthesis of thought and critical analysis in addition to summary of articles.</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper is written in Times New Roman, 12 pt. font, double-spaced with subject headings: Introduction, Background Information, Proposed Methods, Citations.</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing demonstrates attention to detail, including correct syntax, spelling, and grammar.</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference list is written in Index Medicus format and reflects appropriately related literature.</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Presentation Elements</strong></td>
<td><strong>Points Possible</strong></td>
<td><strong>Points Earned</strong></td>
<td><strong>Feedback</strong></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Topic of Research or Product Development: Indicates synthesis of knowledge and analytical thought</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background Information and/or Market Analysis: Comprehensive review of literature and/or clear understanding of market needs</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Question and Hypothesis: Clearly states question and defines hypothesis OR Product Design Goals and Market: Clearly identifies product outcomes and relevant population</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Design: Outlines project and includes subjects and/or data, inclusion and exclusion criteria, basic methodology, general timeline</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answers questions and adheres to time limit: 7-minute presentation and 3 minutes for questions</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Presentation: Power Point is organized and contains appropriate level of information; graphics enhance presentation</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format of Presentation: Slide headings coordinate to presentation criteria; citations are in Index Medicus Format</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism: Demonstrates professional demeanor and attire during presentation</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Orthotics and Prosthetics Program

## Master's Project Poster: Presentation Rubric

Student: ______________________  Judge/Faculty: ________________________________

<table>
<thead>
<tr>
<th>Presentation and Poster Elements</th>
<th>Points Possible</th>
<th>Points Earned</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research purpose and hypothesis is clearly stated, or development goals are stated.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction and background information or market analysis is clear, concise, and relevant to research project or product development project.</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research methodology is effectively presented and addresses the purpose, hypothesis, and objectives or prototype development methods outlined.</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of data collected is clearly stated and enhanced with graphics or prototype performance is clearly presented.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data analysis and results are correctly interpreted and consistent with the research or development purpose.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion/Conclusion highlight the findings of research/development and reflect thoughtful assessment of project and areas for future research.</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Presentation: Presenter demonstrates professionalism, enthusiasm, and depth of knowledge regarding project.</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format of Poster: Poster is cleanly formatted with consistency in text, colors, and graphics. Poster includes appropriate amount of information. AMA reference formatting is used.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Points: 100
<table>
<thead>
<tr>
<th>Final Manuscript Elements</th>
<th>Possible Points</th>
<th>Points Earned</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Abstract:</strong> Follow guidelines</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. Introduction:</strong> Introduce the topic of your research</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Background and Market Review:</strong> Synthesize thorough background information that supports the need for and gives context to the product development</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Market Analysis:</strong> Clearly state the results of the analysis and the foundation for the product development</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. Methods:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Clearly outline the criteria for development</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Specify and detail product testing methods</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Explain methodology well enough to be replicated</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6. Data Analysis and Results:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Clearly outline pertinent product testing data with effective use of charts and graphs</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Detail the method of analysis and state results</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7. Conclusion and Discussion:</strong> Summarize the overall impact of your project. State whether the product developed was successful. Include any recommended follow-up including practice changes, research and product development questions to explore, guidelines that need to be developed, indicated policy changes, corrections to educational deficits, etc.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8. AMA Citations</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Manuscript Elements</td>
<td>Possible Points</td>
<td>Points Earned</td>
<td>Feedback</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>1. <strong>Abstract:</strong> Follow guidelines</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <strong>Introduction:</strong> Introduce the topic of your research</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. <strong>Background and Literature Review:</strong> Synthesize thorough background information that supports the need for and gives context to the research project.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. <strong>Research Question:</strong> Clearly state a research purpose and hypothesis</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. <strong>Methods:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Clearly outline inclusion/exclusion criteria and subject recruitment</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Specify and detail data collection methods</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Explain project in a method which would allow for reproduction</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. <strong>Data Analysis and Results:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Clearly outline pertinent data with effective use of charts and graphs</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Detail the method of analysis and state results</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. <strong>Conclusion and Discussion:</strong> Summarize the overall impact of your project. State whether the research question was answered. Include any recommended follow-up including practice changes, research questions to explore, guidelines that need to be developed, indicated policy changes, corrections to educational deficits, etc.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. <strong>AMA citations</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Product Pitch: Evaluation and Scoring Form

