# UNCG MS Genetic Counseling Program

# Capstone Handbook

(updated October 2020)

# Contents

# Introduction

The culminating experience for students in the University of North Carolina Greensboro MS Genetic Counseling Program is a formal Capstone Project. The purpose of the Capstone requirement is to prepare students with the knowledge and skills required to contribute to the field of genetic counseling by performing research and/or developing programs, tools or services that benefit genetic counselors, individuals and families with genetic disorders, or the public.

The Capstone project may consist of:

- a detailed case study and resource synthesis,
- development and assessment of a clinical or educational application, or
- an original educational, clinical or laboratory research project.

Students should strive to develop a research proposal or project that will contribute to the knowledge about and/or practice of clinical genetics and/or genetic counseling.

Students are encouraged to identify a Capstone project during the first semester of the program and must submit a Capstone Project Proposal Form (Appendix A) and abstract of their project proposal for approval by the established deadline. All projects must be approved by the Research and Capstone Coordinator and the Program Director.

Projects will be completed under the guidance of a Capstone Committee, which will consist of a chair and at least two other members, one of which must be a UNCG MS Genetic Counseling faculty member. Adjunct clinical faculty and/or clinical supervisors may serve on research project committees. Individuals who are not members of the faculty may also serve on committees with the approval of the research and capstone coordinator.

Students are required to submit a submission-ready manuscript, including an abstract suitable for submission to the National Society of Genetic Counselors Annual Conference or other professional organization's annual education conference, and to make an oral or poster presentation about their project to their classmates and the faculty prior to graduation.

# Courses

*Fall of First Year:*

- GEN688: Journal Club

*Spring of First Year:*

- CSD 632: Introduction to Research in Communication Sciences and Disorders
- GEN 648: Capstone Seminar

*Fall of Second Year:*

- GEN 748: Research Project I
- STA 667: Statistical Consultation (see page 11)

*Spring of Second Year:*

- GEN 749: Research Project II
- STA 667: Statistical Consultation (see page 11)

# General Timeline for Completing Capstone Projects

Below is a general timeline for completing the Capstone Project Requirements. Check the cohort-specific timeline provided separately from this Handbook for deadlines.

Fall of First Year (FY1):
- Attend Capstone Project Orientation Sessions in GEN 688
- Begin process of identifying research or project topic
- Thoroughly review this Capstone Handbook to be sure that you have a good understanding of the requirements and process
- Learn about Institution Review Board (IRB) requirements
  - Additional information available at the UNCG Office of Research website
- Meet with Research and Capstone Coordinator to discuss project ideas

Spring of First Year (SY1):
- Complete Research Methods Course (CSD 632) & Capstone Seminar (GEN 648)
- Complete CITI training (during CSD 632)
- Identify faculty mentors/collaborators
- Conduct preliminary literature review to support proposal
- Develop initial proposal and overview of project plan
- Investigate funding opportunities to cover the costs associated with completing your Capstone Project (see Making a Budget)
- Submit project proposal form for final approval
- Meet with Research and Capstone Coordinator as needed for ongoing discussions about project ideas and research plan
- Register for STA 667 – required to use Statistical Consultation Center for Fall semester

Summer:
- Submit approved detailed proposal, project plan and timeline
- Submit first draft of background/literature review section of your manuscript
- Develop data collection tools (i.e. surveys, scripts for interviews)
- Prepare IRB application (as needed)

Fall of Second Year (FY2):
- Complete Research Project I (GEN 748) course
- Submit application for IRB approval (as needed)
- Submit first draft of Methods section of your manuscript
- Begin implementation of project
- Submit progress reports as required
- Register for STA 667 – required to use Statistical Consultation Center for Spring semester

Spring of Second Year (SY2):
- Complete Research Project II (GEN 749) course
- Complete project implementation, data collection and analysis
- Submit written progress reports, section drafts and final manuscript as required
- Give oral presentation for students, faculty and project committee
- Prepare abstract suitable for submission at NSGC Annual Conference or other relevant meeting

# The Capstone Process

## 1. Developing a Research Topic and Question

The first step in completing your Capstone Project is to identify a broad topic in which you have interest. Examples of broad topics include: genetics education, support group effectiveness, counseling outcomes, counseling strategies, patient response to a specific risk or disorder and so on. Good topics are ones that are relevant to current issues/ practices in genetics or genetic counseling and for which there already exists a substantial, easily accessible body of research on the topic.

Once you have identified a broad research topic the next step is to develop a specific research question or goal for your project. For example, a broad topic might be genetics education for non-genetic healthcare professionals, and a more specific question would be "What are the perceived needs for genetic education among graduate students in public health?"

Below are examples of activities that can help you identify a broad topic and then move to a more specific research question or project goal.

- Keep a list of topics that spark your interest
  - Lecture/ class discussion topics from courses
  - Issues or questions that arise from your field work assignments or genetic counseling observations
  - Education meetings you may attend such as NSGC, NCMGA and other
- Make note of suggestions for further research in journal articles
  - Articles assigned for your Annotated Bibliography Project (GEN 601, FY1; GEN 602, SY1)
  - Articles presented in Journal Club (GEN 688)
  - Literature reviewed to complete class assignments or projects
  - Browse relevant journals, such as the Journal of Genetic Counseling, Genetics in Medicine, American Journal of Medical Genetics etc., to learn more about current issues and areas of research
- Review Capstone Project Manuscripts from previous classes – these are located on the bookshelf in the conference room at 996 Spring Garden
- Talk with current second year students about their Capstone Projects
- Review abstracts from recent NSGC meetings – these can be found on the NSGC website
- Explore possibilities for registering for an elective course during Spring semester that is relevant to your topic and/or will help you acquire additional research skills (i.e. qualitative research methods, statistics)
- Meet with the Research and Capstone Coordinator, other program faculty and potential committee members to brainstorm topics and to discuss your interests and ideas.

