



# Advanced Education Program MSD Thesis Research Manual

2022 -  
2023

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This document contains guidance pertaining to the MSD thesis research requirements of the University of Texas Health Science Center School of Dentistry Advanced Education Programs. The content was adapted from the UT MDACC Graduate School of Biomedical Sciences MS Thesis Research Manual.

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## 1. Introduction

This manual was developed to provide guidance for completion of the research requirements for the Master of Science in Dentistry (MSD) degree at the UTHealth School of Dentistry at Houston.

For more information regarding UTHealth research policies and procedures, consult the following:

- UTHealth Handbook of Operating Procedures (<https://www.uth.edu/hoop/>)
- UT Systems Board of Regents Rules and Regulations (<https://www.utsystem.edu/offices/board-of-regents/regents-rules-and-regulations>)
- Individual UTSD Advanced Education Program Manuals

Questions regarding any items in this manual should be addressed to the Office of Office of Student and Academic Affairs at [Aniqua.Rice@uth.tmc.edu](mailto:Aniqua.Rice@uth.tmc.edu).

A MSD graduation checklist is provided [here](#).

## 2. Completion of Requirements for the MSD Degree

The MSD degree will be issued when: 1) the final oral examination is approved by the candidate's MSD thesis advisory committee, 2) confirmation of successful uploading of an electronic version of the written thesis to ProQuest is received by the Office of Student and Academic Affairs, and 3) confirmation of successful research and administrative checkout procedures is received by the Office of Student and Academic Affairs.

All requirements for the MSD degree must be completed within the prescribed program length. If any of the items above are not submitted prior to the end of the terminal semester it will be necessary for the student to register in the subsequent semester for completion, if an extension is granted by the Program Director and the Advanced Education Director.

## 3. MSD Thesis Research Requirements

Choosing an appropriate study design prior to the onset of the the research is essential for properly addressing the question(s) of interest. Experimental design provides a *framework* for data collection and analysis in order to answer the research question of interest, whereas research method reflects the *technique* for collecting data. Study design and methods are different but closely related; a good study design will ensure that the data you obtain will effectively address your research questions. It is vital to recognize that your research question drives the formulation of the study design, not the other way around!

Advanced education students petitioning for an MSD degree will conduct a thesis research project that is *observational* or *experimental* in nature. Examples of acceptable study designs for a MSD thesis are shown in **Figure 1**.

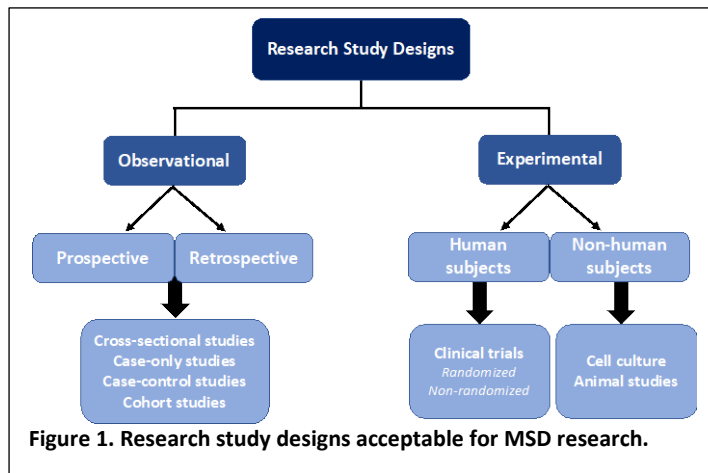
- Observational studies can be prospective or retrospective. A few examples of observational study designs include cross-sectional studies, case-only studies, case-control studies, and cohort studies.

- Experimental studies are interventional, requiring the manipulation of a variable alongside an unmanipulated control; these can involve human subjects (i.e., randomized controlled trial, non-randomized clinical trial), animals (*in vivo*), or cell model systems (*in vitro*).

Meta-analysis and systematic reviews are acceptable if deemed that such work has not yet been published in the field. Surveys and narrative literature reviews will NOT be accepted for an MSD thesis.

#### 4. Research Time

Availability of research time should be determined by thesis committee chair, respective Advanced Education Program director, and the student, based on each project's needs. Research time should be used strictly for the development and execution of the MSD thesis project and will be monitored by the thesis committee chair and program director, to ensure that research milestones are achieved.



#### 5. MSD Thesis Content and Format

A *manuscript-style* thesis is required, with the goal of facilitating submission to a peer-reviewed scientific journal. The choice of scientific journal will be determined by the student in conjunction with the respective Advanced Education Program Director and/or departmental Research Director. Please refer to Appendix 1 for a fillable template form of the thesis (also available [here](#)).

