NUTRITIONAL SCIENCES PROGRAM

SCHOOL OF PUBLIC HEALTH · UNIVERSITY of WASHINGTON

Nutritional Sciences (MS and MPH) Thesis Guide

CONTENTS

Acknowledgement

While this document is specific to the Nutritional Sciences Program, this manual has been adapted with permission from a version created by the Department of Global Health. We are appreciative of their willingness to allow us to borrow and build on their successful guide.

1. OVERVIEW

This manual presents thesis guidelines for students and faculty in the Nutritional Sciences Program. The outline presented here incorporates program and Graduate School requirements, and includes a discussion of the standards for acceptable theses, the roles and responsibilities of the committee members and the student, detailed guidelines and a timeline for completing the master's thesis. The goal of this handbook is to help make the thesis process predictable, enlightening and enjoyable for both students and faculty.

Definition of a Master's Thesis
The Graduate School defines a master's thesis as "evidence of the graduate student's ability to carry out independent investigation and to present the results in a clear and systematic form."

In addition, the UW School of Public Health defines the master's thesis as:

> "An original research study that uses rigorous methods that are appropriate to the research question, generates new knowledge, applies concepts and methods from disciplines relevant to public health, and is presented in a scholarly format. The thesis demonstrates the student's comprehensive knowledge of the substantive area of the study and the research methods used. It represents the culminating product of the master's program in which students are expected to integrate and apply the concepts and methods learned in coursework."

Who Benefits?
The thesis provides a mentored experience for students to develop and test a research question, obtain and analyze data, and write and interpret the results. Students will approach the thesis with varied skills in research methods and data analysis. It is important to remember that the thesis is primarily a learning experience for the student, designed to challenge the student at her/his skill level, while adhering to a standard of high quality regarding the questions posed, the analytic methods, and the written product.

It is expected that a student's thesis project will contribute to the goals and values of the program as well as the objectives of the organization and/or community where research is conducted. To truly complete the experience, you are encouraged to submit your results for peer review and eventual publication. The end result should be a thesis of publishable quality.

2. TYPES OF ACCEPTABLE THESIS PROJECTS

Several different types of projects may fulfill the thesis requirement. Each type of study requires a slightly different approach to formulating research questions, and obtaining and analyzing data. Depending on the type of project and study questions, obtaining data may involve identifying and working with existing datasets or collecting new data. Regardless of the type of study chosen, you must apply critical thought, systematic analysis, and clear presentation.

NSP Thesis Examples: Examples of previous NSP student thesis work are available at http://depts.washington.edu/nutr/research/graduate-student-research/. Abstracts and manuscripts for projects completed since Winter 2012 are available on ProQuest (http://search.proquest.com/dissertations). Earlier manuscripts are available in hard copy through the UW Libraries.

Observational Study: This category includes multiple research designs in nutritional epidemiology, such as cross-sectional, case control, or longitudinal cohort designs. Descriptive epidemiology covers person, place and time. Analytical epidemiology looks for causal links between exposure and some health outcome. Typically, data analyses are hypothesis driven, with hypotheses, outcomes, and a plan of analysis established ahead of time. Some projects are based on data from original survey instruments; however most observational studies conducted by master's students are based on secondary analyses of existing databases.

Descriptive Examples:

- Kurlak, Emily. The sodium-potassium ratio: adherence to guidelines in the Multi-Ethnic Study of Atherosclerosis (Delaney/Averill)
- Ulatowski, Krista. District Market: A pilot marketing study (Drewnowski)
- Zheng, Qianxiong. Adherence to Micronutrient Supplementation in Bariatric Patients. (Chan)

Analytical Examples:

- Enriquez, Erin. A twin study of the relation between age at dieting onset and to adult BMI and dieting behaviors (Duncan)
- Farnum, Kailee. Self-efficacy of monitoring eating choices associated with autonomy, fruit and vegetable intake and BMI in the MOVE'M Study (Beresford)
- Jew, Jessica. Food Shopping Trip Characteristics Before and After the Light Rail (Saelens)
- Perez, Jonae. Longitudinal Associations between Home Food Environment and Diet Quality in Children (Saelens)

Qualitative Study: Qualitative studies are used to build basic understandings of underlying reasons, opinions, and motivations. These studies are often applied when there is insufficient understanding to formulate meaningful and rigorous qualitative research questions and designs and when quantitative studies would be inappropriate or misleading. Qualitative research is often the right choice when researchers need basic insights into problems, situations or solutions. Qualitative studies are usually based in a well-chosen theoretical framework or model.

