

# Research Handbook

## Vanderbilt Master of Genetic Counseling

(Current as of August 2023)

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## **I. INTRODUCTION**

This handbook is intended to provide guidance to students towards successful completion of the Master of Genetic Counseling (MGC) thesis requirement. Research is a core component of the VU MGC program and we aim for each student to complete a thesis that is skill-building and impactful.

### **A. DEGREE REQUIREMENTS**

The VUSM MGC degree requirements, including the thesis requirements, are outlined in the VUSM Catalog at:

<https://www.vanderbilt.edu/catalogs/kuali/som-23-24.php#/content/641c91a10e1eed001c5f46de>

### **B. RESEARCH PROGRESS AND ASSESSMENT**

The MGC Research Progress Assessment Policy is found in the VUSM Catalog at:

<https://www.vanderbilt.edu/catalogs/kuali/som-23-24.php#/content/641c91a10e1eed001c5f46fc>

### **C. RESEARCH REVIEW COMMITTEE**

The MGC thesis requirement is administered by the Research Review Committee as described in the VUSM Catalog at:

<https://www.vanderbilt.edu/catalogs/kuali/som-23-24.php#/content/641c91a10e1eed001c5f46d9>

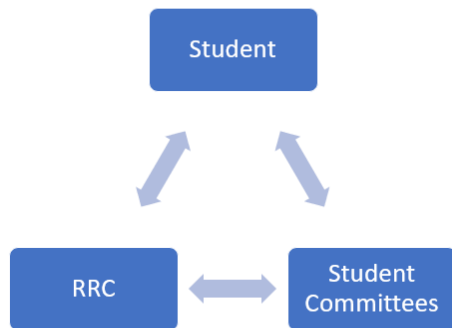
## **II. DIRECTLY RESPONSIBLE INDIVIDUALS**

According to the VUSM MGC Student Handbook, Directly Responsible Individuals (DRIs) are defined as those program faculty with whom students should be in contact regarding questions or informational needs they might have. The primary contact for any issue should always be contacted first. In the event that the primary contact is not available, the second contact should be contacted next. If the second contact is not available, the third contact should be contacted.

The primary contact regarding issues with thesis projects is the student’s Research Advisor.

|                        |  |
|------------------------|--|
| <b>Primary Contact</b> | Research Advisor                               |
| <b>Second Contact</b>  | RRC Chair                                      |
| <b>Third Contact</b>   | Program Director or Assistant Program Director |

Table 1: Directly Responsible Individuals



**A. STUDENT**

It is the responsibility of the Student to complete the thesis project as outlined in their proposal under the guidance of their committee. Students are expected to be self- motivated and ask for help and guidance as needed. They are responsible for keeping ALL their committee members aware of their progress as it relates to their timeline. Students must be proactive and manage their time to ensure they meet the degree requirement deadlines. The burden and responsibility of communication begins with the student.

Students are expected to hold ownership of the management of their projects. Recognizing that this can mean different things for different projects and different students, this may take different forms and should be negotiated at the outset with the advisor and committee. See suggestions for success at the end of this document.

**B. STUDENT THESIS COMMITTEES**

Student thesis committees are comprised of the following members:

- MGC Student- Leads the committee
- Thesis Advisor- Primary Mentor for the research
- RRC Liaison/ Representative- Addresses questions about research design; encourages communication; accountability partner

- Faculty or Professional Member with content expertise- lends expertise
- Faculty or Professional Member to provide analytical support- lends analytical support
- Other members as needed for research topic- as assigned