The manuscript-style thesis is composed of:

- **Committee signature page**
- **Title page**
- **Acknowledgments**
- **Table of contents**
- **List of tables**
- **List of figures**
- **Chapter 1:**
  - Introduction – Provide a brief background of your study subject, what is known and what is not known about the topic, and a clear statement about how the research problem to be addressed makes a contribution to the subject. Follow to clearly state your working hypothesis and the aims for the study. Include a sentence that states the clinical relevance of your work.
  - Review of the literature – Provide a thorough review of the literature about your topic, in a way that the reader understands the progression of knowledge about your research topic and why your study contributes to the topic. Please discuss with your mentor on the best way to present your literature review, if in chronological order, or divided in subtopics.

- Literature Cited – Provide a list of all of the references utilized in the thesis – articles, books, pamphlets, reports, earlier theses, and personal communications. Please follow the reference style of the scientific journal you are planning your submission. A reference management software (e.g., EndNote, or Refworks) is encouraged to facilitate the process and ensure proper referencing. Access to RefWorks is provided by the TMC library. Additional information is provided in the Reference Management section below.
- **Chapter 2:** This chapter should be written as a scientific article following the author submission guidelines of the journal of your choice. Choosing the target journal prior to starting to write this chapter is advisable, as the style and order of manuscript sections vary between journals. In general, the following sections are required by most journals: abstract, introduction, materials and methods, results, discussion, conclusions, acknowledgements, references, tables, and figures. A reference management software (e.g., EndNote, or Refworks) is encouraged to facilitate the process and ensure proper referencing. Access to RefWorks is provided by the TMC library (<https://library.tmc.edu/>). Please see Reference Management section below for more information.
- **Appendix** - Supplemental documents that would not be included in the main manuscript text should be provided in the Appendix. For example, raw data tables, additional figures, data collection forms, IRB/AWC approvals, consent/assent forms, etc. Please discuss with your Committee Chair what materials you might need to include in the Appendix, if any.
- **Vita** - This is a brief autobiographical sketch of the student and should include date of birth, names of parents, schools and colleges attended, degrees awarded, publications, experience in teaching, business, industry, and/or military services, and a permanent address.
- **Master of Science in Dentistry degree data sheet** – To be completed with the requested information.

The following are guidelines for formatting your thesis. It is important to follow these specifications to avoid errors in formatting when uploading the thesis to ProQuest:

- **Font type/size** – Times New Roman, 12pt.
- **Spacing and pagination** - Use tabs instead of a series of spaces to align text. Insert page breaks instead of a series of paragraphs to start a new page. Use section breaks to change the format between pages in the document. Use your word processor's tools for creating tables of contents and cross references to ensure that pagination is consistent even if the generation of the PDF file causes the pages to shift slightly.
- **Page numbering** – 1) Assign lower case, consecutive Roman numerals to preliminary pages beginning with acknowledgments and including table of contents, list of tables and list of illustrations. 2) Number each page thereafter beginning with the first page of the introduction and including tables and illustrations consecutively with Arabic numerals. 3) Placement – Center Roman numerals and Arabic numerals within the 0.75-inch margin at the bottom of the page.
- **Figures and graphics** – please use EPS or PDF rather than bitmap, GIF, or JPEG files. Use a high resolution such as 600-dpi. Avoid using graphic editors that are part of a word processor.

## 6. MSD Thesis Advisory Committee

An MSD thesis advisory committee will be available to guide you through scientific and administrative steps required for your research needs. The committee will also monitor progress and achievements throughout the research process, and assist with troubleshooting as needed.

Each student should identify an appropriate research mentor based on the area of research to be the thesis Committee Chair. The Committee Chair must hold an academic degree of MSD, MS, or PhD. During the developmental stage of the thesis, it is vital that you and your Committee Chair discuss the feasibility of your project, particularly with regards to project completion within the allotted research time of your program. You and your thesis Committee Chair should discuss the expertise required for your advisory committee in order to select additional members. Below are the requirements for composition of the MSD thesis advisory committee:

- Committees should be composed of by a minimum of three and a maximum of five members - 1 Committee Chair, and 2-4 members, all of whom should hold UTHHealth-Houston academic appointments\*.
- The Committee Chair and at least one (for 3-member committees) or two (for 5-member committees) of the members must have a MSD, MS or PhD degree.
- At least one or two committee members must be from a different discipline/department (for 3- and 5-member committees, respectively).

\*A committee member who does not hold an appointment at UTHHealth-Houston may be included as a 4<sup>th</sup> member of a 3-member committee, or within the five members of a 5-member committee.

