RESEARCH PROPOSAL GUIDELINES

Master of Science Degree

Oral Biology
Master of Science Research Proposal (Qualifying Exam)

The research proposal is developed as part of the Master’s degree program and serves as the written part of the qualifying exam. The proposal is the foundation of the thesis research project. Once your committee chair has been identified, you will develop a research question and review the literature as part of course BISC 5751 (Elements of Scientific Method), a one-on-one course with your committee chair. It is important to have weekly time set aside in your schedule for this course and the associated activities. Ideally, this course would occur during the Fall semester of your first year.

In the Winter semester first year, you will participate in BISC 5752 (Research Methods in Oral Biology) and as part of this one-on-one course with your chair, you will write your research proposal. If your research project is laboratory-based, you will most likely also be working in the laboratory, learning and developing protocols and collecting preliminary or pilot data related to your research question.

Once the proposal is preliminarily approved by the committee chair, it will be reviewed by your entire MS committee prior to a committee meeting at which you will make a presentation (PowerPoint) about the proposal and answer related questions. You may be asked to modify the proposal depending on the committee’s feedback/input. Following any required proposal modifications based on the committee’s feedback/suggestions, the approved research proposal satisfies the written portion of the qualifying exam, while the oral presentation and answering associated questions serves as the oral portion of the exam. Following successful completion of the qualifying exam and approval of the proposal by your committee, you can then officially begin collecting data for the thesis research project.
The research proposal is essentially the first two chapters of your thesis, Chapter 1-Introduction (i.e. literature review) and Chapter 2-Materials and Methods.

The following information provides some basic guidelines related to the layout and content of the proposal document.

Page layout:

Margins: top and left - 1.25 inches; right and bottom-1 inch

Page numbers: bottom of page, centered
Master of Science
Research Proposal
Oral Biology

Project Title

Your Name and Credentials

Date
Chapter 1

INTRODUCTION

The Introduction is a literature review related to your research topic. This chapter begins with more broad information. This will be followed by a historical review of the problem/question of interest and previous knowledge in the field. Finally, the introduction should lead to a rationale for the research question. What is not known and what needs to be done. This leads to the problem statement.

The problem statement is a required section of the Introduction. Typically, hypotheses will be included. The hypotheses explain how the problem statement will be addressed.

Example Problem Statement

The purpose of this study is to evaluate how different drying techniques affect the quality of an epoxy-based endodontic sealer/dentin interface using Goldner’s trichrome stain and SEM to analyze the interface.

Example Hypotheses

1. There will be a significant difference in the degree of intertubular collagen infiltration of the sealer as a function of drying techniques and intracanal location (coronal, middle and apical).

2. There will be a significant difference in the degree of tubule penetration of the sealer as a function of drying techniques and intracanal location (coronal, middle and apical).

PLEASE NOTE: It is important to follow the formatting that will be used for the MS Thesis when writing the Research Proposal. The formatting document is available from Ms Corry and will be used as part of RESM 703 Thesis Writing course. By using the correct
formatting, etc, the proposal is easily transitioned into the thesis. Once the data is collected, you can do a ‘save as’ to convert your research proposal to your thesis and do any necessary updates/rewrites of the Introduction and Materials/Methods and add the remaining 3 chapters, Results, Discussion, Conclusions
Chapter 2

MATERIALS AND METHODS

Materials and Methods section must be as accurate and detailed as possible in order to allow investigation replication. Manufacturer and address of any materials or instrumentation (microscope, SEM, etc) used in the study will be provided via a footnote (Please see Thesis formatting document for details). Example footnote¹

If extracted teeth or human subjects will be part of the investigation, Institutional Review Board approval will be required. UMKC Adult Health IRB handles teeth- and adult-based studies, while Children’s Mercy IRB is responsible for studies involving children (younger than 18). A research project using survey instruments would be reviewed by UMKC Social Science IRB. Appropriate forms and instructions are found on the websites. UMKC website: [http://www.umkc.edu/research/RPP.html](http://www.umkc.edu/research/RPP.html). The IRB will require a protocol synopsis; the research proposal can serve as the basis of that document. IRB approval must be obtained prior to collecting a data.

Depending on the investigation, various subsections within the materials and methods section include specimen preparation, specimen analysis procedures.

Experimental Design

This is a required subsection in which you describe the study design. For example, the study is a two-factor repeated measures design. Then go on to explain what are the independent and dependent variables. This section usually appears early in the M/M section.

¹ Ultradent Products, Inc., 505 West 10200 South, South Jordan, UT 84095
Sample Size

Most investigations will require a subsection describing and justifying the sample size used for the project. This is often based on a power analysis of preliminary data.

If the investigation is an exploratory or pilot study, then sample size and power analysis would not be included. Instead, information justifying the exploratory nature of the investigation or the reason/rationale for a pilot study would be addressed in the M/M section.

Additional subsections detailing how the study will be completed

Data Analysis

Final subsection of the M/M will describe how the data will be analyzed statistically and what post hoc tests might be used to detect where significant differences occur with each of the hypotheses.
LITERATURE CITED

The list of references will be generated using EndNote software-based reference management program. It is important to obtain the software from Oral Biology at the beginning of MS program in order to begin managing your collected articles.

There is a UMKC EndNote reference style file that should be used to generate your in-text citations and bibliography. This can be obtained from the Oral Biology Department.