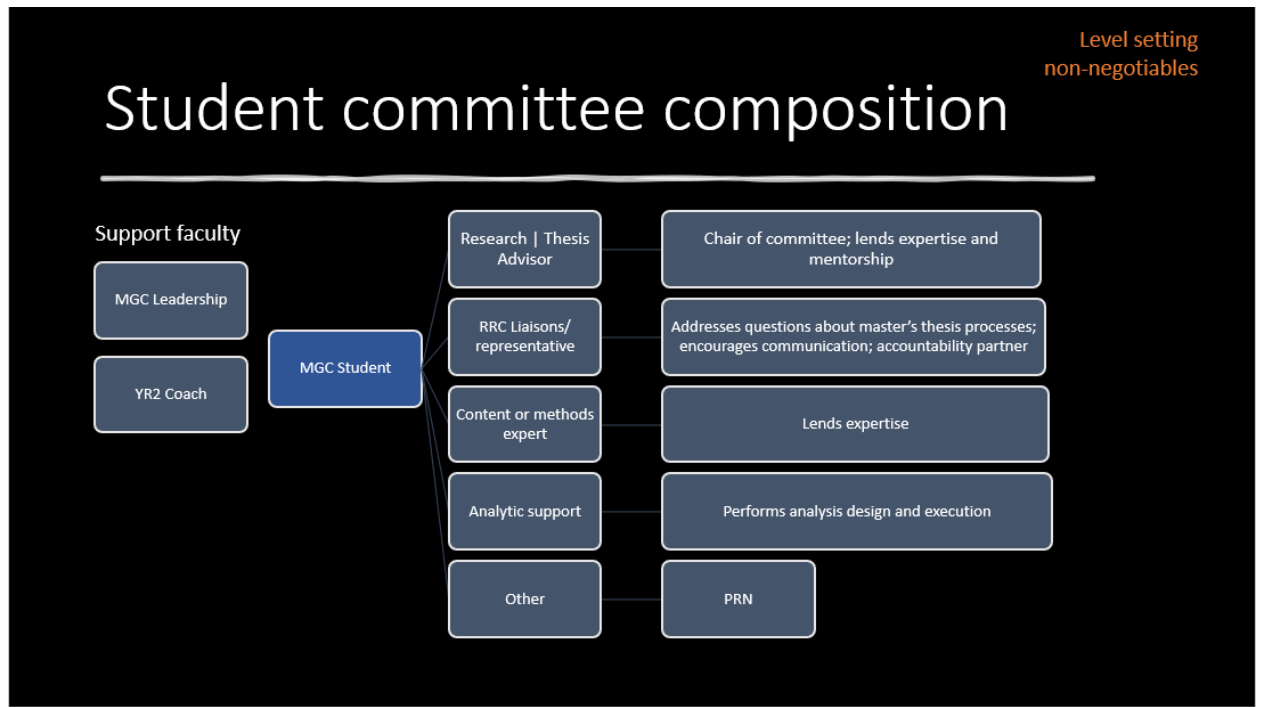


Figure 1.

Thesis Advisors responsibilities are outlined in the Research Advisor agreement (See Appendix). Also they should:

- Be available to give students feedback on their work and progress; suggest background reading and other texts that will be important to the student’s work.
- Identify events (journal clubs, conferences/meetings, educational events) that the student should participate in to gain knowledge related to the research project.
- Be available for bi-weekly meetings to ensure the student’s project is on course or is adapted in a way that is productive (remotely or in person)
- Communicate with the RRC about any concerns during the thesis experience so that they may be addressed promptly, including attendance concerns.
- Provide funding beyond the \$1000 provided by the MGC program if the advisor-proposed project requires additional funds

### C. YEAR 2 COACH

One faculty member will be designated the “Year 2 Coach” for all 2nd year students. This individual will: coordinate the monthly research workshops for the year 2 students and be the

first point of contact for questions regarding resources for student resources outside of their committee. The year 2 coach will help students navigate the 2nd year timeline for the research requirement.

#### D. ASSESSMENT VERSUS COACHING

The School of Medicine provides the discussion and directive pertaining to Faculty/Educator Roles in the VUSM Catalog at:

<https://www.vanderbilt.edu/catalogs/kuali/som-23-24.php#/content/641c91a00e1eed001c5f4653>

The MGC program establishes policy for Managing Conflicting Roles in the VUSM Catalog at:

<https://www.vanderbilt.edu/catalogs/kuali/som-23-24.php#/content/641c91a10e1eed001c5f46fd>

To further clarify and align with both directives, the MGC program has determined that the RRC Chair and RRC Liaisons serve in Assessment roles. The Year 2 Coach, Research Advisor, Committee Members primarily serve in coaching roles.