Once you identify the committee members who you would like to be part of your thesis advisory committee, proceed with email or in-person invitations to each potential committee member. Make sure to include a brief summary of your proposed research project and a copy of this manual. You must also collect each advisory committee member's signature on the MSD thesis advisory committee member [acknowledgement form](#) (see Appendix 2) and turn in to your Program Director.

## 7. Committee for the Protection of Human Subjects (CPHS) and Animal Welfare Committee (AWC)

For research involving human subjects, human derived materials (biospecimens, extracted teeth), or human derived data, you must get approval from the UTHHealth Committee for the Protection of Human Subjects (CPHS, a.k.a., IRB). Consult with the Office of Research ([SOD-IRB@uth.tmc.edu](mailto:SOD-IRB@uth.tmc.edu)) to determine if your research is exempt. For research involving animals, you must get approval from the UTHHealth Animal Welfare Committee (AWC). Please be aware that all investigators participating in research involving human subjects and/or animals must have valid training certificates on file. For additional information on research training, please go to <https://www.uth.edu/research/research-training.htm>.

Information about clinical research and workflow can be found at the [UTSD Clinical Research Guide](#). If it is determined to be a clinical study, please visit this [link](#) to fill out the **Request for Clinical Research Form** to initiate the process **prior** to IRB submission. You may consult with the Director of Clinical and Translational Research (SOD-4401) for additional guidance on the documentation required for your human subject and animal research applications. If your work will be conducted in one or more of the Clinics at UTSD, you must have approval from the Associate Dean for Patient Care.

Visit <http://iris.uth.tmc.edu> to start an application for conducting human subject or animal research. You should work with your committee chair to develop all supporting documents (study protocol, questionnaires, data collection forms, consent forms, etc.) as applicable for your project to upload into iRIS. **Do not** submit your application without your Committee Chair first reviewing and approving your documents. Students will only be allowed to start their research protocol *after* receiving approval from the IRB and/or AWC. Both the Program Director and Research Director in the department should be made aware if a project is significantly delayed in the IRB process such that successful completion is in danger of falling off of the timeline for graduation. The Committee Chair in consultation with the student can then consider an appropriate course of action for the student.

Please include Sandra Jung as ‘research coordinator’ on all CPHS and AWC submissions. Protocols should be routed in iRIS for approval by the Associate Dean for Research.

Remember, you may only start your research once you have received notice of IRB and/or AWC approval.

## 8. Developing your Thesis Research Project

### a. Choose an idea

The first step in the thesis process involves selecting a research topic. Initial ideas are often facilitated by faculty and presented to the students for consideration. Students are also encouraged to bring their own ideas for discussion. Once the initial idea has been agreed upon, it will likely evolve over time through further discussion, literature review, and so on. This is a common, through which the iterative process ultimately leads to a stronger and more feasible thesis project.

### b. Perform a literature search

A thorough literature review about your research topic will allow you to gain an understanding of the current state of knowledge and identify associated gaps that can be filled by your research project. These ‘knowledge gaps’ can then be translated into the research aims and objectives, as specific questions and hypotheses. It is for this reason that the literature review and writing the background to your project occurs early in the thesis development process. A few suggestions to this end include:

- Do extensive literature searches to identify relevant articles
- Use your literature search and review to make sure your project will contribute to the field; ensuring that (1) a project identical to yours has not already been published, (2) to understand the science related to your topic, and (3) to develop your research questions. Think in terms of the formulated questions explicitly including response (dependent) and explanatory (independent) variables.
- Think about how you will do your study and with what methodology to measure response and explanatory variables. How have others addressed similar research questions? Are there validated measures that you can find? From where will your sample come? How many samples are needed to reach (statistically) meaningful conclusions?
- Describe how your research will contribute to a gap in the field.
- Cite the references in the text and list them in the Literature Cited section. Use of a reference management software such as EndNote or Refworks is strongly encouraged (see Reference Management section below).

### c. Develop your study hypothesis and aims



State the broad objectives of the proposal. For students whose projects are part of larger on-going studies in the mentor's research program, state the long-term objective of the overall research program and indicate which aspect your project will investigate.

As the project ideas evolve, you will be formulating the specific research question(s) that you hope to answer, as well as your hypotheses and aims.

