

Graduate Project

What is the MMS Graduate Project?

The Graduate Project is the capstone educational event for the program curriculum that allows the student to demonstrate his/her ability to research and compile information and to present that information in one of several formats: 1) **Oral presentation** to peers of an evidence-based analysis of available research on a clinical question; 2) a scholarly written **literature-review paper** suitable for publication in a peer-reviewed journal; or 3) a **poster presentation** suitable for submission to a professional meeting. With that in mind, the Graduate Project concentrates on good writing skills with an eye toward adding to the fund of knowledge of the profession.

The Graduate Project is designed to demonstrate what the student has learned in the program about clinical and administrative topics in medicine. Additionally the project's main focus is on demonstrating that understanding in writing. Literature-based research, in particular, is strongly encouraged. For the purpose of this project, "literature" is assumed to be journals (both peer-reviewed and other), texts, web-based, videos, interviews, conference proceedings, lecture notes, and other forms of communicated knowledge and information about a given subject.

Using the vast amount of medical literature available to the student, the project culminates in an **oral presentation**, a **poster presentation**, or a discussion or **review paper** based on a clinical or administrative topic about the practice of medicine. While significant latitude exists in the creation of this project, the topic must be approved by the student's project advisor in the early stages. To avoid wasted effort and time, it is recommended that all approvals be received prior to beginning a significant literature review.

Original research is defined as **compiling new data or old data in a new way** and is often the basis of the traditional master's thesis and scientific inquiry. Original research can either be subject-based (patient, human, or animal-based) or literature-based. Unlike the traditional master's thesis, **original research is NOT necessary for this project**. Such new research requires review by the Institutional Review Board (IRB) of NSU and coordination by the student's advisor. You are strongly encouraged to conduct literature-based research in an effort to create an evidenced-based review article. It can be a compilation of the conclusions of other authors.

Review: Some definitions for the purpose of this project:

- Original Research - Compilation of new data or existing study data in a new way. Original research is either: 1) subject-based or 2) literature-based.
 - Subject-based Original Research - Original research to obtain data using animal or human subjects. This type of research is covered by Institutional Review Board (IRB) rules and regulations at NSU. This type of research is permitted, but NOT suggested for the Graduate Project.
 - Literature-based "Original" Research - The use of published data in a new way. Example: Research locates raw data on the CDC web site related to

a disease entity. Analyze that data in a way CDC has not. This type of research is permitted and suggested for the Graduate Project.

- Literature-based "Review" Research - Extensive review of literature and information to create a comprehensive review of a given subject. This is not considered to be "original research" as we define it. **This type of research is permitted and suggested as an option for the Graduate Project.**

Registration - Project Course

The Graduate Project course number is **MMS 6500**. The course is valued at 3 credit hours and reflects approximately 200-400 hours of research, writing, and preparation. The student must register for this course, like any other course. The student may have the opportunity to start the preparation of the final product for the project in advance of registering for the course. We can and will assist the development of the project even if you are not registered for MMS 6500.

Prerequisite Courses

Two courses must be successfully completed before the student may register for the Graduate Project: *PAC 5412, Interpretation and Evaluation of Medical Literature*. This course help prepare students to learn and apply their knowledge to the project. This course also assists in further developing the topic and honing the skills necessary to successfully completing the Graduate Project.

The Project Advisor

The faculty advisor will be assigned as advisor for the project. The advisor informs and updates the Course Director and/or program of the student's progress and provides support and advice to the student. The Course Director and/or advisor help the student develop topics for the project and links the student with appropriate faculty members and resources to successfully complete the project. The faculty advisor will be responsible for evaluating the final project and submitting the grade to the Course Director.

The Process: Determine Topic, Select Journals and Submit Proposal

1. **Choose a topic** in clinical or administrative medicine that you are interested in. It can be ANY topic of your choosing and is not limited by the topical material covered in the program or in your experience. It is easier to achieve the goals of this project if the topic is of interest to you and you have access to information sources related to it. Ask your advisor for assistance and direction if necessary. Your advisor can help you hone your original concept into a project that is both reasonable to do in the time frame allocated, yet intellectually stimulating and rigorous.

The topic should be one that is helpful to the primary care clinician. If a specialty-based topic is selected, the writing should be educational for the primary care provider and NOT directed at the specialty medical or surgical clinician. Most importantly, choose a topic you are interested in learning more about. You may use previous submitted articles from elective courses or self-study as the "seed" for this more extensive final

project.

2. **Select journals or venues for submission:** You are strongly encouraged to submit a condensed version of your Graduate Project to a medical journal for review and possible publication. Publication is a great honor and contributes to the literature of your profession. Your challenge is to choose that journal in advance of writing. Choose the journal that interests you the most. This selection becomes important later. Your format will be graded partially against that standard. We recommend you read several review type articles in the journals of interest prior to your proposal submission. Alternate submission venues include poster presentations, conference presentations, and writing contests for students of allied health and medical sciences.