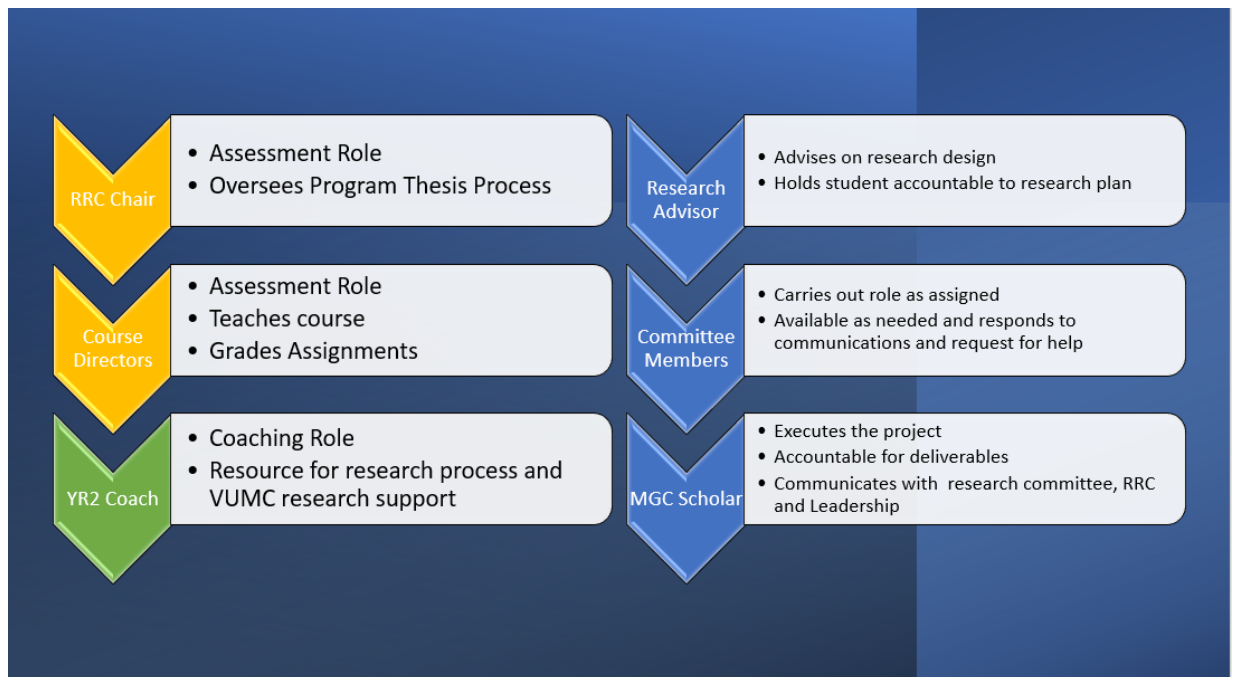


Figure 2

### III. THESIS TIMELINE AND DELIVERABLES

#### A. THESIS TIMELINE

The dates listed here are general. Note that for Year 1, some dates correspond to due dates for Research for Genetic Counselors I and Research for Genetic Counselors II. Please see syllabi for specific dates.

If the student must deviate from the timeline (i.e., miss a date), the student must submit a formal request to the RRC explaining the circumstances, with an updated proposed timeline, ideally as soon as it is clear that a timeline deviation is needed, and each time the timeline must be adjusted. Thesis advisors should be in agreement with any updates to the timeline. RRC members will bring the proposed timeline to the leadership for approval.