- **Research Question:** The research question is the objective of the study, the knowledge gap that the project will address. Specifically articulated questions should include response and explanatory variables. A good research question should pass the 'So what?' test. Getting the answer should contribute to the state of knowledge of the discipline. The research question is an expression of WHAT you want to know.
- **Hypothesis:** The hypothesis refines your research question into a specific, testable statement that includes response (dependent) and explanatory (independent) variables. The hypothesis states exactly what question you want to examine in your study, as well as what you expect (hypothesize) the outcome to be. Your data will ultimately either support or not support your hypothesis, as determined by quantitative methods and statistical analysis.
- **Null hypothesis:** The null hypothesis puts your hypothesis in zero sum terms, meaning you generally assert that you are not going to find an association between response and explanatory variables.
- **Aims:** Your aims describe HOW you are going to test your hypothesis. Each aim should start with an action verb (e.g., to determine, to examine, to compare). Most thesis projects have between one and three aims.

#### d. Study design and statistical analysis plan

Once you have formulated your research aims and questions, but before starting any research activities, the Committee Chair and you should meet with a statistician to discuss and develop a plan for the most appropriate study design, sample size, data management/organization, and statistical analyses of the data. As you progress with data collection, performing a preliminary data analysis may be helpful to determine if any changes to sample size or statistical analyses are needed. Final statistical analysis may be performed once all research data has been collected. Students will be responsible for having a full understanding of sample size justification, choice of statistical methods, and interpretation of results. Discuss your proposal with the school's statistician and data scientist – Dr. Nat Holland, PhD, Room 4408. Email: [Julian.N.Holland@uth.tmc.edu](mailto:Julian.N.Holland@uth.tmc.edu). See Appendix 3 for statistical consultation guidelines.

#### e. Data collection and data management delete the following sentences

Consult with the statistician about data management and organization in excel early on to avoid having to re-organize the data into a format acceptable for statistical analyses. In general, replicates are rows and variables are columns. Ideally, all students should close data collection over winter break of the 2<sup>nd</sup> year in the program. This allows for ample time to perform statistics in January and February and to stay on a comfortable time line. If issues in your project cause you to deviate from this time line, please consult with your Committee Chair and the Program Director. Major deviations of time may result in delayed graduation.

#### f. Reference management

References used for your work must be cited in accordance with the American Psychological Association (APA) 7th Edition Citation Style. Students are encouraged to utilize a reference management software such as EndNote or RefWorks to keep track of their bibliography, and facilitate formatting references. Access to RefWorks is provided via TMC Library (<https://library.tmc.edu/>). EndNote may be available on university computers. Access to EndNote is also provided within the Web of Science subscription at TMC Library. Your committee chair or departmental research director can assist you with the use of reference management software.

Please refer to <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3804522/> for understanding the importance of proper scientific citation. Failure to appropriately cite referenced material is considered plagiarism. Plagiarism is defined as the “act of using another person’s words or ideas without giving credit to that person” (Merriam-Webster, 2015). Written thesis documents are subject to submission to plagiarism checker software and the report will be provided to your thesis committee. Plagiarism is subjected to disciplinary action.

#### g. Writing your full proposal

Once approved by your Committee Chair and the Advanced Education Committee, and upon consideration of any recommendations from your Committee members, please start developing your full proposal. The earlier you start the better. You may begin by expanding the summary you included in the petition documents (see Petition Document section below). Please discuss the outline of your proposal in detail with your mentor to review expectations of content and length of text. One good way to start an outline is to write bullet points for each paragraph to be expanded. Please remember that writing a good proposal usually requires multiple rounds of revisions; make sure to allow enough time for your mentor to review each version of your proposal. While the Results and Discussion sections depend on the work being finalized, you may work up to the Materials and Methods even before starting data collection.

## 9. Advisory Committee Meetings

MSD candidates must hold a minimum of three committee meetings. The advisory committee may recommend additional meetings if warranted. No more than six months should elapse between meetings. Two of the three committee members or three of the five committee members (based on committee composition) must be present for the meeting to count.

Approval of your thesis proposal is needed from your advisory committee at the first committee meeting, which should coincide with your submission of the Petition documents for approval by the Advanced Education Committee and Office of Office of Student and Academic Affairs.

- **1st Committee Meeting** - This first meeting should focus on presenting an outline of your project for the committee members and may be brief (~30 minutes). At a minimum, your PPT should include the following information:
  1. Background: approximately 2-5 slides to introduce topic and review relevant literature
  2. Hypothesis slide
  3. Aims/Objectives slide
  4. Rationale
  5. Materials and Methods: Explain how you will conduct your study. Be focused and clear. Briefly describe the methods and explain why and how those methods will allow you to address your aims. Discuss experimental controls for every experiment – this is very important!!!