The Capstone Project Guidelines will be reviewed in Fall Semester of First Year (in GEN 688) and review material presented in this handbook. We will also share a list of potential project ideas that includes suggestions we solicit from faculty, clinical supervisors and other colleagues. You are encouraged to meet individually with the Research & Capstone Coordinator before the end of the Fall Semester in First Year to discuss project ideas.

*Coursework Related to Developing Research Topic and Question*

- Coursework for Research Design course (CSD 632, SY1) will guide you in developing your Capstone Project proposal and study design.
- Coursework for Capstone Seminar (GEN 648, SY1) will include conducting a background literature review for one or more potential research topics.

## 2. Forming Your Capstone Committee

Identifying your project committee and committee chair is an important step in the Capstone Project process. Each committee will have a chair, and at least two additional members. One of the committee members will be the Research and Capstone Coordinator. Committee members should be individuals with interest and/or expertise in your research or project topic.

It is important that each member of your committee has a good understanding of the Capstone Project requirements and timeline and is committed to providing the guidance and feedback needed to assure the success of your project. In identifying your Capstone Committee, you should:

- Schedule a face-to-face* meeting with each prospective committee member to discuss your research topic. These meetings are helpful in developing your project proposal and study design. Program faculty can attend these meetings to assist in discussing your project idea/plan.
- Provide each committee member with an electronic copy of the Capstone Project Handbook and timeline.
- Review the Capstone Responsibilities section of this handbook (see Appendix B) with each committee member
- Send an email or coordinate a face-to-face* meeting with all committee members to introduce members and describe the roles of each committee member

*Meetings can be conducted via video or phone conference for committee members who are not local*

### *Communicating with your Capstone Committee*

It is important to establish and maintain good communication with your committee members throughout the Capstone Project process.

- Find out if your committee members have preferences about the method and/or frequency of communications. For example, some committee members prefer email communication, while others prefer telephone or face to face meetings.
- Be sure to keep all committee members involved by sending copies of email messages (or summaries of any face to face meetings) to each member of the committee.
- Be mindful that your committee members have many responsibilities – do not expect immediate responses to your emails or phone calls, and be sure to provide plenty of time when asking committee members to review manuscript sections or other items related to your project
- Negotiate up front about the preferred level of involvement for each committee member. Some committee members want to be actively involved in all aspects of the project, while others prefer a more consultative role – providing feedback and suggestions on your work. Generally, your committee chair is the most active member of your committee.

- Be sure to keep the Research and Capstone Coordinator informed about your activities.

Each committee member should be asked to review and comment on the following:

- Project proposal
- Detailed project plan and timeline
- Any survey or other tool you develop to complete your project
- Written section of your IRB application
- Each section of your manuscript (submitted by established deadline)
- Final manuscript
- Slides and presentation notes for Capstone Project Presentation
- Abstract developed for submission to the NSGC Annual Conference or other meeting
- Any poster or platform presentation that has been accepted to be presented in any public forum (including, but not limited to the NSGC Annual Conference)
- Any other product that is produced as part of your Capstone Project – i.e. brochure, audiotape or video, etc.

Your committee members should also have an opportunity to review all results you obtain from any data collection performed as part of your research project. It is recommended that you schedule a Data Presentation Meeting after you complete initial data analyses and before you submit your Results section. Suggestions for data analysis should be solicited, even if you are working with a statistical consultant.


## 3. Submitting Your Capstone Project Proposal

All Capstone Project Proposals must be approved by the Research and Capstone Coordinator and the Program Director. In order to obtain this approval, you must submit a Capstone Project Approval Form (Appendix A). The form includes a working title for your project. The title should be as specific and descriptive as possible.

You must attach a brief (one page, single-spaced) description of your project that contains the following information:
- Purpose for doing study – Brief background, why this is an important question or issue
- Specific aims of the study – Statement of your research/ project goals - what you hope to learn/ accomplish by doing the study or project
- Methods – brief description of how you plan to accomplish your project; study or project design

The one-page description and Capstone Project Approval Form must be combined into a single document and uploaded to Box.

**Your project proposal should be reviewed and signed by each member of your committee (electronic signatures are acceptable).**

## 4. Developing a Project Timeline

The project timeline should be formatted as a table (see example below). Provide a brief description of each activity that will be performed in order to complete your project and how you plan to accomplish each activity in text below your timeline. The timeline should be in chronological order by due date. A target date for each step in the project plan should be noted. Due dates should be at or before programmatic due dates.

Your committee and the Research and Capstone Coordinator should approve your project plan and timeline to be sure that your plan is reasonable and that your timeline is appropriate. Your project timeline should be stored in your Box folder and regularly updated. For each activity, note whether you have met your target date for completion of the activity. If not, describe reason(s) for delay and your plans for completing the activity. Additionally, you should note any additional activities that are planned and/or any activities that have been deleted from the project plan. Include this in text below your timeline.

**Progress Reports**

The student must submit progress reports at the end of each month during the regular semester, and by the established due dates (see Timeline). Progress reports should include an overview of what has been accomplished and what tasks/goals are upcoming. A copy of your progress reports should be sent to all committee members and uploaded to Box.