### Presentation Objective

<table>
<thead>
<tr>
<th>Rating: 1= poor</th>
<th>2=average</th>
<th>3=good</th>
<th>4=excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grabs audience attention immediately</td>
<td>Feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearly explains market analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates market need for product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explains the benefit/competitive advantage of new product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivers presentation with clarity and enthusiasm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TOTAL SCORE

Orthotics and Prosthetics Program
# Product Prototype: Assessment Rubric

| Prototype Objective | Rating: 1= poor  
2=average  
3=good  
4=excellent | Feedback |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User:</strong></td>
<td>Appropriate to target user in look, feel, and usability</td>
</tr>
<tr>
<td><strong>Interface:</strong></td>
<td>Interface goes beyond minimal implementation with multiple design features</td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
<td>Appeals to target user and audience, demonstrates polish</td>
</tr>
<tr>
<td><strong>Usability:</strong></td>
<td>Allows for ease of use and accomplishment of purpose</td>
</tr>
<tr>
<td><strong>Completeness:</strong></td>
<td>Demonstrates thorough thought in design and production</td>
</tr>
</tbody>
</table>

**TOTAL SCORE**

---

**Student_______________________________________**

**Faculty_______________________________________**
Application for Approval of Master’s Paper

(Date)

Project Title:

Student Investigator:

E-Mail Address:

Faculty Mentors:

(Type Name of Mentor Here)                     Date
Primary Mentor

<Type Name of Mentor Here>                     Date
Secondary Mentor

Ashley Mullen, MSAT, CPO                      Date
Master’s Project Coordinator

Jared Howell, MS, CPO                        Date
Program Director

Robert J. McLaughlin, PhD                   Date
Dean, School of Allied Health Sciences
Request for Extension of the Completion Date for the Master’s Project

Name: ______________________________

Project Title:
__________________________________________________________________
__________________________________________________________________

Primary Mentor: _______________________

Secondary Mentor: _____________________

Briefly state the reason for your request for an extension including the factors that have contributed to a delay in completing your project. Please also clearly outline the steps that remain to be completed in your project.

I request a 30-day extension on the completion date of my Master’s Paper from ________ to ________.

(date)                  (date)

__________________________________________  ______________________________________
Student Signature            Date            Primary Mentor Signature            Date
Contributor and Authorship Standard
OP Program
School of Allied Health Sciences
Baylor College of Medicine

Introduction
The extent to which a faculty member and graduate student contribute to a scholarly project will be used to determine authorship on any poster, presentation or manuscript submitted for publication. As a contributor, each participant accepts, at the outset, a certain portion of the effort needed to bring a research project, poster, presentation and manuscript to fruition. As the work progresses, the actual work performed may be compared to that intended and adjustments made as needed. At the conclusion of the work, each contributor is given either authorship credit or acknowledgement. Approached in this fashion, “contributorship” is intended to be a fair and transparent system that should improve the allocation of credit and responsibility for published work. Those who have done a major portion of the work on a paper will receive—if permitted by the editors of the journal in which it is published—credit for both general authorship and for their specific contributions to the research.

General Consideration
This standard is intended to apply to all scholarship conducted by faculty and students within the Orthotics and Prosthetics Program offered through the School of Allied Health Sciences of Baylor College of Medicine, as well as program faculty who collaborate with investigators from other departments or institutions. We hope the standard will lead to fewer disputes over authorship and fairer treatment of junior researchers.

Purposes of Standard
The purposes of these standards are specifically intended to: [1] enhance scholarly collaboration and promote academic integrity; [2] protect the academic future of learners within the program; and [3] prepare faculty members of the OP Program for the increasingly stringent requirements of journals for the disclosure of the actual work performed by coauthors. This standard is intended to reduce disputes over authorship and the inappropriate designation of non-contributing persons as authors. It is no panacea, and it will not prevent abuse of credit for publications. Sound policy can promote but cannot ensure academic integrity.

Planning Collaboration at the Outset
Any mechanism for the allocation of credit for academic work is most useful when the individuals involved in a research project plan their collaboration effectively from the beginning. This serves as a way to negotiate both work and authorship at the same time; those who want authorship need to agree to do more work. So the first step is to agree on who contributes what. The second step, which may occur at the same meeting, is to agree on whose contributions merit authorship. Some journals may not list authors as such but list all of the contributors together with a description of what each did. Most journals still have authorship bylines, and the contributor list needs to be separated into those whose work merits authorship and those whose work will simply be acknowledged. For these journals, contributorship is not an end in itself but a step toward determining authorship.