- Downs, Nora. Factors influencing water intake at school among youth in King County, Washington: a qualitative study based on the social ecological model (Johnson)
- Najjar, Shelly. Barriers to WIC benefits redemption among participants in Washington state (Johnson)
- Potestio, Katherine. Is healthy happy? The affective impact of the Renton Menu Labeling Project in an adolescent population (Johnson)

Policy Analysis: A policy analysis is a study to critically evaluate the approach, framing, or impact of policies. These studies involve a synthesis of existing and/or newly collected data to answer a specific question about a policy (or set of options) or evaluate policy strengths and weaknesses. A policy analysis usually employs multiple sources and types of information (e.g., literature, documents, interviews, secondary data). The policy analysis also places the onus on the investigator to identify relevant data, and provide clarity, organization and structure to the analysis.

- Diedrich, Sara. Restaurant Response to the San Francisco Toy Ordinance: Changes in Toy Marketing and Children's Menu Options (Otten)

Program Evaluation: This category is a structured study to assess whether a public health program, intervention or technique was effective at accomplishing its goals (effectiveness or efficacy for interventions). A program evaluation should be guided by a specific set of questions and may involve a mixed methods approach using both quantitative and qualitative approaches.

- Examples: Assessment of nutrition knowledge of parents of children after participation a nutrition education/promotion program. Impact assessment of a single or multi-site program.

Case Study: A case study is a detailed review of a unique or important program that captures the background, process, outcomes, successes, failures, and lessons learned. The case study may include either qualitative or quantitative data or both. A case study provides an opportunity to explore a single program in depth and uses scholarly approaches to critically analyze a program within the context that the program was implemented. Case studies may have limited generalizability, but are useful to local program staff and providers, and can provide useful implementation data information.

- Kirkpatrick, Shannon. The policy process in trails initiatives: the Healthy Communities Moses Lake experience. (Johnson)

Experimental and/or Clinical Study: This type of study is a hypothesis-driven randomized clinical trial (RCT), another type of clinical intervention, or an experiment. Experimental studies can involve humans or be based on animal models. Assessing the efficacy of a specific treatment is a frequent clinical goal. The limited time and resources available to master's students make experimental studies challenging given that the student must take significant initiative in both designing and executing the project. If planning an experimental study, it is important to work with your committee to ensure the feasibility by plan an appropriate scope of activities and timeline.

- Ahern, Kelly. Plasma 25-hydroxyvitamin D3 response to vitamin D supplementation in obese and non-obese men and women (Kratz)
- Barton, Sally. Metabolome response to glycemic load in a randomized, controlled, crossover feeding trial in humans. (Lampe)
- Hock, Katrina. Effects of excessive energy intake from fructose- vs. high fructose corn syrup (HFCS)- vs. glucose-sweetened beverages on fasting plasma IGF-1 and IGFBP-3 concentrations (Kratz)
- Parker, Allison. Chronic stress alters serum lipids: effects due to "stress eating" versus metabolic changes (Rosenfeld)

Methodology Development/Improvement: This category examines and evaluates the study design, data collection, or analysis methods used in nutrition-related research.

- Getts, Katherine. Measuring Plate Waste: Validity and Inter-Rater Reliability of the Quarter-Waste Method (Johnson)
- Kwon, Young Mee (Mya). Development of the DESK (Disinhibited Eating Score for Koreans) Questionnaire: Examining the relationship between eating cues and food intake in the corporate-working population of Seoul, Korea (Neuhouser)
- Partridge, Emma. Accuracy of Volumetric vs. Weight Measurement in Nutrient Analysis for Research (Neuhouser)

Some types of projects are <u>not</u> acceptable as theses, including:

- A literature review
- A group project
- A recycled class or practicum project

There may be exceptions to this list. For example, a systematic review with a critique and suggestions to the field or a project that significantly extends work that began as a practicum could be acceptable.

If you are uncertain whether your proposed project is acceptable as a thesis, please consult with the Graduate Program Coordinator early in your planning process.

3. IDENTIFYING A TOPIC

Developing the right question is perhaps the most challenging part of research. It is strongly recommend that you choose a thesis topic that is of strong interest to yourself and your committee as the thesis process is long and requires sustained effort.

During your first year, you will have opportunities to meet with faculty and learn about potential thesis topics during the Faculty Research Forum, an event held during winter quarter. You are also encouraged to follow up on these initial conversations by meeting with faculty both within and outside of the Nutritional Sciences Program to discuss available projects. You will be asked to describe your process for identifying a thesis project when you complete the Graduate Student Portfolio at the end of your first year.

A good question is focused, clearly stated, interesting to you and to people in the field, relevant to the science, and answerable. It is worth spending the effort to develop one or more well-focused research questions as it will greatly facilitate planning, conducting, and writing up the thesis research.