3. **Submit your proposal:** Your proposal is a written plan for your project that details the topic, methodology, and publication/distribution. Your proposal must be approved before embarking on your project. This protects you from pursuing a topic and format that would not be appropriate, or impossible to complete in the time allowed for the project.

You will **submit the project proposal online** by the end of your first End of Rotation (EOR). You will need your NSU login and password to do so. The proposal will include the following information:

- Date of proposal submission
- Full name as it will appear on the final project and as it appears in NSU registrar records
- NSU e-mail address
- Advisor's name
- Anticipated date of project completion (mm/dd/yyyy)
- Are you planning to submit to the PAEA Student Writing Competition?
- Would you consider co-authoring with your advisor?
- Are you planning to submit to a journal?
- Project title
- Brief description of your project
- Methodology for data collection
- Have you completed a literature search?
- How many references do you have?
- Are human or animal subjects involved?
- Will you be doing any medical chart review?
- Will you be doing any survey / questionnaire research?
- Will you be required to have IRB approval?
- What is your understanding of this project?

The key to proposal submission and some suggestions:

- **Avoid subject-based, original research (human and animal subjects) unless approved by advisor.** This process requires IRB approval. Subject-based research, while extremely important in concept, does not elevate the educational value of this project.
- **Avoid medical chart reviews** - IRB and privacy issues must be considered, and again, while an important type of research, it is NOT required for this project.
- **Avoid survey-based research of minors.**

- Focus on a clinical or medical administrative subject you enjoy or want to learn more about.
- Focus on literature-based (see above for definition) evidence and information. You may want to review the literature with NSU's many online database resources first to get your ideas.
- Attempt to solve a problem or discover new knowledge using the literature at hand.
- Use multiple forms of references (conference proceedings, clinical guidelines, association statements, text books, interviews, narratives, internet and digital media, films, news shows, and transcripts etc. etc.

4. **Discuss proposal with advisor as needed** and receive approval for topic and approach.

Literature Review Paper Option

The review paper should be a scholarly submission of the quality to warrant conference presentation or paper submission to a reputable peer review journal. This should be at least 20 pages in length, double spaced with 1 inch margins. Page numbering should begin on the Introduction page, NOT with the title page. Students are strongly encouraged to use a 12-point font (*preferably, Times New Roman*). Each draft submission will consist of the following:

- **Title Page:** The first page should be a title page. **Use this template** (*note: click on word template to access title page*).
- **Abstract:** *Tell what you are going to tell.* An abstract is a 75-100 word summary of the entire project, including conclusions. The reader should be able to ascertain the complete content of the project with the details from the abstract. The purpose of the project can easily be annotated in the abstract and expanded upon in the introduction.
- **Introduction:** An overview of the area covered in the paper. Discuss why it is important, the state of current knowledge, identifying any gaps in information (if any), and a clear statement of what you will show or how it is applicable to the reader. This section may include epidemiology and other global commentary about the subject area. It should describe the importance of the subject to the reader.
- **Methods:** Should fully describe the literature search, the bibliographic indexes and databases searched, limits on years, and search terms.
- **Body of the Review:** A complete discussion of the fine points of the issue, including all literature-based references. This section may include: etiology, pathogenesis, manifestations, diagnosis, treatment, and prognosis.
- **Conclusion:** Summary of reasons the topic is important, research concerns or issues for the future, and *tell them what you told them*. This section may begin with a brief recap of the key findings. Critique of the findings may also occur in this section.

- **References:** Listing of the texts, journals, conference proceedings, Internet sites, personal communication, and many other possible sources of information for your paper presentation.
- **Style:** The format for the review paper will coincide with standard medical literature consistent with the Journal of the AAPA, Clinician Reviews, or the Journal of the AMA. In most cases the references will be in keeping with AMA or [Uniform Requirements](#) for Manuscripts Submitted to Biomedical Journals. **You must have a minimum of 20 references for this review paper at least half of which must be peer-reviewed journals.**
- **Appendix:** The appendix is the information pieces referred to in the body of the project. Appendix can include figures, diagrams, pictures, and other such items. Appendix items are referred to in the body of the project in keeping with the style and format you have adopted.