Depending on the experiment, both negative and positive controls may be needed. Explain methods for data collection, statistical analysis, and interpretation of the results. Please include sample size estimates and statistical analysis methods (based on consultation with a statistician). A timeline at the end of our presentation is a good way to summarize your research plans

6. Expected outcomes and clinical relevance

- **2nd Committee Meeting** - At this point you should have enough data to present to the Committee members. You should update your PowerPoint presentation from the 1<sup>st</sup> committee meeting and add all of the results. The committee will decide if you may stop data collection or if additional data is needed to support your study objectives. They will also decide if your 3<sup>rd</sup> committee meeting is needed for additional data presentation, or if it can be your Thesis Defense meeting.
- **3<sup>rd</sup> Committee Meeting** – If a 3<sup>rd</sup> committee meeting is needed for additional data presentation, please follow the format for the 2<sup>nd</sup> committee meeting. If this is your Thesis Defense meeting, additional preparation is necessary (please see Section 11. Thesis Defense).

### **Preparing for your advisory committee meeting:**

- Discuss a date with your mentor, ideally in advance of at least 4 weeks.
- Consider using online scheduling tools (e.g., Meeting Wizard, Doodle calendar etc.) to facilitate coordinating multiple dates/times among all involved.
- Reserve a room for the meeting (please ask your departmental administrative assistant for help in this)
- Send out a reminder to your committee members a week before the meeting.
- Review your slides with your committee chair at least 2 weeks prior to your meeting. This allows enough time for you to make any changes recommended by your mentor.
- Start the meeting by introducing the members of your committee.
- The presentation should be no longer than 30 minutes in order to allow for discussion. Plan for the meeting to be no longer than an hour
- Be sure and bring up any questions and concerns to your committee members. They are there to help you.
- If a committee member cannot attend a meeting, schedule a time to meet individually to discuss the contents of the meeting.
- Bring any forms that may require committee signatures to your meeting.
- After your meeting, your advisory committee members may provide you with feedback on your study. Please take careful notes of committee members' comments to discuss with your mentor.

## **10. Petition to MSD candidacy**

Petition to MSD candidacy documents will require information on disciplines, grades, as well as thesis research project and institutional approvals. You should be prepared to submit your Petition to MSD Candidacy form immediately after your 1<sup>st</sup> Committee Meeting, after you have had a chance to incorporate any feedback received during the committee meeting. Please remember to obtain signatures from your committee members on the Petition to MSD candidacy form during the committee meeting.

Submit [Petition to Candidacy](#) and Final Proposal to your Program Director to be routed to the Advanced Education Committee Chair and the Office of Student and Academic Affairs. Once you receive notice of approval you may begin with research activities.

## 11. Request to Defend your MSD Thesis

Once you and your Committee Chair are satisfied with the thesis draft, please share it with the full committee at least 7-10 days before the desired defense date. If your Committee Chair does not feel your thesis is ready, he/she has the right to delay your defense (and thus possibly delay graduation) and/or ask committee members to review the manuscript with a shorter time interval.

Submit [Request to Defend memorandum](#) and the following documents to the Office of Student and Academic Affairs at least 4 weeks before the defense.

- PDF of thesis draft for formatting check (include all pages)
- Word version of thesis draft (without references) for iThenticate check
- Word version of thesis abstract
- PDF of current CV, including publications, presentations, awards, patents

Expect an email from Office of Student and Academic Affairs stating that your request for thesis defense has been approved. Confirm the availability of your committee members for the scheduled defense date.

Thesis defenses are open to the public therefore a general announcement is sent out via email at least a few weeks in advance of the defense date. Provide the following to the Office of Student and Academic Affairs for generation of defense announcement two weeks prior to your thesis defense:

- Student's name
- Mentor's name
- Thesis title
- Defense date and time
- Defense location (building and room number)

## 12. Thesis Defense

The purpose of the defense is to showcase your research and evaluate your understanding of the project, as well as your ability to present research findings in a well-organized form.

The defense consists of two parts: a public seminar and an oral examination. For the seminar, you should deliver a 30-to-45-minute PowerPoint presentation (~35 slides) that includes a detailed description of the background, rationale, hypothesis, aims, materials and methods, results, study limitations, conclusions, future directions (if applicable), and acknowledgments. Make sure to work with your committee chair in creating your slides for the thesis defense, and avoid too much text on the slides. You do not want to write everything that you are going to present on your slides – use the slides to tell your story.

Following the presentation, in a closed session, the advisory committee will continue to examine you about your work and may ask questions on any aspect of the written thesis or the material presented at the seminar. Your Committee Chair may act as a moderator but will not respond for you.

Each advisory committee member will provide an evaluation using the Rubrics for Evaluation of M.S.D. Defense (Appendix 4) with recommendations of approval or disapproval. The Committee may conclude

that the student has passed, or may require additional research, modifications to the thesis, and/or another defense.