**Sample Project Timeline and Progress Report**

| Target Date | | Status |
| --- | --- | --- |
| 6/1/2021 | Project Plan and Timeline Submitted | Completed |
| 7/1/2021 | Submit draft of background section to committee chair for review. | Submitted 6/20/2021 |
| 7/30/21 | Submit edited Background/Literature review section to committee | Completed |
| 7/31/21 | Submit monthly update to committee | completed |
| 8/1/2021 | Submit draft of methods section to committee chair for review | Submitted 7/31/2021 |
| 8/22/21 | Submit edited methods section to committee | Completed |
| 8/31/2021 | Submit monthly update to committee | Completed |
| 9/1/2021 | Complete review survey development resources and draft survey; send to committee for review | Met with committee chair on 8/10 to discuss survey; draft completed by 9/1 |
| 9/20/2021 | Send first draft of IRB application and final draft survey to Committee for review | Committee has approved survey; working on IRB application |
| 9/30/2021 | Finalize survey and submit IRB application Submit monthly update to Committee | IRB application to be submitted by due date |

## 5. Submitting an Institutional Review Board (IRB) Application

All students are required to submit their project to the IRB. In some cases, your project will also need to be approved by the IRB of another institution as well, especially if your study subjects are drawn from a patient or other population at another institution. You will submit your UNCG IRB application using the IRBIS program https://uncg.myresearchonline.org/irb/ (log in using UNCG credentials)

Before initiating the IRB submission process:
- Complete CITI training and other training in order to submit to the IRB
  - Completion of CITI training will be included in your research coursework
- Discuss IRB requirements with your Committee members during the planning of your project
- If multiple IRB submissions are required, discuss the best strategy for order of submission with your Capstone Committee
- Prepare necessary documents that will need to be uploaded to the UNCG IRB
  - These typically include consent form/statement, recruitment materials, and survey/interview tool
  - Most IRB submissions will also require background and rationale for research, details regarding subjects/participants and identification/recruitment of subjects/participants, study design/methods, risks to participants, confidently of data, and details of consent; much of this can be copied from your research proposal and drafts of the Introduction and Methods sections of your manuscript

| **Absolutely no data may be collected until you receive IRB approval.** |
| --- |

The UNCG IRB usually takes about a month to review and approve protocols. Keep this in mind as you're developing your project timeline.

The UNCG IRB determines what type of protocol review is necessary for your project. Those are:
- Full Board protocols
  - High level of risk to participants (above minimal risk); Research is identifiable and sensitive; Research does not fit any of the Expedited categories
- Expedited protocols
  - Minimal risk to participants; Research is identifiable and sensitive and falls within one of the expedited categories (1-7)
- Exempt from full board review protocols
  - Less than minimal risk to participants; Research that is identifiable but not sensitive; Research that is sensitive but not identifiable; Research that is not sensitive and not identifiable
- Nonhuman Participant Research
  - Research that involves no interaction with an individual and only de-identified data (UNCG researchers have no access to identifying information); Research that is designed to preserve a historic event only and there is no attempt to draw generalized conclusions from data collected; Research that does not ask about the participants, but may ask about a program, product, policies/procedures, etc.

For additional IRB information: https://integrity.uncg.edu/wp-content/uploads/2019/03/2019-IRB-SOPs-1.pdf

## 6. Conducting the Research/Project

The process of conducting research will vary for each student dependent on the requirements of their project. Below are some commonly used resources and processes that you may utilize during your research. Consult with the Research and Capstone Coordinator for additional resources and guidance.

### *NSGC Listserv recruitment*

- The NSGC Student Research listserv distributes recruitment information for student research (see Figure 1)
- Additional information available at https://www.nsgc.org/page/student-research-survey-program

### *Online survey*

- Students have access to the Qualtrics program that can be used to develop and distribute online surveys. http://uncg.qualtrics.com
  - o Login using your UNCG credentials
- Qualtrics training is available through UNCG workshops. Search workshop schedule here: https://workshops.uncg.edu/

### *Data analysis*

- Statistical software
  - o UNCG Information Technology (IT) Services can help solve statistical software problems, provide information and recommendations regarding use of specific packages or computing platforms and can help researchers with data analysis and management using supported products.
    - ▪ Quantitative analysis: Students can lease copies of SPSS and other statistical software. For more information: http://its.uncg.edu/Software/Available/SPSS/
    - ▪ Qualitative analysis: Students will have access to qualitative analysis software, Atlas.ti https://its.uncg.edu/Software/Available/List/Atlasti
- Statistical Consultation
  - o The UNCG Statistical Consulting Center (SCC) provides consultations for student research projects. Information about the SCC can be found at: https://mathstats.uncg.edu/scc/
    - ▪ If possible, obtain a statistical consultation early in the process to ensure that your study design and any data collection tools are appropriate for the data analysis you want to perform
  - o **Students who are completing projects involving quantitative research must register for STA667 for both the Fall and Spring semesters of their second year.** With registration, the student will then be entitled to one hour of consulting per week for that semester. The SCC points out problems, tries to correct errors, suggests possible solutions, and assists in the analysis of the results.



Figure 1. Example of Student Research listserv email
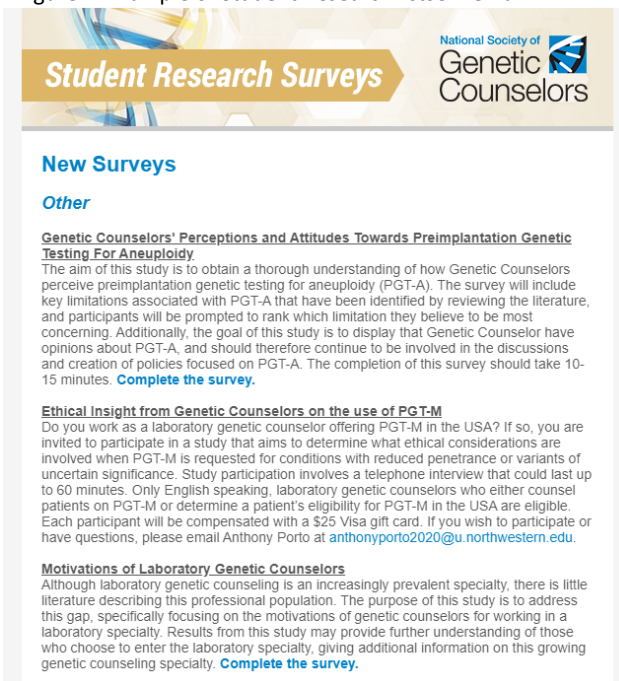
- Enrollment in STA667 is by sections, corresponding to different faculty members. Students must obtain permission to enroll in a STA667 section. If the student has a consultant preference, they should contact the consultant directly to obtain permission to enroll in that consultant's section. If the student does not have a consultant preference, the student should send a brief description of the research topic, as well as the scope and type of assistance anticipated, to scc@uncg.edu, and the student will be referred to a consultant
- Other resources for data analysis
  - The Program library includes multiple textbooks related to quantitative and qualitative analysis. See Additional Resources list
  - Stats Whisperer online webinar http://www.statswhisperer.com/
    - Login information will be provided by the Research and Capstone Coordinator