Remember, the primary goal is educational. This will not be the biggest or best project of your career, but it will be a valuable experience from which you will learn a lot.

4. FORMING A THESIS COMMITTEE

The Graduate Program Coordinator serves as the initial advisor until you choose your thesis chairperson and can assist with questions related to the composition of the supervisory committees.

Once you have chosen your committee chair and research topic, you will choose additional members approved by your committee chair to complete your thesis supervisory committee. Faculty members on this committee will guide you, serve as your mentors, and evaluate your thesis. Typically, the supervisory committee consists of two to four members.

- **The committee chair and at least one half of the committee must have Graduate Faculty Status.** Graduate Faculty Status is a formal endorsement by the Graduate School for faculty members in eligible titles who have been nominated by their Departments. All graduate faculty members demonstrate continued excellence in research and are involved in supervising graduate students. To determine if a faculty member has Graduate Faculty Status (GFS), check the Graduate School website (http://grad.uw.edu/for-faculty-and-staff/faculty-locator/).

- You may select a committee chair from the Nutritional Sciences Program Core Faculty, the Interdisciplinary Faculty, or any UW faculty with Graduate Faculty Status (GFS) granted by the Graduate School. **If a non- Nutritional Sciences Program faculty member is designated chair, at least one Nutritional Sciences Program Core faculty member must serve on the committee.** (http://depts.washington.edu/nutr/about-us/faculty/#CoreFaculty)

- Additional members of the committee are selected in consultation with the committee chair, but must conform to the Graduate School's requirement in that at least half of the committee has Graduate Faculty Status.

Examples of Master's Thesis Committee Structures

Committees with Two Members (Require at least 1/2 with Graduate Faculty Status)

- Chair: NSP Core or Interdisciplinary Faculty Member with Graduate Faculty Status
  2nd member: Member selected with guidance and approval of chair. Graduate Faculty Status not required.
- Chair: Non-NSP faculty member with Graduate Faculty Status
  2nd member: Member of NSP Core Faculty. Graduate Faculty Status not required.

Committees with Three Members (Require at least 2/3 with Graduate Faculty Status)

- Chair: NSP Core or Interdisciplinary Faculty Member with Graduate Faculty Status
  2nd member: Member with Graduate Faculty Status selected with guidance and approval of chair
  3rd member: Member selected with guidance and approval of chair. Graduate Faculty Status not required.
- Chair: Non-NSP faculty member with Graduate Faculty Status
  2nd member: Member with Graduate Faculty Status selected with guidance and approval of chair
  3rd member: Member selected with guidance and approval of chair. Graduate Faculty Status not required.
  * Either the 2nd or 3rd member must be a member of the Nutritional Science Core Faculty.

5. STUDENT AND COMMITTEE ROLES AND RESPONSIBILITIES

Regular communication between you and your thesis committee is paramount to the success and timeliness of completing a thesis. Although you will receive help and support from committee members, you are the researcher and ultimately responsible for carrying out the thesis work.

You and your committee members must work out a realistic timeline for completing the thesis, including review and comment on all drafts taking into account members' schedules and commitments. On average, students submit three to four drafts to their committee before the thesis is ready for final submission. You are strongly advised to obtain advance confirmation of the committee's availability each quarter.

Student Responsibilities

First Year - Spring/Summer

- ❑ **Identify and confirm a committee chair and project.** Then inform the Graduate Program Coordinator (Mike Rosenfeld, ssmjm@uw.edu) and the Graduate Student Services Coordinator (Jennifer Siembor, nutr@uw.edu) that you have identified a chair. The role of faculty advising moves from the Graduate Program Coordinator to the committee chair at this point.

- ❑ **Register for first credit of NUTR 700 during spring.** Use this time to become familiar with the Thesis Manual, further define your thesis topic, and begin work on the Graduate Student Portfolio.

- ❑ **Complete the NSP Graduate Student Portfolio.** The steps you have taken to identify a research project and committee chair as well as a tentative timeline are discussed as part of the student portfolio you will complete at the end of spring quarter of your first year. Approval of the portfolio is required prior to registering for additional NUTR 700 thesis credits.

Second Year - Writing of the thesis document typically continues into Autumn of the 3rd year for students in the GCPD

- ❑ **Review and Complete Use of Human and Animal Subjects for UW Graduate Student Theses and Dissertations Form** with your committee chair. This form is required by the Graduate School to document that you have been advised of human and animal subjects guidelines. It does not replace any human or animal subjects training or application requirements. Once signed, submit this form to the Graduate Student Services Coordinator for your student file.

- ❑ **Identify and confirm committee members.** Consult with your committee chair to identify members to serve on the committee who have relevant, complementary expertise regarding the thesis project. See *Section V. Forming a Thesis Committee* for committee composition requirements. Please notify the Graduate Student Services Coordinator (nutr@uw.edu) of your committee membership. He/she will also review the membership and ensure that the Graduate School and Program requirements for committee composition are satisfied.