The Office of Student and Academic Affairs will provide you with Rubrics forms for you two days prior to your defense. After the defense, the Committee Chair should collect all rubrics and the approval of defense document and submit to the Office of Student and Academic Affairs.

A final copy of your thesis (after all corrections noted at the Thesis Defense have been made) must be submitted to your Program Director and Department Research Director (if applicable). In addition, a final electronic copy of your thesis must be submitted to Janet Peri, *Assistant Library Director*, at [Janet.Peri@uth.tmc.edu](mailto:Janet.Peri@uth.tmc.edu). You may schedule an appointment with Ms. Peri to verify that you have all the necessary documents for upload.

### 13. Scientific Presentations and Publications

#### a. Presentation(s):

Each student is expected to submit his/her thesis project for presentation at a scientific meeting of choice before graduation. You should discuss the format of your presentation (poster or oral), authors and author order, with your Committee Chair *before* submitting your abstract.

#### b. Publication(s):

The ultimate goal of research is dissemination of findings to the scientific community. You must submit at least a first draft of a manuscript suitable for journal submission to your Committee Chair and Program Director prior to your thesis defense scheduling. This is a requirement by CODA for graduation. Writing your thesis in the manuscript format should allow for the early submission of your manuscript to a journal. Authorship is an important consideration when drafting a manuscript (<https://www.nature.com/nature-portfolio/editorial-policies/authorship>). In general, the person with the most substantial contribution to the work (i.e., the student) will be listed as first author whereas the Committee Chair is generally listed last, and as the corresponding author. Additional contributors (e.g., those involved in data acquisition and/or analysis, or through intellectual contributions to research design and drafting of the manuscript) may also be included, the order of which to be discussed with the Committee Chair. Of note, ‘proofreading’ is not considered intellectual contribution therefore individuals contributing solely to this task may be acknowledged in the acknowledgement section and should not need to be listed as authors.

Please keep in mind that the manuscript review process is usually a lengthy process, within which you are expected to contribute with revisions if necessary. While there is no question that you did the bulky part of the work for your thesis project, if you fail to respond to these revisions adequately or in a reasonable timeframe, your Committee Chair may decide that you may no longer be listed as the first author of the manuscript.

A copy of all thesis-related publications should be kept by the Program Director and/or the Research Director for record keeping.

### 14. Research Data Retention and Disposition

Students are expected to adhere to the UTHealth policies regarding final disposition of research data and materials: *“At the end of my appointment, in accordance with institutional policy, I will leave behind all*

*original notebooks, computerized files, and tangible research materials so that other individuals can carry on related research. I will also work with my mentor to submit the research results for publication in a timely manner. I can make copies of my notebooks and computerized files, and have access to tangible research materials which I helped to generate during my graduate training according to institutional policy.”*

Prior to leaving the program, students must discuss disposition of their data with their Committee Chair and make sure that a plan is in place as to who will retain the data and how. All research data should be retained by the Committee Chair (who is likely also the principal investigator/corresponding author of the study), in adherence to all applicable patient privacy regulations (HIPAA, IRB protocol stipulations, etc.) regarding disposition of patient identifying information. **NO patient identifying information should ever be removed from campus or retained by students after graduation.** You may retain copies of anonymized data files that you may need for additional analyses. If there is a “key file” linking your anonymized data to patient identifying information (this may become very important if it’s later found that any additional data needs to be collected), this should be left in the care of your Committee Chair along with the rest of your original data.

## 15. Research Timeline

Below follows a tentative timeline to help you plan for each research-related activity. Please go over this timeline with your mentor during the early stages of developing your proposal so that you can plan each step accordingly.

Tasks	Summer 2021	Fall 2021	Spring 2022	Summer 2022
Identify mentor and define research project	√			
Perform literature search	√			
Draft hypothesis and aims	√			
Select and invite committee members		√		
Complete required human subjects or animal training modules		√		
Schedule meeting with statistician		√		
Finalize research protocol		√		
Work on CPHS or AWC application and submit		√		
Hold 1st committee meeting		√		
Submit petition to MSD candidacy documents		√		
Develop DRAFT of Chapter 1		√		
Begin data collection (or upon approval from CPHS or AWC)		√		
Hold 2nd committee meeting			√	
Perform statistical analysis			√	
Develop DRAFT of Chapter 2			√	
Hold 3 <sup>rd</sup> committee meeting or Request to Defend				√
Provide thesis draft to committee members				√
Thesis defense				√
Submit final thesis for upload in ProQuest				√