## 7. Written Report/Manuscript

You must submit a detailed written report of your project by the established deadline. Submission of the manuscript to the Program Director is required as a pre-requisite for graduation. The final manuscript should be formatted as a manuscript ready for submission to a peer-reviewed journal. The specific details of the style of your paper (i.e., length, format, reference style) will be determined by the requirements of your selected journal. The manuscript should be written as if the target readership includes first year genetic counseling students.

For students who select a non-research type of project, a copy of any "product" (e.g. brochure, videotape, education manual, annotated bibliography) produced as part of your capstone experience should also be submitted. In these cases, the final manuscript will serve to describe and document the background work you performed in order to produce your "product".

*General Instructions*
- All manuscripts should by typed, double-spaced.
- Use a 2-inch margin for the title page. Font should be 12 point, Times New Roman or Calibri.
- Apart from the Title Page, all pages should be numbered consecutively. The page number should go in the bottom right of each page.
- For longer sections of the manuscript, you may use subtitles to organize the content of your sections. Subtitles should be formatted as indicated by APA formatting guide
- Do not use headers or footers. Do not justify the right margin.

For detailed guidance on formatting of your final manuscript, see Appendix C: Guidelines for Writing Your Manuscript.

*Working with your committee: The editing and review process*

*Section Drafts*
- Be sure to review the *Guidelines for Writing your Manuscript* (Appendix C) to be sure that you have included all necessary items in each section of the manuscript.
- You should identify a key member of your committee (usually your Committee Chair or Research and Capstone Coordinator) to pre-review each section of your manuscript before you send it to your full committee. You should then send the edited section to all members of your committee.
  - Be sure to accept changes and send a "clean" version for all members to review
- Each section of your manuscript should be reviewed by your entire Capstone Committee.
- **Section drafts must be submitted by the due date and uploaded to your Box folder.**
- These files should be sent electronically using Box so that all members of the committee have access to the most current version of the file at all time. This reduces work and time for everyone involved.
- You should request feedback from each committee member. It is helpful to ask each committee member to provide feedback on the draft by using the "track changes" or "insert comment" features in Microsoft Word.
- When you receive feedback, you should respond to the suggestions. You do not necessarily need to make every change that a committee member suggests, but you should respond to all comments and suggestions. If you disagree with an editing suggestion you should state the reasons that you are not making a recommended change.
  - Although you should not blindly accept all feedback or edits suggested by committee members, there is an expectation that you provide justification as to why you may decline to accept their feedback or edits. If there are conflicting recommendations among committee members, it is your responsibility to responsibly navigate a discussion about this. As it is *your* Capstone, the final decision is ultimately yours to make, but should be done so after carefully considering all options and discussing with your committee chair and the Research and Capstone Coordinator.
- If significant revisions are needed on any section you submit, committee members may ask for you to make revisions and submit the section again before the final draft. You should comply with such requests.

*Final Manuscript*
- The first draft of the final manuscript must be submitted to your committee and the Program Director by the deadline
  - The Program Director should be given the opportunity to provide edits even if she is not a member of your committee
- You should remind committee members of the date when their comments are due back to you
  - It is your responsibility to follow up with committee members if you have not received their edits by this date.
  - If you do not receive edits from a committee member you must proceed in preparing your final manuscript without their comments. You may not delay submitting your final manuscript. Communicate this situation to the Research and Capstone Coordinator who may arrange an additional reviewer if necessary

- The final manuscript draft may require multiple rounds of edits and should be given enough time for review in your timeline
- If your committee members have suggested major re-working of any section, it is a good idea to ask for an additional review. If the changes are not major, an additional review may not be needed
- Your final manuscript must be approved by your Committee Chair. The Committee Chair must sign the title page as evidence that he/she has approved the manuscript.
- Final manuscripts must be submitted by the due date (no exceptions)
  - Title page of the final manuscript must be printed and signed by your committee chair and submitted by the due date for the final manuscript.
- You must also submit a copy of your final manuscript electronically to the Program Director and Research and Capstone Coordinator
  - This can be accomplished by emailing a link to the final manuscript in Box

## *Resources for Developing a Manuscript*

Bowen N. K. (2003). How to Write a Research Article for the Journal of Genetic Counseling. *Journal of genetic counseling*, *12*(1), 5–21. https://doi.org/10.1023/A:1021491016830

Lin A. E. (2006). Writing for scientific publication: tips for getting started. *Clinical pediatrics*, *45*(4), 295–300. https://doi.org/10.1177/000992280604500401

MacFarlane, I.M., McCarthy Veach, P. & LeRoy, B.S. (2014). Genetic counseling research: a practical guide. Oxford University Press. (See Chapter 9)

Resta, R. G., McCarthy Veach, P., Charles, S., Vogel, K., Blase, T., & Palmer, C. G. (2010). Publishing a master's thesis: a guide for novice authors. *Journal of genetic counseling*, *19*(3), 217–227. https://doi.org/10.1007/s10897-009-9276-2