- ❑ **Establish a communication plan and timeline with your thesis committee**. Specifically determine when committee members will be expected to review and provide feedback on thesis drafts.

- ❑ **Write a thesis proposal.** You will develop the thesis proposal in in consultation with your thesis chair. This should be complete and approved by the thesis committee *before* proceeding with data collection or analysis.

- ❑ **Ensure that all human or animal subjects' requirements have been met.** Please review *Section VIV. Animal and Human Subjects*. Consult with your committee chair to determine whether a human or animal subjects' application and/or specific trainings are required.

- ❑ **Conduct data collection and thesis work with the highest ethical standards.**

- ❑ **Write up thesis** and abide by the plagiarism guidelines for the SPH.

Final Quarter

MS/MPH without the GCPD: Typically complete and submit the thesis in Spring of 2nd year
GCPD: Thesis is typically completed and submitted in Autumn quarter of the 3rd year following the Practice Experience.

- ❑ **Review the NSP Defense Scheduling & Graduation Planning Checklist.** http://depts.washington.edu/nutr/wordpress/wp-content/uploads/2017/07/Defense-Scheduling-Graduation-Procedures-Student-Checklist.pdf

- ❑ **Check Thesis Formatting:** Confirm that your thesis has the formatting and sections required by the Graduate School and ProQuest. Graduate School Formatting Requirements

- ❑ **Submit final draft of thesis in journal article form to committee members at least 4 weeks before the intended graduation date.** If the full draft has not been provided to your committee by that time and you have not received prior approval for a different deadline from your thesis committee, you should expect to graduate the following quarter.

- ❑ **Publically present thesis orally** to students, faculty, staff, family and friends. You can organize the defense presentation in collaboration with the Graduate Student Services Coordinator.

- ❑ **Submit final thesis to the Graduate School.** Instructions for thesis submission are found here: https://grad.uw.edu/for-students-and-post-docs/thesisdissertation/final-submission-of-your-thesisdissertation/.

Committee Chair Responsibilities

- ❑ **Establish with the student a mutual level of expectation** about the scope of the project taking into consideration the time constraints of the student's academic program.

- ❑ **Assess the student's ability to carry out all parts of the proposed thesis project.** If gaps are identified, advise student on how to gain the skills necessary for completion of the project.

- ❑ **Assist student in identifying appropriate committee members.**

- ❑ **Ensure all committee members have read and approved the thesis proposal** (i.e. brief overview of problem statement, data collection and proposed analyses) early in the thesis process.

- ❑ **Negotiate with committee members the extensiveness of their roles (see below) on the thesis.**

- ❑ **Assist student with establishing a communication plan and timeline.** Specifically determine when committee members will be expected to review and provide feedback on thesis drafts.

- ❑ **Assist student with UW human subjects or IACUC application or exemption,** as well as other potential human subjects' requirements.

- ❑ **Assist with mediation if conflict arises.**

- ❑ **Sign the Warrant and Master's Supervisory Committee Approval Form** to convey successful completion of the thesis presentation and approval of the thesis.

- ❑ **Provide interim and final grades for thesis work** (CR is recommended), via NUTR 700.

Committee Member Responsibilities

- ❑ **Read, give advice and sign off on the initial thesis proposal.**

- ❑ **Work individually with student on the thesis aspects for which the committee member carries primary responsibility**.

- ❑ **Read drafts and provide comments to student and chair in a timely fashion**, consistent with the communication plan and timeline provided by the student.

- ❑ **Attend meetings requested by student or chair.**

- ❑ **Sign the Warrant and Master's Supervisory Committee Approval Form to convey successful completion of the thesis presentation and approval of the thesis**.

6. REGISTERING FOR YOUR THESIS CREDITS

In order to register for independent study or thesis credits, you must submit a "*Proposal for Independent Study Registration,"* commonly referred to as the "goldenrod form." A form must be submitted **each quarter** you are registering for thesis credits and should document the tasks you will be focusing on in the specific quarter. There are two different forms:

- 1st Year Spring Registration Agreement – Use to obtain permission to register for 1 credit of NUTR 700 during spring quarter of your first year only.
- Independent Study Registration Agreement – Use to obtain permission to register for NUTR 700 in quarters after completion of your portfolio.

Both forms are available on: http://depts.washington.edu/nutr/graduate-study/student-resources/

Download and complete the appropriate form and obtain signatures from your committee chair. Submit the completed form to the Graduate Student Services Coordinator in the NSP office (Raitt 305) or nutr@uw.edu and we will obtain the Program Director's signature and provide a faculty code. It is also a good idea to keep a copy for your records.