#### FIRST YEAR

|  |                            |
|--|----------------------------|
| Presentation of Potential Student Research Topics      | Weeks 4 and 5 of Classes   |
| First Literature Review Due                            | Fourth Week of October     |
| Specific Aims + Student-Advisor Research Agreement Due | First Day of Fall Finals   |
| Introduction & Background Due                          | Third Week of March        |
| Materials & Methods Due                                | First Week of April        |
| Thesis Proposal Due                                    | First Day of Spring Finals |
| IRB Submission   | July                       |

#### SECOND YEAR

|  |                         |
|--|-------------------------|
| Student Meets with RRC Member                    | First Week of August    |
| Data Collection Complete                         | First Week of October   |
| First Figure Complete                            | First week of November  |
| Abstract and Manuscript Outline Complete         | First Week of December  |
| First Draft of Manuscript Submitted to Committee | Second week of February |
| Final Draft of Manuscript submitted to Committee | First Week of April     |
| RA + Committee Sign Off on Completion of Thesis  | Last day of April       |

Figure 3 provides an overall timeline for the research process with the directly responsible individuals.

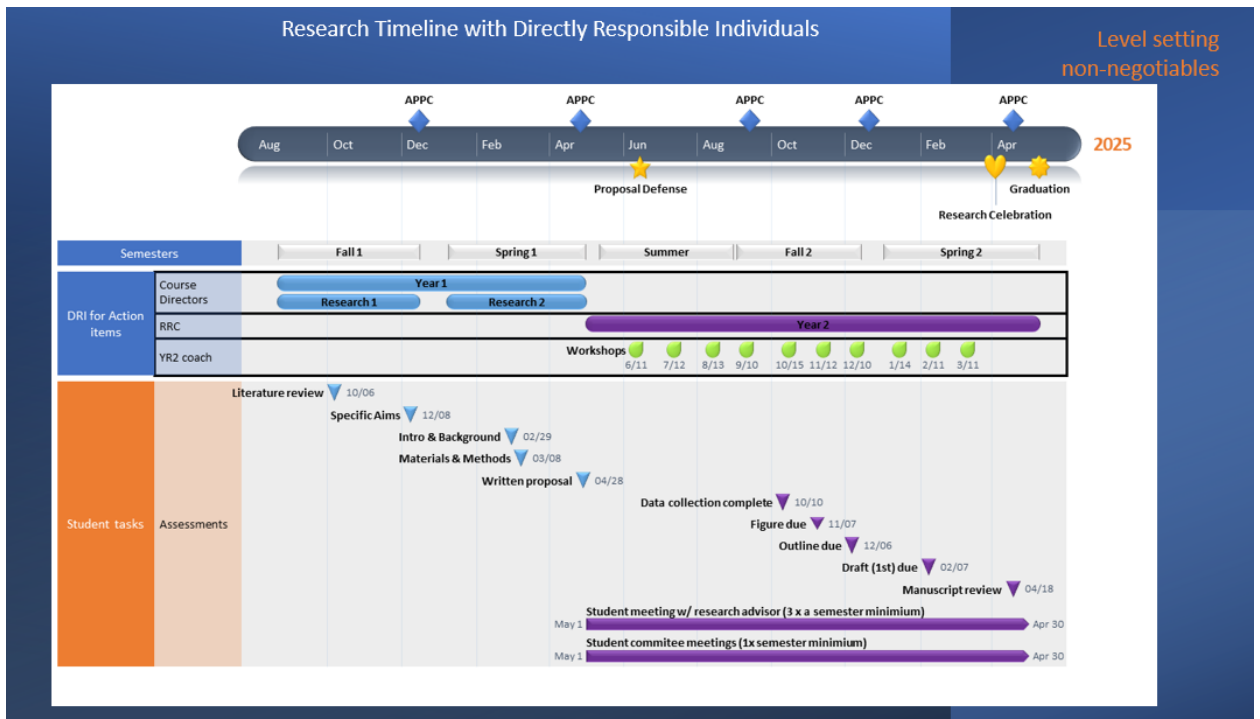


Figure 3

## B. DELIVERABLES

### 1. Student Research Topics

During the first semester of the first year, potential Research Advisors will present ideas to the class. Students will select a Research Advisor and/or potential research question, which should be determined by November 1st.