Weil J. (2004). Peer review: an essential step in the publishing process. *Journal of genetic counseling*, *13*(3), 183–187. https://doi.org/10.1023/b:jogc.0000028252.93942.40

## *UNCG Writing Center*

The UNCG Writing Center provides free, individual assistance at any stage of any writing project. Staff consultants are experienced writers and alert readers, prepared to offer feedback and suggestions on drafts of papers, help students find answers to their questions about writing, and provide one-on-one instruction as needed. You can find more information about this resource at the Writing Center website: https://writingcenter.uncg.edu/

## *Printing and Binding of your Manuscript*

The Genetic Counseling Program will print and bind 3 copies of your final manuscript, one for the program library, one for you and one for your committee chair. If you receive requests for additional copies you should let us know ahead of time. [Note: Please notify the Research and Capstone Coordinator if you and/or your committee member do not wish to receive a print copy of your final manuscript. You will instead receive a full PDF copy of the manuscript.]

If your manuscript includes color graphics, or color photographs you should note this when you submit your final manuscript to the Program Director.

## 8. Presentation of Project

You will be required to make an oral presentation about your project for your classmates, committee, and program faculty. You are also required to prepare an abstract suitable for submission to the NSGC Annual Conference or other relevant professional meeting.

The Program will send a "save the date" announcement and invitation to your committee members, clinical supervisors and faculty members (on and off campus). If you work with a statistical consultant and would like this person to be invited to the presentations, you should send us the person's name and email address. The presentation of Capstone Projects typically coincides with the Program's graduation celebration, so family members, friends and other individuals who you wish to join the celebration will also be included.

### *Program Capstone Presentations*

Capstone presentations will be made orally (10-12-minute presentation; 3 minutes for questions)

- You should review your oral presentation with your committee chair and other members of your committee as needed.
- Send a copy of your presentation slides to all committee members by the posted deadline
    - Include a general "script" of what you plan to say within the Notes of the presentation
- Schedule a conference call or meeting to review your presentation with your committee chair; invite all members of your committee to participate.
- Oral presentations are limited to 10-12 minutes. This will require you to be very selective in what information you present. Your presentation should include the following:
    - Purpose of your project (specific goals)
    - Brief description of methods
    - Summary of results – highlight the results that were significant/ most informative
    - Discussion/ conclusions – interpretation of results, study limitations, implications for future research/ practice
    - Acknowledgements

### *Submitting an Abstract*

You are required to prepare an abstract of your work for presentation at the next NSGC meeting or other relevant meeting. All members of your committee should be listed as authors on your abstract and should have an opportunity to review the abstract before it is submitted.

- Abstract submission deadline for NSGC is usually in May/early June. We will send you a reminder of the deadline
- You will need to follow the instructions provided by the organization
- All abstracts should be approved by your Capstone Committee and submitted to the Program Director for approval prior to submission to the organization
- Be sure to discuss the order of authors. Typically, you as the student PI are first author and a representative of the program (either the Program Director or Research & Capstone Coordinator) is the senior/last author. Authors should be listed by the order of contribution
- If the abstract in the final manuscript draft meets the requirements of the meeting abstracts you may use it; your committee should still approve its usage before it is submitted

- Resources for abstract preparation:
    - Guidance from the Abstract Workgroup (Updated February 2018). Available at: http://www.nsgc.org/d/do/8237
    - Austin, J., and Sebold, C. How the Abstract Workgroup Reviews Abstracts: An Update. Available at: https://www.nsgc.org/d/do/4221
    - Taboulet P. (2000). Advice on writing an abstract for a scientific meeting and on the evaluation of abstracts by selection committees. European journal of emergency medicine: official journal of the European Society for Emergency Medicine, 7(1), 67–72. https://doi-org.libproxy.uncg.edu/10.1097/00063110-200003000-00013
- Student abstracts submitted to NSGC are often selected as Poster presentations. Resources for Preparing a Poster Presentation include:
    - Designing Effective Posters: https://guides.lib.unc.edu/posters/home
    - Creating a Poster in PowerPoint: *http://www.emich.edu/apc/guides/apcposterpowerpoint2010.pdf*
    - Creating an Academic Poster: https://dukeahead.duke.edu/sites/dukeahead.duke.edu/files/u94/Poster%20Creation%20Presentation.pdf

# Additional Guidance

## 1. Capstone Project Management

**It is your responsibility to actively manage this project.**

- That means you must keep the project moving forward in a timely manner to meet deadlines.

**It is your responsibility to meet program deadlines or communicate with your committee about the need for more time.**

**It is your responsibility to keep in communication with your committee.**

- You must remain in regular communication with your committee chair, other members of the committee and the research & capstone coordinator.
- This is accomplished by the **monthly updates** and **progress reports,** but communication may be warranted between those required time points.
- Avoid situations where you need immediate feedback, requiring your committee members must drop everything else they are doing to work on your project unexpectedly.

**Manage your electronic files well.**

- Utilize Box (http://box.uncg.edu) to manage your files within the "Capstone Project" folder associated with your name.
- Invite your committee members to collaborate on your documents so that edits are captured immediately, and all members of the committee always have access to the most up-to-date files.
- See additional details in the File Management section

**Express gratitude to your committee for their work on your project.**

- This is usually a significant time commitment for them for which they are not compensated.
- The program has special Thank You cards for your use.

## 2. Making a budget and securing funding

- Common budget items include participant incentives, transcription services, NSGC research listserv fee, and graphics/design fees
- Common sources of funding include internal (UNCG) student funding and NSGC funding, typically through Special Interest Groups (SIGs) research grants. The Research and Capstone Coordinator will share funding opportunities and applications as they are announced
- The Genetic Counseling Program may also be able to provide financial support your project in limited amounts. We encourage you to discuss costs associated with your project with us to determine ways that we might be able to offer financial or other support.