You must enroll for a minimum of 2 credits in the quarter in which you graduate (the quarter you complete your oral thesis defense and submission of your thesis to the Graduate School). If you have already completed the 9 required NUTR 700 thesis credits prior to your final quarter, you can meet the 2 credit enrollment requirement by registering for a different course number.

The quarter in which you will graduate, you must also submit your **Master's Degree Request** on MyGradProgram* http://grad.uw.edu/for-students-and-post-docs/mygrad-program/.
MS Students: Select "Master of Science (Nutritional Sciences)"
MPH Students: Select or enter "Master of Public Health (Public Health Nutrition)"

You can apply for the degree starting on the first day of the quarter. Apply as soon as possible to allow time to resolve any problems and no later than the 10th week of the quarter.

**If you are planning to defend but will not graduate during that quarter, please follow the steps for arranging and publicizing your defense. Wait to submit your master's degree request during the quarter in which you actually graduate.*

7. THESIS PROPOSAL

After the thesis committee is finalized and a timeline has been established, the next step is to write a thesis proposal.. The proposal describes the purpose of the study and the methods for accomplishing them. This requirement ensures that thesis projects are based on sound and rigorous research methods, and provides you an important opportunity to develop research design skills with expert guidance from faculty.

Structure of the Thesis Proposal

The thesis proposal is typically 3-5 pages plus any graphs or tables, and should be structured in the format presented below. Writing a thesis proposal requires the student to be explicit regarding plans to execute the thesis. The format can be adapted to individual project needs and constraints as deemed appropriate by the committee chair.

I. **Title Page:** Project title, student's name, chair of committee, committee members, and date. If the committee is not yet formally constituted, indicate potential committee members being considered, including a chair.

II. **Specific Aims:** List the project's immediate goals in terms of research or practice questions to be answered. The overall purpose of this line of investigation should indicate the importance of the specific information being sought through this study. This section should not exceed one half-page in length and may be shorter.

III. **Background and Significance:** Describe the scientific context for the study, briefly summarizing the existing body of knowledge and/or the context and issues to be addressed in the practice setting. This should NOT be an extensive literature review; rather it is meant to allow the student to demonstrate a basic understanding of the issue or field to be studied. Keep references to a minimum by citing only those that are most relevant. This section should identify the gaps in knowledge which the proposed project will help to fill. One to two pages is usually enough for the proposal, but you will expand on this for your thesis manuscript.

IV. **Methods:** The format of this section may be tailored to meet the needs of the specific project being proposed. This should be the longest section of the proposal, usually 2-3 pages in length.

V. **Limitations:** Describe any limitations that are beyond the control of the project (those that have already been decided upon or implemented), which may affect results of the thesis work or may influence the interpretation of the study results.

VI. **Timeline:** Provide an approximate timeline for completion of the various stages of the project.

VII. **Budget**: Provide a budget outlining anticipated costs.

VIII. **References:** Provide citations to key literature references used in the proposal.

Obtaining Approval of the Thesis Proposal

Obtaining approval of the thesis proposal by all members of the thesis committee is required. Students should provide each committee member with a copy of their proposal. A meeting of the committee may be needed or helpful to discuss improvements to be made to the proposal. Ideally, committee feedback on the proposal whether by meeting or otherwise, should be provided within 2

weeks of receipt of the proposal.

Once edited, the revised thesis proposal should be resubmitted to the committee for final review (a meeting may not be necessary, if the revisions are small). When the committee has approved the thesis proposal you have reached an important milestone as your committee is essentially declaring that your research question and the methods for answering them are acceptable. Once this step is complete, you have a "green light" to begin your thesis work.

8. ANIMAL OR HUMAN SUBJECTS

Understanding the history and background that led to the creation of Institutional Review Boards (IRB) and Human Subjects Committees, and the Institutional Animal Care and Use Committee (IACUC) is critical when pursuing research. The Graduate School and the Nutritional Sciences Program each have requirements that help ensure the protection of human subjects.

- **The Graduate School requires all graduate degree students to discuss human or animal subjects requirements with their thesis chair** and then file a Use of Human and Animal Subjects for UW Graduate Student Theses and Dissertations Form with the Graduate Student Services Coordinator, as mentioned previously.

- **Human subjects training is completed in NUTR 529 in autumn of the first year.** Depending on the nature of your research, you may need to complete additional human or animal subjects training. Please consult with your committee chair to confirm training requirements.