### 2. Research Agreements

Once the student has matched with a Research Advisor, there are two agreements that are required to be signed: The Thesis Development Protocol and the Student-Research Advisor Agreement (both of which are located in the shared Research Box folder (“Master of Genetic Counseling | Research”). Once the student’s Thesis Committee has been formed, a third agreement is required to be read and signed by each Committee Member (also located in the shared Research Box folder).

(Box → Master of Genetic Counseling | Research → Research Agreements)

### 3. Thesis Proposals

The student's final thesis proposal will be due at the end of the spring semester of the first year. See shared Box folder for the thesis proposal template and items to include. Please note that thesis proposals will include a student training plan section, which is outlined in the template. The shared Box folder also includes past thesis proposal presentations.

(Box → Master of Genetic Counseling | Research → Thesis Templates (Proposal + Presentation)

(Box → Master of Genetic Counseling | Research → Thesis Proposal Examples)

### 4. Thesis Proposal Presentation

- Each student will defend their thesis proposal to their thesis committee. These meetings are held on the 3rd Friday of May and the following Thursday of May with 4 students presenting each afternoon.
- Dates and times for student defense of their thesis proposal will be set by February 28th.
- Students will submit their written thesis proposals to their committee members one week prior to their proposal date.
- Thesis proposal presentations will last approximately 20 minutes with 10 minutes for questions/discussion.

Thesis Committee Members will provide feedback to the RRC by completing a REDCap form after the presentation. The RRC Member will compile feedback from the REDCap survey and provide this to the student within one week following their presentation.

The RRC will then make a recommendation to the Academic Progress and Promotions Committee (APPC) and the student will be cc'd on the email. The potential outcomes of the thesis proposal presentations are:

- Approved to proceed
- Approved to proceed following specific revisions
- Not approved - reschedule the meeting for a subsequent presentations following major revisions (This outcome is highly unlikely given the preparation throughout the first year - only in rare circumstances where the proposed research is at significant risk of not being feasible given time or cost constraints, or deemed to be unethical, etc)

Once an outcome has been determined, the student will then make a plan with their Research Advisor to address feedback and implement this into their final thesis proposal.



## 5. Student Training Plan

As a part of the thesis proposal, students should include a training plan including the following:

- At least 4 learning objectives for training
- A rough descriptor of the planned content
- A timeline for learning to be executed between May and September following acceptance of the student's thesis proposal by the Research Review Committee.

Possible training approaches include:

- a. Completion of courses and workshops offered at Vanderbilt, such as self-paced scientific writing  
(<https://medschool.vanderbilt.edu/bret/self-paced-scientific-writing-training/>)
- b. Completion of online coursework, such as:
  - Code Academy courses in coding (e.g. <https://www.codecademy.com/learn/learn-r>)
  - Coursera courses in survey research, qualitative data analysis (e.g. <https://www.coursera.org/specializations/data-collection>)
- c. A guided reading plan with your thesis advisor and committee members to develop critical thinking in your topic area and methodology:
  - Provide a list of references (text books and/or primary literature) that you will read and discuss with your mentor and/or committee members.
  - Each session may count towards 2 hours of learning time, 1 hour for preparation and follow up and 1 hour of meeting time.
- d. Attendance at seminars, lab meetings or conferences relevant to your topic.

Students can also mix and match models to create their own plan and innovate. The overall plan should amount to ~ 32 hours of active learning time. Courses taken as a part of the training plan may overlap with elective courses taken for credit, though are not required to do so.

Learning objectives should be written using Bloom's taxonomy -

[https://www.bu.edu/cme/forms/RSS\\_forms/tips\\_for\\_writing\\_objectives.pdf](https://www.bu.edu/cme/forms/RSS_forms/tips_for_writing_objectives.pdf)

All training plans must be approved by the student thesis advisor and RRC member. If you propose to take an online course, specific course websites must be reviewed by both the thesis advisor and committee chair to verify appropriateness of the content and qualifications of the educators leading the course.