NOTE: *The introduction, methods, body of the review, and conclusions sections should total no less than 20 double-spaced pages. A large portion of this will be literature review and discussion.*

Literature Review Paper Checklist

1. Review published information about the project. Clarify issues about the project with program.
2. Identify and meet with your project advisor.
3. Discuss potential topic, methodology, and publication with your advisor or course director.
4. Attain tentative verbal approval of topic, publication and methodology by advisor.
5. Gather the elements you'll need for the online project proposal form (as above).
6. Submit online project proposal. (see [Proposal Form](#))
7. IRB process forms submitted to college IRB member for review if necessary. (Exempt or Review?)
8. Receive project approval from your advisor.
9. Complete literature review. (This is the "guts" of the "research")
10. Provide frequent progress reports to advisor your advisor.
11. Make adjustments to methodology or subject suggested by your advisor.
12. Begin writing and editing.
13. Submit first draft of final project written, submitted and reviewed with advisor.
14. Continue writing and editing.
15. Complete final project with advisor and program input.
16. Prepare final, bound copies of project submitted for final grade to advisor. 3 copies: advisor, program, personal (your copy).
17. Consider submission to a peer-reviewed journal or other venue.

Note: *The **final approved and bound review paper** is due to the program office no later than **May 6, 2010.***

Oral Presentation Option

In consultation with their faculty advisor, students choosing this option will select an appropriate topic and within this topic area, they will formulate a specific and answerable clinical question that must be approved by their faculty advisor. This

question should be carefully and thoroughly researched to identify existing studies and data that would provide evidence upon which to answer the clinical question. The student will be expected to critically appraise the studies and determine their validity, reliability, etc... as it pertains to the clinical questions. At the conclusion, the student will be expected to provide a defensible answer for the question considered.

Students will then develop an **audio-visual presentation** designed to deliver their analysis of the chosen clinical question to their peers, typically done in Power-Point format. Because the amount of time allotted for the presentation is relatively brief (30 minute presentation and 5-10 minutes for questions), the topic must be rather narrow in its scope. These presentations will take place during the **EOR** meetings, at the annual **Program CME**, or at regional **FAPA CME** meetings.

The presentation must begin with a **clearly stated, answerable, clinical question**, and must utilize an evidence-based medicine approach to answer the question identified. It is important to include the purpose and rationale for selecting the topic (i.e., why is knowledge of this topic important and/or useful to clinical practice?), followed by a review of the important literature relevant to the topic. Important data relevant to the topic should be reviewed and discussed and the implications of the data for answering your clinical question presented. Students are expected to critically analyze the quality and clinical applicability of the available data on the topic.

The body of the presentation should include the following elements, where appropriate:

- A brief review of the historical background, pathophysiology and epidemiology of the medical problem related to the clinical question
- Pertinent information associated with the medical history and physical diagnosis (including the differential diagnoses) of the clinical problem associated with your clinical question
- Etiology, risk factors, a discussion of indications and contraindication of treatment (if the question pertains to therapy), and associated costs and strategies for patient counseling and/or education
- A thorough review and critical analysis of the best available evidence (data) pertinent to your clinical question
- The presentation should also identify any additional research that is needed to conclusively answer the question.
- Finally, a statement summarizing your conclusions (the take home message) should be presented.

The student will be expected to: (a) prepare one copy of a summary handout of the presentation and turn it in to your faculty advisor a minimum of 3 weeks in advance of your presentation (the handout may consist of a printout of your slides and it is used by the faculty in evaluating your project); (b) supply a list of the essential references (include in the handout); and (c) utilize audio-visual aids (typically a computer presentation program such as Power-Point) which will help the audience better understand and follow your presentation.

The primary objectives and organization of the presentation should follow these guidelines:

1. Define a specific clinical research question, preferably in primary care.

2. Complete a comprehensive review of the current literature to establish the current state of knowledge of your topic (using an evidence-based medicine approach).
3. State the purpose and importance of your topic to your peers.
4. Presentation of your topic:
 - Outline the important background information necessary to understand your topic
 - Summarize your findings from the existing data and answer the clinical question you have posed.
 - Include in your presentation comments concerning any identified limitations of the published studies you have reviewed and are presenting.
 - Present both the pros and cons (or strengths and weaknesses) of the studies that bear on the answer to your clinical question.
 - Propose additional studies that may either resolve conflicting information, or would provide crucial data for a better understanding of the topic area.
5. Summarize and state specific conclusions from your clinical question and highlight the "take-home message", i.e., what is clinically relevant?

Poster Presentation Option

Research in the biomedical sciences is commonly presented in the form of a poster with an accompanying abstract that is often published as part of the materials given out to attendees at a professional meeting. Besides a small-scale original research project, many other sorts of scholarly activities may be appropriate for presentation in poster format, including—but not limited to—**community service projects, patient- or provider-education projects, and evidence-based reviews of certain clinical topics**. For this project option, the student will be expected to work closely with their faculty advisor to choose a topic that is sufficiently focused and that is appropriate to the medium.