Those aspects of a student's thesis project that involve animal or human subjects (e.g., subject identification and recruitment, data and/or specimen collection or analysis) must be reviewed and approved in accordance with UW policies and federal regulations before the research can be initiated. Unless the project qualifies as "Exempt" under these regulations, the review and approval process can take several months, so you should begin the process as early as possible. Each student is responsible for maintaining documentation of his/her project's approval throughout the course of the thesis work and through graduation. Information regarding animal and human subject use is provided in NUTR 529A. The links below access the web pages of the Office of Animal Welfare (http://oaw.washington.edu/) and Human Subjects Division (http://www.washington.edu/research/hsd/).

Determining if Review is Needed
Most theses that involve gathering data from or about people will require review from a UW Human Subjects Institutional Review Board (IRB). The first place to look is the UW Human Subjects Division home page. Look in the box that says “Determine if your project requires IRB review”. Your committee chair is instrumental in helping you sort out when and what type of review is needed.

Other Institution Review Boards
It is equally important that the student and thesis chair consider where the student’s research will take place and whether a human subjects application needs to be filed with a host organization, Ministry of Health, or other entity. If a second review is required, it can potentially add months to the overall thesis timeline. Having a colleague/counterpart in the host organization to help answer questions and interface with the IRB can be immensely helpful.

Timeline
The time required for approval varies considerably, depending on the volume of applications at the time of submission. To allow enough time for the entire process, we recommend a minimum of two months for an Exempt Application and up to four months for a Minimal Risk or Full Review Application.

This includes the writing of the protocol and application forms, requesting letters of permission from outside collaborators or agencies, review and sign off by faculty thesis advisors (for students), sign off by the Program Director, and then time for the UW review committee's

questions and final approval.

Final approval by the UW Human Subjects Division may take as little as one week (as is typically the case with concurrence for most exempt applications), but typically requires two months for minimal risk and full review applications. If your Exempt application is denied and ends up being referred to the Minimal Risk review committee, you will need extra time.

9. STANDARD THESIS FORMAT

A standard thesis format includes four sections: **Introduction**, **Methods**, **Results**, and **Discussion**. These are the typical sections of an academic journal publication, although the organization of your own work may be different, and should be discussed with your committee. The organization of subsections may vary, depending on the topic and the preferences of the student and committee. Sample outlines for a quantitative and qualitative thesis are provided below.

We encourage you to apply an appropriate "checklist" from the research community to guide the conduct and reporting of your results. Below is a list of some relevant guidance:

- STROBE (Strengthening the reporting of observational studies in epidemiology) - offers a checklist of items that should be included in reports of observational studies. There are different lists depending on the study design. See: http://www.strobe-statement.org/index.php?id=available-checklists.
- CONSORT (Consolidated Standards for Reporting Trials) – offers an evidence-based minimum set of recommendations for reporting randomized trials. See: http://www.consort-statement.org/
- COREQ (Consolidated Criteria for Reporting Qualitative Research) - offers a 32-item checklist for reporting qualitative results and study methods. Available at http://intqhc.oxfordjournals.org/content/19/6/349.long

Sample Quantitative Thesis Format

1. **Abstract**
2. **Introduction**

   Introduces the problem, research question or questions, previous research on the problem, and the conceptual approach used in this study.

   a. Specification of the problem; significance, magnitude, and importance of the problem
   b. Specific research questions or hypotheses addressed by the study
   c. Literature review
   d. Conceptual model
3. **Methods**

   Describes the research methods used in the study in detail.

   a. Study setting
   b. Selection of study subjects
      i) Source
      ii) Sampling method/recruitment
      iii) Criteria for eligibility/exclusion of cases
   c. Description of intervention (if any)
   d. Data collection
      i) Source (e.g., questionnaire, interview, record review, vital records)
      ii) Protocol for typical subject
      iii) Steps taken to assess and assure data quality
   e. Analysis (as applicable)
      i) Hypothesis testing/generation

ii) Definition of key analysis variables
iii) Sample size/power considerations

4. **Results**

   Statistical methods provide a clear, systematic presentation of results, linked back to the research questions and conceptual model. It does not include interpretation or discussion of results.

   a. Characteristics of the study sample, including the number of subjects and the response rate.
   b. Table(s) or figure(s) addressing each research question. Tables and figures usually progress from univariate, to bivariate, to multivariate analyses. Text highlights (but does not duplicate) results shown in tables and figures.

5. **Discussion**

   Provides the opportunity to discuss the findings, compare them with previous research, and consider the implications of the findings.

   a. Study strengths and limitations
   b. How key findings compare or contrast with previous work
   c. Implications of findings
      i) For the theory or conceptual model described in the Introduction.
      ii) For public health practitioners or clinicians
      iii) For future research

6. **Appendixes**

   Contains detailed materials related to the thesis, such as cover letters to respondents, instructions for computing a scale score from the raw data, documentation of the mathematical equations used in the data analysis, and so forth.