## 16. Withdrawal from the MSD program

Please discuss any unforeseen circumstances affecting your ability to complete your MSD thesis requirements with your committee chair, Research Director (if applicable) and Program Director. If a decision to withdraw from the MSD program is made, a letter outlining the justification for the withdrawal request will need to be provided and signed by the student, Committee Chair, Program Director AND Department Chair, and submitted to both Dr. Robert Spears ([Robert.D.Spears@uth.tmc.edu](mailto:Robert.D.Spears@uth.tmc.edu)) and Aniqua DeClouette([Aniqua.Rice@uth.tmc.edu](mailto:Aniqua.Rice@uth.tmc.edu)) at the Office of Student and Academic Affairs. Please note that withdrawal from a MSD thesis research does not eliminate the need to produce other scholarly work, to comply with CODA requirements. Research time however, may be reduced and/or eliminated at the discretion of the Research Director and/or Program Director.

## Appendix 1: Fillable Thesis Template

Click [here](#) for a fillable template to write your thesis. The template is formatted with the required font type/size, and spacing, therefore *please do not alter* any of these formatting elements during your write up.



## Appendix 2: Guidance for Supervisory Committee Members and Chairs

Please give a copy of this manual to each member of your thesis committee. Committee members are encouraged to read through the entire manual so that they are aware of their responsibilities. Each MSD thesis advisory committee member must sign the [committee member acknowledgement form](#) and return to the student.

Responsibilities of committee members include:

- Attend all committee meetings. Students typically hold 2-3 committee meetings over the course of a project and a quorum is necessary for a meeting to count.
- Provide constructive feedback to the student to enhance study feasibility and rigor.
- Read and provide feedback on thesis drafts, manuscript(s), presentation(s) and meeting abstract(s).

Responsibilities of Thesis Committee Chairs include:

- Helping to develop the hypothesis and specific aims
- Reviewing thesis related documents
- Working with the student for submission to UTHealth CPHS or AWC
- Reviewing thesis drafts and presentation slides
- Troubleshooting project issues
- Working with the committee members to set mutually agreeable defense dates
- Determine authorship order and target journal for presentations and publications
- Helping with abstract submission for presentations at scientific meetings
- Taking the lead in editing and preparing the final manuscript for journal submission in a timely manner
- Conflict resolutions when needed
- Keeping the student's original data/other materials prior to the student leaving the program

## Appendix 3: Guidelines for Statistical Consultation

Statistical analysis support is provided to students in the Advanced Education Program at UTHealth School of Dentistry to aid in the completion of their thesis research projects. Consultation is given in the following areas: study design, data analysis plan, sample size calculation, data management, analysis of data, and interpretation of results. To adequately meet the statistical needs of all students, it is important that students and their faculty advisors understand their responsibilities in the process.

Faculty advisors should make sure their students are prepared for consultation with the statistician by reviewing their hypotheses and basic study design. Consultation with experts in other substantive fields (epidemiology, research methods, etc.) may be required prior to meeting with the statistician. In addition, students should understand that they will be responsible for managing their own data with the guidance of the statistician. Analysis of data will be conducted by the statistician and will be based on the plan for data analysis. Additional data analysis, if needed, can only be performed if time permits and within the limits of good statistical practice.

Below is a basic outline of the consulting schedule that will be applicable to most students. With regard to requested information for Meeting 1, please send the requested items in a condensed version (1-2 pages at most) instead of the entire research proposal.

### Meeting 1: Plan for Data Analysis and Sample Size Calculation

Information requested:

- 1) Hypotheses (What are your research questions?)
- 2) Basic Study Design (Cross-sectional or repeated measures?)
- 3) Variables (What are you measuring and how?)

### Meeting 2: Review Plan for Data Collection and Management

Information requested:

- 1) Data collection forms

### Meetings 3-4: Data Analysis and Interpretation

Information requested:

- 1.) Final Database (Excel is probably best)

Students should contact Dr. J. Nathaniel Holland, Ph.D., at [Julian.N.Holland@uth.tmc.edu](mailto:Julian.N.Holland@uth.tmc.edu), to request statistical support services. Dr. Holland's office is located at SOD-4408.