## 3. File Management

A Capstone folder with your name has been created in Box with the title "Capstone: [Your Name]." This folder is where you should store and save all files associated with your Capstone process. Box provides the necessary data protection for HIPAA, FERPA, and all other Federal regulations that must be upheld during the research process. Data security is of the utmost importance. A description of the sub-folders and associated contents is below.

- <u>Data</u>: All data files, raw or analyzed. Tables, charts, figures (note: some data files may need to be stored elsewhere based on guidance from the IRB)
- <u>Documents</u>: Individual sections of your manuscript, including the Introduction, Methods, Results, and Discussion. Additionally, your project timeline, proposals, surveys, and other related documents.
- <u>Evaluations</u>: Your mid-semester and end-of-semester evaluations from the Research and Capstone Coordinator. You will be required to review and respond/reflect on these evaluations.
- <u>IRB</u>: All IRB-related correspondences, including a PDF copy of your final submission.
- <u>Monthly Updates</u>: Beginning with the "June" update between your first and second year.
- <u>Presentations</u>: Presentations or posters created related to your project.
- <u>References</u>: All references and literature sources.

Of note: the Capstone folder is <u>not</u> the same as the "Capstone" sub-folder of your Online Portfolio. Only select documents are required to be included in your Online Portfolio. See the Program Handbook section entitled "Online Portfolio" for directions regarding file management in your Online Portfolio.

You are encouraged to edit documents within Box Online or with the Box plug-in, or to use the "Upload New Version" function. This will avoid the existence of multiple versions of the document within Box and minimize confusion about the most recent document. By using these functions, you and your committee will be able to easily view previous versions of documents.

The Research & Capstone Coordinator will add users to your Capstone Box. It is your responsibility to notify the Research & Capstone Coordinator of who should be given access in a timely manner.

## 4. Evaluation

Formal evaluation of Capstone work is completed through research-related coursework including GEN 648: Capstone Seminar, GEN 748: Research Project I, and GEN 749: Research Project II

You must register for GEN 748, Research Project I in the Fall semester and for GEN 749, Research Project II in the Spring semester during the second year of the program. Both are graded on a Satisfactory/Unsatisfactory basis. You must successfully complete all Capstone Project requirements and receive a grade of "S" in order to be cleared for graduation.

Evaluation of your work on your Capstone Project is an ongoing process. You should be in good communication with your committee chair and program faculty about your project. We will solicit feedback from your Committee Chair and/or other committee members periodically. Appendix E contains an evaluation form that will be used for GEN 748 and GEN749.

## 5. Additional Resources
***Books in the library at 996 Spring Garden Street***

Becker, M.A. & Jaccard, J. (2002). Statistics for the Behavioral Sciences. Wadsworth/Thomson Learning.

Berg, B.L. (2009). Qualitative Research Method for the Social Sciences, 7th Ed. Allyn & Bacon.

Corbin, J. & Strauss, A. (2008). Basics of qualitative research: Techniques and procedures for developing grounded theory (3rd ed.). Sage Publications.

Creswell, J.W. (2002) Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. USA: Sage Publications, Inc.

Creswell, J.W. (2007). Qualitative Inquire and Research Design: Choosing Among Five Approaches, (2nd Ed). Sage Publications, Inc.

Creswell, J.W. (2009). Research Design: Qualitative, quantitative Approaches, and mixed methods approaches (3rd Ed). Sage Publications, Inc.

Creswell, J. & Clark, V.P. (2018). Designing and conducting mixed methods research (3rd Ed). Sage Publications, Inc.

Denzin, N.K. & Lincoln, Y.S. (Eds.) (1994). The Sage Handbook of Qualitative Research. Sage Publications, Inc.

Dillman, Don (1999) Mail and Internet Surveys. USA: John Wiley and Sons

Field, Andy (2000) Discovering Statistics using SPSS for Windows. Sage Publications

Fink, Arlene. (2002) The Survey Kit, 2nd Edition. Sage Publications.

Freeth, D. (2008). Effective interprofessional education: Development, delivery and evaluation. Blackwell Publishing.

Heiman, G.W. (2001). Understanding Research Methods & Statistics: An Integrated Introduction for Psychology. Houghton Mifflin.

Hill, C.E. (Ed.). (2011). Consensual Qualitative Research. American Psychological Association.

Kirk, J. & Miller, M.L. (1986). Reliability and Validity in Qualitative Research. Sage Publications.

Kruger, Richard and Casey, MaryAnn (2004) Focus Groups, 3rd Edition: A Practical Guide for Applied Research. Sage Publications

Lang, Thomas and Secic, M (1997) How to Report Statistics in Medicine. American College of Physicians

LoBiondo-Wood, G. (2002) Nursing Research: Methods, Critical Appraisal and Utilization. Mosby

Lorig, K. (2001). Patient education: A practical approach. Sage Publications

MacFarlane, I.M., Veach, P.M. & Leroy, B.S. (2014). Genetic Counseling Research: A practical guide. Oxford University Press.

Marshall, C. & Rossman, G.B. (2006). Designing Qualitative Research (4th Ed). Sage Publications.

Maxwell, J.A. (2005). Qualitative Research Design: An Interactive Approach (3rd Ed). Sage Publishing.

Publication Manual for the American Psychological Association (APA) 7th Edition.

Redman, B.K (Ed.). (2003). Measurement tools in patient education (2nd Ed). Springer Publishing.

Saldana, J. (2009). The Coding Manual for Qualitative Researchers. Sage Publications, Inc.

Salkind, Neil (2000) Statistics for People Who (Think They) Hate Statistics. Sage Publications.