Sample Qualitative Thesis Format

1. **Abstract**
2. **Introduction**
   a. General introduction
   b. Describe the problem
   c. Describe the state of existing literature and the "gap"
   d. Describe the purpose of this study.

3. **Description of Theory, Framework, or Model**
   a. Overview of previous frameworks that have been applied in this arena
   b. Description of your framework
      i) Strengths & limitations
      ii) Comparison with other approaches
      iii) Concluding statement about why you chose this theory, framework or model
4. **Methods**
   a. Procedures
      i) Subject Recruitment Procedure

ii) Procedures of how data were collected

iii) Human subjects sentence

5. **Instruments**

   Description of questionnaire or discussion guide, how it was developed and pre-tested

6. **Analysis techniques**
   a. Development and testing of coding structure
   b. Determinations of interrater reliability
   c. Thematic analysis techniques – reference and follow one of the standard qualitative research books and/or papers

7. **Results**
   a. Describe the sample
   b. Reliability and validity of analysis methods
   c. Thematic results (often using the framework as a guide to presentation)

8. **Discussion**
   a. Overview: Focus of the study; Overview of the significant findings
   b. Comparisons – with framework and existing literature
   c. Implications
   d. Limitations of the study
   e. Recommendations
   f. Summary paragraph

9. **Appendixes**

   Detailed materials related to the thesis. May include letters to respondents, interview questions, or other supporting information.

10. START WRITING

While classes have well-defined start and end dates, the thesis has far less structure and can vary considerably in content and duration. In most cases, the student's ability to complete a thesis without delay depends on what s/he knows about the **topic and research methods, individual skills in time management**, **organization**, **working with other people**, **and knowledge of thesis requirements** imposed by the University of Washington's Graduate School. These guidelines are designed to help you navigate the thesis terrain from beginning to end.

While it may seem obvious, a key step in completing your thesis is simply to start. There are several sources of inertia that can slow or deter a student from starting the thesis: lack of time, comfort with structured course work and discomfort with a less structured thesis, feeling overwhelmed by the magnitude of the task and no clue of where or how to begin, stress from personal or family problems, and so forth. The best way to overcome this inertia is to make a commitment and start the process. Once your thesis committee approves your thesis proposal and you have obtained approval from the Human Subjects Division, you may start your study!

Writing and Revising as you Work

If you have not yet completed the Introduction and Methods sections of your thesis, now is a good time to do so. By completing the two chapters now, you must only write the Results and Discussion chapters later. In short, this breaks up the writing into manageable pieces and increases the likelihood that you will complete your thesis on schedule.

As you perform your study, you undoubtedly will encounter a number of methodological issues that were not addressed in the thesis proposal. When the way to solve these issues is unclear, you should obtain advice from one or more members of your committee on how best to address them. These steps also decrease the likelihood that committee members will find problems with your study after it is completed.

Rather than operating in "crisis mode" and contacting committee members only when problems arise, it is strongly suggested that students and faculty speak on a regular basis to monitor progress and address any problems that may have emerged. The frequency of meetings may vary during different stages of the thesis process, with more frequent meetings (e.g., every two weeks) in the first and last stages, and fewer meetings in between. In particular, you should meet periodically to discuss the data analysis and interpretation of results.

11. COMPLETING THE WRITE-UP

After all analyses are completed, you should write the first draft of the Results and Discussion sections. Once completed, the Introduction, Methods, Results, and Discussion sections should be submitted to the committee for review. **In most cases, students find they must revise their sections at least 2 times before all committee members will approve them**. Depending on the study and the student, the revisions can take a month or more to complete.

Some general points to keep in mind about preparing an acceptable thesis are:

- Approval of the content, writing quality, and format of the thesis is determined by the committee chair and committee.
- Neither the Nutritional Sciences Program nor the Graduate School requires your thesis to be a certain length. Therefore, it is wise to negotiate expectations about the length of your thesis with your committee.
- It is recommended to use the length and format of an article in a scientific journal. This still allows wide variation, but as a rough guideline typically entails:
    - 2500-4000 words
    - 5-10 tables or figures
    - Appendices for supplementary tables or copies of data collection instruments, as needed
- The "Program Authorized to Offer Degree" on your title pages is Nutritional Sciences.
- Students must carefully review the Graduate School formatting requirements on how to prepare the Title Page, Copyright Page, and Abstract for the Graduate School (https://grad.uw.edu/for-students-and-post-docs/thesisdissertation/final-submission-of-your-thesisdissertation/required-sections-for-your-document/)

12. ORAL PRESENTATION

An oral presentation of the master's thesis is a program requirement. This presentation usually takes place the quarter a student plans to graduate. If the presentation is made near the end of the quarter and there is insufficient time for completion of the thesis, the student may pay a fee ($250, Graduate Registration Waiver Fee, see *Section XIII* below) or register for 2 credits in the next quarter to obtain additional time for completion of the thesis. Please work with the Graduate Student Services Coordinator in the NSP office (Raitt 305) or nutr@uw.edu to schedule and publicize your thesis presentation.