All certificates of completion must be saved and submitted to their RRC member upon completion of the training plan. For guided readings, provide a summary of material covered, with attestation by the thesis advisor that readings were completed. RRC member will then notify the RRC Chair that the Student Training Plan is completed.

## 6. Time Commitment in Year Towards Research

During the **summer semester of year 2** the students initiate their student training plan. It is expected that, throughout the summer and second year of the program, students will devote approximately 10 hours of time per week to their thesis work, in accordance with the course credit allotted to them. This includes time spent on the training plan, as well as work on actual thesis progress.

Recognizing that there is also a heavy clinic load through this time, negotiations may need to occur between students and clinical supervisors to make sure time is protected. Ideally, students will discuss these obligations at the start of their rotations and work with thesis advisors, rotation supervisors and program faculty when additional help is needed to find a good balance.

A Student must be meeting expectations towards completion of their Student Training Plan to receive a passing grade for the research credits (GC7999) in the semester the work was assigned. If students are not meeting expectations they will receive a grade of incomplete or a fail depending on the determination of the Thesis Advisor's recommendation to the RRC Chair.

### August Year 2 | Student/RRC Member Meetings

All students will meet with their RRC member (Research Advisor attendance is optional) by August 15th. The purpose of this meeting is to discuss the student's thesis progress mid-training. Items to be addressed during this meeting include:

- Review of student training plan
- Thesis progress, including challenges, victories, etc.
- Review of budget if applicable
- Updated timeline for data collection, analyses, writing, etc.
- Any other issues

Students will receive an incomplete for their summer coursework if the following steps have not been taken prior to August 15th

- Meeting with RRC member
- Responses to any feedback received during the thesis proposal defense
- Submission of IRB materials (where applicable)
- Initiation of training plan (for class of 2024, beginning next year, training plan should be complete by Aug 15th)
- Completion of detailed timeline for completion of data collection

## 7. Grants/Funding

Funds in the amount of \$1,000 per student are distributed to each student in the Spring of their first year. If funding is required prior to the date the student may request from the Program Director early allocation of these funds. These funds are to be used for the student's project and travel related to research and training. A portion of the funds are expected to be used for travel related expenses for the NSGC Annual Conference in the fall of the second year. The student collaborates with his or her faculty RA and thesis committee to determine the most appropriate use of funding. Students are encouraged to apply for additional funding for research through grants offered by NSGC and other funding sources.

Students will also have the opportunity to apply for grants and funding. Common funding sources include:

- NSGC grants/funds - JEMF, SIG grants
- NIH - [https://grants.nih.gov/grants/guide/rfa-files/RFA-HG-20-049.html#\\_Section\\_II\\_Award\\_1](https://grants.nih.gov/grants/guide/rfa-files/RFA-HG-20-049.html#_Section_II_Award_1)
- NIH administrative supplements to thesis advisor awards: [Administrative Supplements | grants.nih.gov Resources](https://grants.nih.gov/Administrative_Supplements_Resources)

Several resources are available to students as they navigate the research process. Some of those include:

- Library (<http://www.library.vanderbilt.edu/biomedical/>)
  - All MGC students have access and privileges to the Vanderbilt University Jean and Alexander Heard Library System, a system of eight on-VU campus library buildings, including the Eskind Family Biomedical Library and Learning Center (EBL). Vanderbilt University's libraries are among the top research libraries in the nation, home to more than eight million items, including print publications, microfilm items, and digital collections.
  - EBL collects and provides access to materials to support the teaching, research, and service missions of Vanderbilt University and Vanderbilt University Medical Center. EBL's comprehensive biomedical and health sciences collection consists of 15,000 print volumes and more than 20,000 electronic databases, journals, and books. The Interlibrary Loan/Document Delivery service can assist with finding and acquiring items not available in the Vanderbilt Library collection. Research assistance and instruction for current students, staff, and faculty is available in-person, or electronically through Skype for Business.
  - Each student has access to numerous professional texts and journals through electronic Eskind Family Biomedical Library resources, a full Digital Library accessible with a VUNet ID and password, at <http://www.library.vanderbilt.edu/biomedical/>. These resources are accessible via the campus network, from workstations and circulating laptops in campus libraries, as well as via authenticated access (VUNetID and e-password) from off