Stangor, C. (2007). Research Methods for the Behavioral Sciences (3rd Ed). Houghton Mifflin

Wolcott, H. (2001). Writing Up Qualitative Research (2nd Ed). Sage Publications, Inc.

## Appendix A. Capstone Project Proposal

**MS Genetic Counseling Program**

**Capstone Project Proposal**

**Student:** _____**Date**_____

Title of Project:_____

*Capstone Project Committee*

| Name | Affiliation/ Division/ Dept | Email Address | Phone number | Signature ** |
|------|-----------------------------|---------------|--------------|--------------|
| * | | | | |
| | | | | |
| | | | | |
| | | | | |

* Committee Chair

**\*\*Signatures required to indicate that individual agrees to serve on this committee and has received and reviewed a copy of the Capstone Project Handbook and Timeline**

You must attach a one-page description of your project proposal. This should include the major goal or purpose for your project and a brief outline of what you intend to do.

*Project Approval*

_____          _____

**Research & Capstone Coordinator**                         **Date**

# Appendix B. Overview of Capstone Responsibilities to be Shared with Committee Members

While the student is ultimately responsible for successful completion of the Capstone Project, the process requires good communication between the student, committee members, and the Program. It also requires a commitment from the student and each committee member to adhere to the Capstone Project Guidelines and Timeline. The following is intended to clarify the specific responsibilities of the student and committee members.

Student Responsibilities

1. Discuss/ develop Capstone project ideas in collaboration with program faculty and potential committee members
2. Develop the Capstone Project Proposal, and obtain signatures of all committee members by the established deadline on the Capstone Project Form
3. Assure that all committee members receive an electronic copy of Capstone Project Handbook and timeline
4. Organize and manage files and folders in Box as described in the Capstone Project Handbook
5. Communicate regularly with Committee Chair and committee members regarding progress of capstone project
    - Discuss need for and coordinate scheduling of meetings that might be required by the committee
        - At minimum, it is recommended that students schedule a "kick-off meeting" and a "data presentation meeting"
    - Written monthly updates of your progress are required. A copy of these updates should be uploaded to the "Capstone" folder on Box and an email should be sent to committee members with the monthly update linked or attached
6. Utilize the established Box folder to review and edit documents. Establish with all committee members that they have access if needed, establish alternative document sharing processes with committee members that may be unable to use Box
7. Submit all progress reports, manuscript section drafts, and final manuscript (draft and final) by the established deadlines
    - A draft of each section should be sent to your committee chair and/or program liaison for pre-review at least one week before the date the section is due to the committee. This will allow you do some editing before you send the section to your full committee.
    - Copies of each section of the manuscript must be sent to all members of the committee for review/ comment.
    - The section and final manuscripts should incorporate suggestions/ edits of the committee.
8. The final manuscript must be signed by the Committee Chair prior to being submitted to the program director.

## Committee Responsibilities

1. Approve project proposal and sign Capstone Project Proposal Form (electronic signatures are acceptable)
2. Communicate regularly with student regarding progress of capstone project and any additional meeting/ deadlines that are required for completion of project.
   - Participate in meetings (in-person or remote) including but not limited to a "kick-off meeting" and "data presentation meeting"
3. Utilize the established Box folder to review and edit documents. If you are unable to use Box, inform the student and Research and Capstone Coordinator so that alternative document sharing processes can be established
4. Review monthly updates and other progress reports and provide feedback on these to the student as necessary
5. Review drafts of project-related materials (i.e. data collection tools, IRB submission materials, etc.) and provide feedback on these to the student as necessary
6. Review drafts of each manuscript section and provide feedback to the student as necessary
7. Review draft of final manuscript, and return edited draft to student by the established deadline
8. Aid student in identifying a journal that is appropriate for the project and paper
9. The final manuscript must be signed by the Committee Chair (electronic signatures are acceptable)
10. Contact Research and Capstone Coordinator if any questions or concerns arise with regards to the project

## Program Responsibilities

1. Provide copies of Capstone Project Guidelines described in this handbook and timeline to student
2. Establish Box folder for student to store and save all files associated with your Capstone process and address any issues or questions about Box utilization
3. Respond to any questions or concerns raised by student and/or committee members with regards to the project
4. Provide guidance to students and committee members related to program requirements of Capstone
5. Each student committee must include a representative of the program

# Appendix C. Guidelines for Writing Your Manuscript

Consult APA Formatting Guide for any questions not addressed in these guidelines

**Sections of your manuscript**

(Adapted from MacFarlane, Veach & LeRoy (2014))

All sections must be completed, although the contents of each section may be somewhat different for research projects and non-research projects. Suggested lengths for each section are also provided with the understanding that, depending on the nature of the project, a section might be longer or shorter than the suggested length. You should discuss any questions you have about preparing your manuscript with your Committee Chair and/or your Genetic Counseling Program project advisor.

**Title Page**
- Follow format on sample provided in Appendix D
- The material is centered on the page apart from the signature(s), which begin at the center of the page and continue toward the right margin.
- If the title is more than one line in length, it is arranged as an **inverted pyramid.**
- Title page must be signed by the Program Director and your Committee Chair

**Title**
- Concise and descriptive
- Should catch reviewers' and readers' attention
- Aim for 12-14 words

**Abstract**
- The abstract should be on the second page of your manuscript
- Include the author list; typically, the student is the first author and a member of the program faculty or your committee chair is the senior/last author. All other authors should be listed by contribution
- The abstract is a brief summary of your project stating the major purpose and/or nature of your project, sample, methods employed and the major outcomes.
- Detailed explanations/ results should not be included in the abstract.
- Some journals require "key terms", which represent the major concepts, populations or variables in your paper. Include these at the end of your abstract as needed.