The ability to synthesize and summarize one's work into such a framework is a useful professional skill. It requires that the student practice their presentation, edit accordingly to fit the timeframe, and think about how to best use audiovisual technologies slides.

At minimum, the oral presentation should be scheduled for 1 hour to include the presentation and questioning from the thesis committee and the presentation should cover:

- Thesis background, study methods, results, discussion, and recommendations, as appropriate
- Recognition of committee chair, committee and any sponsoring organization (if appropriate)

13. SUBMISSION TO THE GRADUATE SCHOOL

The Graduate School's Final Submission of Your Electronic Thesis webpage walks students through the steps required for a successful final submission of their thesis. Submission of a master's thesis is a requirement of the Nutritional Sciences Program.

Two steps to highlight:

- Remember to submit a scanned copy of your signed Master's Supervisory Reading Committee Approval Form (PDF) to the Administrative Documents section of the UW ETD Administrator Site ***no later than 11:59 p.m. PST on the last day of the quarter***.
- Also submit your thesis in the UW ETD Administrator Site by ***11:59:59 p.m. PST on the last day of the quarter***. If you submit your document after the deadline, you will graduate the following quarter and must register for 2 credits or pay the $250 Graduate Registration Waiver Fee

Graduate Registration Waiver Fee

A $250 Graduate Registration Waiver Fee is an optional fee paid in lieu of registration. It is available to master's students who:
(1) Did not submit a Master's degree request prior to the request deadline for the quarter in which all degree requirements were completed, or
(2) Completed all degree requirements but needed additional time to format the thesis.

A student who pays this fee has **14 calendar days** (directly following the end of the quarter in which all Graduate School and graduate program degree requirements are met) to turn in his/her thesis. **Please note** that students who pay this fee will graduate in the quarter following the fee payment period. This may have an effect on the grace period for student loans becoming due. Students should check with their lenders for registration requirements before utilizing this option.

Thesis Publication

The goal for all students should be dissemination of their thesis results. Everyone benefits when a student's thesis is published, although it is not a requirement for graduation. Submission and response to reviewer comments can take several months, but the benefit of publication is clear:

- Through publication the work becomes known to colleagues, which builds the student's reputation and resume.
- The field of public health benefits from the dissemination of the thesis results to other interested professionals for purposes of building future research and replication of results. In fact, we have an ethical responsibility to publish our work and communicate the issues raised by participants to help their voices be heard.
- Faculty committee members benefit in several ways. First, the collaborative work is communicated and future researchers can build upon this work. Second, faculty can be credited for senior authorship on publications.
- Non-faculty collaborators benefit by being recognized for their contributions.

Co-authors on a publication usually include others who made a "meaningful scientific contribution" to the work. This is typically the committee chair, committee members, and any others who played a key role in the project. The student and committee chair should reach tentative agreement about who will take responsibility for preparing the thesis for publication and about the identities and listing order of co-authors. While a publication usually has co-authors, the thesis must be authored only by the student.

14. RESOURCES

- **Graduate Faculty Locator:** http://www.grad.washington.edu/gradfac/ http://grad.uw.edu/for-faculty-and-staff/faculty-locator/
- **Graduate Registration Waiver Fee:** https://grad.uw.edu/policies-procedures/general-graduate-student-policies/graduate-registration-waiver-fee/
- **Graduate School Formatting Requirements:** https://grad.uw.edu/for-students-and-post-docs/thesisdissertation/final-submission-of-your-thesisdissertation/required-sections-for-your-document/
- **Human Subjects Division:** http://www.washington.edu/research/hsd
- **Office of Animal Welfare:** http://oaw.washington.edu/new-investigators/
- **Use of Human and Animal Subjects for UW Graduate Student Theses and Dissertations Form:** http://grad.uw.edu/wordpress/wp-content/uploads/human-animal-adivsory-certif.pdf
- **Instructions for Final Submission of Your Electronic Thesis or Dissertation (ETD):** http://grad.uw.edu/for-students-and-post-docs/thesisdissertation/final-submission-of-your-thesisdissertation/
- **Master's Degree Request:** https://apps.grad.uw.edu/student/mastapp.aspx
- **School of Public Health – Academic Integrity:** http://sph.washington.edu/students/academicintegrity/AcademicIntegrity.pdf