Establish the Order of Authors
The preliminary order of authorship should be established during the earliest of meetings between the investigators involved. This standard makes no stipulations about the recommended order of authorship and leaves this decision to the authors themselves. However, the Baylor
Faculty Appointments and Promotions Committee assumes that credit for published work is in approximately this order: First author - receives primary credit; Second author - shares in the next level, Third up to last authors - receive progressively less credit, and Last author is seen as the senior person whose laboratory, database, or intellect is the key driver for the work. In terms of student research, the primary mentor becomes second author and the secondary mentor is third author.

**Evolution Over Time**
Projects change and new people join the team, which should be noted and their participation and level of credit planned. People also fail to perform their duties, in which case their status should be altered. In this regard, it is helpful to reflect on what has actually been done, and by whom, at the end of the study, as opposed to considering only the intended roles of the participants in the planning stages. Should the project be prepared for publication, order of authorship may change in reflection of work contributed to bring the project to publication.

**Responsibility for Standard Implementation**
Primary responsibility for the implementation of this standard rests with the project’s lead author. More junior researchers, such as students, residents, and fellows, are encouraged to consult with their mentors to ensure that their scholarly efforts are properly planned and credited. Faculty members who are not involved in the project in question are usually in a good position to provide an outside perspective.

**Dispute Resolution**
Determination of authorship can lead to significant disputes. For example, faculty members of the OP Program may collaborate with members of other departments who may have different beliefs about what level of participation warrants authorship. The administration of the OP Program encourages collaborators to resolve potential disputes by negotiation among themselves at the earliest practical time.

**Acknowledgement**

I have read and agree to abide by the above standard.

__________________________________  ____________________________________
Primary Mentor    Secondary Mentor

__________________________________  ____________________________________
Student Investigator
IRB Information

The Institutional Review Board (IRB) is a committee comprised of physicians, statisticians, researchers, community advocates, and individuals from both inside and outside the Baylor College of Medicine community that ensures that research protocols involving human subjects are conducted ethically, and that the rights and safety of study participants are protected. All research protocols conducted by Baylor College of Medicine faculty that involve human subjects must be approved by the BCM IRB before they begin.

Every institution that conducts or supports biomedical or behavioral research involving humans as subjects must, by federal regulations, have an IRB that initially approves and periodically reviews the research to protect the rights of the research subjects. The College has established six IRBs and an IRB Office.

Each student will be required to submit a research protocol for approval or exemption by the IRB and Baylor College of Medicine. Additionally, each student, project mentor, and primary investigator will need to complete online CITI training. Students will complete this training in the Health Research Methods Course in the Spring of the didactic year. Mentors will need to complete the training individually.

Additional Information regarding the IRB can be found here:

http://intranet.bcm.edu/?tmp=/research/oor/human/irb/home

The Human Research Protections Manual can be found here:

http://intranet.bcm.edu/apps/research/oor/a_c/document/irb_manual.pdf

Access to the BRAIN platform for submission of a research protocol to the IRB can be found here:

https://brain.bcm.edu/brainlogin.asp
Master of Science in Orthotics and Prosthetics
Contact Information

Administrative Coordinator III
Liz Haecker
Direct: (713) 798-5805
Office: (713) 798-3098
Email: lizh@bcm.edu

Program Director
Jared Howell, M.S., CPO, LPO
Direct: (713) 798-3093
Office: (713) 798-3098
Email: jaredh@bcm.edu

Program Assistant Director
Joshua B. Utay, M.Ed., CPO, LPO
Direct: (713) 798-3151
Office: (713) 798-3098
Email: utay@bcm.edu

Clinical Supervisor, Instructor
Lorin Merkley, CP, LP
Direct: (713) 798-5411
Office: (713) 798-3098
Email: lmerkley@bcm.edu

Research Coordinator, Instructor
Ashley Mullen, MSAT, CPO, LPO
Direct: (713) 798-4312
Office: (713) 798-3098
Email: ahmullen@bcm.edu

Lab Manager, Instructor
Earl Fogler, CP, LP
Direct: (713) 798-1631
Office: (713) 798-3098
Email: fogler@bcm.edu