campus. The library has wireless network access throughout the facility, 12 desktop computers, six laptops available for checkout, two multi-function printers, and 3-D printing.

- During the MGC program orientation students are provided training about how to access library physical and online resources. In addition, periodic training sessions for students and faculty members provide information about online research techniques to enable the fullest access to available resources.
- Vanderbilt Writing Studio ([www.vanderbilt.edu/writing](http://www.vanderbilt.edu/writing))

## 8. Final Thesis/Manuscript Approval

The graduation requirement is a written manuscript ready to be submitted to the Journal of Genetic Counseling or other appropriate journal. At a minimum, it must be formatted for the target journal, with all the parts/components to be published. Thesis committee members must approve the final written manuscript. Students are not required to give an oral presentation of their thesis to their thesis committee, though they may invite their committee members to the final presentations of the thesis projects held close to graduation (aka VUSM MGC Research Celebration held in April). It is strongly recommended that students submit an abstract of their thesis for presentation at the annual meeting of the National Society of Genetic Counselor or other appropriate scientific meeting.

Some students may choose to participate in collaborative publications in which their thesis is one component of a larger publication. In this case, they must contribute to each part of the manuscript, but it may be acceptable for them to submit a manuscript for graduation with intentional gaps indicating where content from outside of their thesis will be integrated, with content generated by others outside of their thesis project, and/or as a smaller manuscript targeted at a narrower journal audience that removes references to content generated by others. In the case where collaborators' content is included, it is important to both do so with permission of the collaborators and to acknowledge the source of that content to the committee at the time of submission such that there is no appearance of plagiarism or impropriety. Convention in the program is that Research Advisors will serve as the last author on all publications, with any committee members also being offered the opportunity for authorship. Corresponding authorship can be determined through discussions between the Student and the Research Advisor.

Standard practice is to offer authorship to all committee members on the resulting manuscript. Non-committee members may also be included if they make significant contributions to the student's work. The principles for defining authorship should follow the guidelines set forth by the International Committee of Medical Journal Editors (ICMJE) [ICMJE | Recommendations | Roles and Responsibilities of Authors, Contributors, Reviewers, Editors, Publishers, and Owners](#), or equivalent guidelines in related fields (e.g., sociology, education).

Authorship order should be discussed early and often with the thesis advisor, as authorship status can change as projects evolve and contributors differ. See also: [2003pdf12.pdf \(publicationethics.org\)](#).

Authorship decisions should also be made in accordance with all applicable VU and VUMC policies, as relevant. For instance, use of the biostatistics core may result in necessitating inclusion of statistical author(s), in accordance with policies set forth by the VUMC Department of Biostatistics: [ManuscriptPolicies < Main < Vanderbilt Biostatistics Wiki \(vumc.org\)](#)

**Suggestions for successful project management:**

- Scheduling regular meetings with your thesis advisor (biweekly is ideal)
- Determining your advisors preferred communication means (e.g., via email, slack, phone, utilizing an administrative assistant, etc).
- Discussing any additional funding availability or budget needs beyond the provided student funds
- Setting an agenda for each meeting and sending out prior to the meeting
- Reviewing your proposal during development with your thesis advisor, to ensure it can be feasibly completed as part of their research program
- Following up with notes or minutes from each meeting with action items highlighted, including tracking action items for the advisor
- Keeping track of your timeline and notifying advisors of any deviations from your expected timelines
- Reaching out for help when you need it