**\*\*\*Please copy your research mentor on all email communications.**

## Appendix 4: Rubrics and memorandums

The following pages/links contain template forms for:

- [Request to Defend Memorandum](#)
- [Rubrics for evaluation of MSD petition for candidacy, MSD written thesis, and MSD thesis defense](#)
- [Oral Comprehensive Examination Report Memorandum](#)

You can find these template rubrics forms in the 2020-2021 UTSD Advanced Education Program Manual at [https://inside.uth.edu/dentistry/students/docs/20\\_21\\_advanced\\_education\\_manual.pdf?language\\_id=1](https://inside.uth.edu/dentistry/students/docs/20_21_advanced_education_manual.pdf?language_id=1)

and in the Advanced Education Thesis Instructions and Advanced Education Thesis Manual at <https://inside.uth.edu/dentistry/educational-resources/index.htm>

**MEMORANDUM**

TO: Office of Student and Academic Affairs

FROM: \_\_\_\_\_  
Chair, Department of

SUBJECT: Request to Defend MSD Thesis and Examination Schedule

An Oral Comprehensive Examination has been scheduled as follows:

Candidate:

Date:

Time:

Room:

Examination committee members:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The thesis advisory committee met on the dates below and agreed with the scheduled thesis defense.

1<sup>st</sup> committee meeting \_\_\_\_\_

2<sup>nd</sup> committee meeting \_\_\_\_\_

3<sup>rd</sup> committee meeting \_\_\_\_\_

My office will notify the committee members of the location of the examination and the room assignment.

\_\_\_\_\_  
[Name, degree(s)]  
[Title]  
Chair, Department of

**RUBRICS FOR EVALUATION OF M.S.D. PETITION FOR CANDIDACY**

These rubrics were designed to assist M.S.D. students and their Committee members in as much as they reflect what is expected of the student at the time of Petition to Candidacy. The rubrics are guidelines only. These rubrics will be given to M.S.D. candidates at the beginning of their program and will then be used to review and guide any revisions to the Petition for Candidacy for the M.S.D.

Student Name: \_\_\_\_\_

Faculty Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>Rubric</b>
				The study hypothesis or goal is clearly stated.
				The literature related to the topic has been adequately reviewed.
				The significance of the study is clearly explained.
				The Materials and Methods are adequately described.
				The proposed statistical analysis the data is appropriate.

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### RUBRICS FOR EVALUATION OF M.S.D. WRITTEN THESIS

These rubrics were designed to assist M.S.D. students and their Committee members in as much as they reflect what is expected of the written thesis which documents the entirety of the research project. The rubrics are guidelines only. These rubrics will be given to M.S.D. candidates at the beginning of their program and will then be used to review and guide any revisions to the written thesis for the M.S.D.

Student Name: \_\_\_\_\_

Faculty Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Strongly Agree	Agree	Disagree	Strongly Disagree	Rubric Thesis Style: <b>Conventional</b> ____ <b>Manuscript</b> ____
				The literature related to the topic has been thoroughly reviewed.
				The Materials and Methods were clearly described.
				The statistical analyses used to interpret the data were performed appropriately.
				The Results present the data in a manner which adequately addresses the aims of the study.
				The Discussion reflects thoughtfulness on the interpretation of the Result.
				The Conclusions drawn from the research project are supported by the presented data.
				References follow required formatting.

Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**RUBRICS FOR EVALUATION OF M.S.D. DEFENSE**

These rubrics were designed to assist M.S.D. students and their Supervisory Committees inasmuch as they reflect what is expected of the student during the M.S.D. defense. The rubrics are guidelines only. These rubrics will be given to M.S.D. candidates and the members of their Supervisory Committee once the Petition to Candidacy for the M.S.D. has been approved by the Advanced Education Committee. After the defense, the completed forms should be submitted by the Chair of the Supervisory Committee to the Program Director when the results of the defense are submitted.

Student Name: \_\_\_\_\_

Faculty Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>Rubric</b>
				Presented in a manner befitting a clinician/scientist
				Was able to clearly describe the importance of the problem investigated and the clinical and/or scientific relevance of the research
				Was able to answer questions from the public audience
				Was able to answer in-depth questions from the Supervisory Committee with focused and logical responses
				Was able to display critical thinking and identify strengths and weaknesses of the thesis research
				Was able to predict future directions in the field

Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**MEMORANDUM**

TO: Office of Student and Academic Affairs

FROM: \_\_\_\_\_  
Chair, Thesis Committee

SUBJECT: Oral Comprehensive Examination Report

An Oral Comprehensive Examination was conducted as follows:

Candidate:

Thesis Title:

Date:

The members of the examination committee in attendance were:

Typed Name/Degrees	Signatures
_____	_____
Thesis committee Chair	
_____	_____
_____	_____
_____	_____
_____	_____

The performance of the candidate was:

1. Satisfactory \_\_\_\_\_

2. Unsatisfactory \_\_\_\_\_

\_\_\_\_\_  
[Name, degree(s)]  
[Title]  
Chair, Thesis Committee