**Introduction** (Background/ Literature Review)
This section should include a description of the primary purpose (objectives) of your project and orient the reader to the importance of your project within the previously published literature on your topic. It is critical to aid the reader in understanding the need for your project within the available literature, as well as how it provides a unique contribution to the field.
- State your research question
- Cite relevant literature
  - This is not limited to literature specific to genetic counseling!
- State hypothesis/provide brief overview of your study

***For non-research projects***: A summary of the literature you reviewed in order to develop the content and format or your project should be included in this section. You should also describe other sources of information used to develop your project (e.g. consultation with other professionals)

**Methods**
This section should describe the design and way you implemented your study.

The methods sections should include information about the following (unless otherwise specified by the journal of your choice):
- IRB approval (including exempt status, as applicable)
- Participants (who are the participants of your study, how were they recruited/ selected, informed consent procedures, participation rates)
- Measures (variables used in the data analysis, use of previously standardized scales, development of original measures, scoring method of measures)
- Procedures for data collection (with enough detail for replication)
- Data Analysis (variable selected for analysis, statistical procedures used, statistical programs used, etc.)

***For non-research projects***: The methods sections should describe, in detail, the activities you performed in order to complete your project.

**Results**
This section should provide answers to your research question(s). The results section describes but does not interpret the results. You may consider using tables and figures to summarize statistical information, highlighting major findings in the intervening text. Often, tables and figures are at the end of a manuscript, before the Appendices. It may be helpful to develop the tables for data you wish to highlight and the text to explain them. See the *Guidelines for Authors* for the journal of your choice for additional information regarding the number and formatting of tables. Be concise – it is ok for this section to be technical.

***For non-research projects***: This section should include a description of any product (e.g. brochure, videotape, education manual, annotated bibliography) that you produced. It should also include details any product assessment/evaluation that was performed as part of your project.

**Discussion**
This section is used to offer your interpretations and conclusions about your findings and should include a systematic interpretation of the results of your study. You should avoid repeating the details of your results in this section. This section should include a discussion of the limitations of the study as well as any implications for future research and/or practice.
- Start with a one-paragraph summary of your project and purpose of your study
- Review major findings and address all findings related to your research questions (including those that were not statistically significant)
- Compare to previously published research on your topic
- Begin to theorize about the underlying reason for your results; make tentative conclusions
- Highlight strengths and limitations
- Review potential implications to the profession, practice or training

***For non-research projects:*** This section should include a summary of the results of your work, a description of any product that was produced, and/or a discussion of the results of any

qualitative or quantitative research component of your project. It should also include a description of the limitations of your work, possible impact of your work, suggestions for additional work/research in your area. Finally, you should include any information about your plans for publication and/or distribution of your work to professional and/or community groups.

**Bibliography/References**
- This section should contain references to original literature relevant to your project and manuscript.
- The bibliography must include all references cited in your manuscript.
- Useful references not cited in the text, but highly relevant to your project may also be listed in the bibliography.
- The bibliography should be formatted as designated by the journal of your choice or in APA format.

**Appendices**
- The appendices may contain anything that would interfere with easy reading of the text.
- Any manuscript, product (newsletter, brochure, manual) or survey should be attached as an appendix.
- Appendices should be labeled sequentially (Appendix A, B, C etc.….) and should include a title.

**TITLE OF PROJECT ALL CAPS AND BOLD**


**by**


**Your Name**



**Capstone Experience Manuscript submitted to**
**the Faculty of the Genetic Counseling Program at**
**The University of North Carolina at Greensboro**
**in Partial Fulfillment**
**of the Requirements for the Degree**
**Master of Science in Genetic Counseling**



**Spring, 202\***

Approved by


_____
Committee Chair


_____
Program Director

# Appendix E:  Evaluation Form

**MS Genetic Counseling Program**
**Capstone Project Progress Evaluation**

| Requirement | Date Due | Status |
|---|---|---|
| Project Proposal (abstract, committee) | 4/30/2021 | |
| Detailed project plan/ timeline | 6/1/2021 | |
| Monthly Report – June | 6/30/2021 | |
| Introduction/ Background/ Literature Review | 7/30/2021 | |
| Monthly Report – July | 7/31/2021 | |
| Monthly Report – August | 8/31/2021 | |
| Methods Section | 9/15/2021 | |
| Final drafts of surveys to committees | 9/30/2021 | |
| Monthly Report – Sept | 9/30/2021 | |
| IRB application submitted | 10/13/2021 | |
| IRB approval received | | |
| Mid-semester Evaluation | Mid-late October | |
| Monthly Report – October | 10/31/2021 | |
| End of semester Progress Report and updated timeline | 11/30/2021 | |
| Monthly Report – November | 11/30/2021 | |
| End of semester Evaluation | Early December | |
| Spring semester progress report/updated timeline | 1/15/2022 | |
| Updated Methods/ Results section to committee | 2/21/2022 | |
| Monthly Report – February | 2/28/2022 | |
| Mid Semester Evaluation | Early March | |
| First draft Final Report | 3/15/2022 | |
| Final Report and Abstract/Signed Title Page | 4/10/2022 | |
| Draft of Slides to Committee | 4/24/2022 | |
| Final Draft of Slides to Program Director | 5/6/2022 | |
| Capstone Project Presentation | 5/8/2022 | |

**Evaluations**

*Rating Scale:* 1- Excellent; 2- Very Good; 3- Good; 4-Needs Improvement

***Mid-Semester Progress Report (10/31/21)***

| Activity | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Communication w/ Committee | | | | |
| Sets realistic goals | | | | |
| Meets deadlines | | | | |
| Quality of research design/ data collection and/or analysis | | | | |
| Quality of written work | | | | |

***Comments:***

***Student Reflection/Response:***

***Goals for next reporting interval:***