The poster itself usually consists of several large pieces of paper mounted on poster board, and displayed on an upright 4X6 or 4X8 foot bulletin board. It is static and visual in nature, well suited to displaying pictures, tables, graphs, flow-charts, etc. However, this format is not well suited for displaying large amounts of text. If posters are well organized, succinct, and easily readable, they can be a very useful tool for communicating the results of a project to peers, as well as a great way to generate active discussion of important topics. They also provide an opportunity to publish a very short article (the abstract).

Successful completion of this option for the project requires submission of the written abstract to a peer-reviewed process for presentation at a professional meeting. Meeting options would include the AAPA national meeting (usually in late May), the annual Physician Assistant Program CME (usually in March), and possibly the FAPA bi-annual CME meetings. The cost of poster construction, meeting attendance, and all associated travel costs are the responsibility of the student.

Abstract Guidelines

Abstracts should be succinct and informative, and should generally include the following sections:

- Purpose: brief statement explaining why the project was done. Limit to one or two sentences
 - Methods: brief explanation of how the project was done, including materials, methods, analytical procedures, patient populations, etc. as appropriate.
 - Results: brief overview of main findings, with sufficient detail to support your conclusions.
 - Conclusions: Author's opinion about the meaning or take-home message of the research study or other project being described.
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- Include a Title, which should be brief.
 - Capitalize the first letter of each word, except for prepositions.
 - No abbreviations.
 - Maximum length for the abstract is 500 words, not including the title and author information.
 - Font size must be no less than 10 point.
 - No references, tables, graphs, or other figures should be included in the abstract. Text only!

Note: *Students presenting posters to satisfy their Graduate Project requirement must have them approved by faculty advisor and printed **two (2) weeks prior to the "CMe at the Beach Annual Medical Review Conference.***

Graduate Project Timeline

It is strongly recommended that you follow the Graduate Project timeline to stay on track. Remember that faculty is busiest during the summer, which means much longer turn around time on your drafts. DO NOT wait. Finish your Graduate Project by the end of EOR #6.

The IRB - Institutional Review Board

Anyone, including students, who plan to gather data on human or animal subjects, must get approval, in advance, from the Institutional Review Board (IRB). The University is required by U. S. law to have such an approval process. The purpose of the law, in general, is to see that the research does no harm to the experiment subjects, either physical or mental. The Institutional Review Board requires the person proposing the research to submit information about the plans. Certain forms are used for submitting this information. Full information about the IRB can be viewed at:

<http://www.nova.edu/irb/>

Due to the limited time frame students are encouraged NOT to become involved in the IRB process. If no human or animal research is conducted (that includes medical record review, surveys, questionnaires etc.), then no IRB process is required. During the proposal process, the project course director or your advisor can assist you in determining whether your project requires IRB review. If it does, required forms must be submitted and approved PRIOR to starting the research and will delay the writing of your final project paper.

Grading the Graduate Project

The Graduate Project will be graded by the student's project advisor. The Project will be

graded as Pass or Fail, based on overall satisfactory or unsatisfactory grading of the components of the paper. Components of the grading criteria include:

Evaluation Criteria for Review paper:

- Has the student clearly stated an appropriate clinical topic to be covered by the clinical review paper?
- Has the student presented a current and accurate literature review of the topic and offered an appropriate rationale and purpose for the review?
- Did the student demonstrate an understanding of the topic and present an organized review of the area discussed?
- Has the student offered a critique of key articles, including limitations of the studies discussed in the paper?
- Have the pros and cons or conflicting reports associated with the topic/research question been presented where applicable?
- Are the conclusions offered in the paper supported, where applicable, by evidence published in the literature?
- Has the student adhered to the manuscript preparation requirements?

Evaluation Criteria for Oral Presentation:

- Has the student clearly stated the clinical or research question to be answered?
- Has the student presented a current and accurate literature review of the topic and offered an appropriate rationale and purpose for the review?
- Did the student demonstrate an understanding of the topic and present an organized review of the area discussed?
- Has the student offered a critique of key articles, including limitations of the studies discussed in the presentation?
- Have the pros and cons or conflicting reports associated with the topic/research question been presented?
- Were recommendations for additional research studies presented?
- Are the conclusions offered in the presentations supported by evidence published in the literature?

Important technical features of the presentation will include completeness and organization of the handout (for the faculty) and the audio-visual aids used for the presentation.

Evaluation Criteria for Poster Option:

- Are the topic, significance, and purpose of the poster clearly stated?
- Is the topic appropriate to the poster format?
- Is the abstract succinct and informative?
- Is the poster well organized, with clearly marked sections?
- Are the chosen methods appropriate to the topic?
- Are the results described effectively, and do they support the conclusion?
- Is the conclusion/summary reasonable and well supported?
- Are figures, tables, charts, etc. used effectively, and do they have appropriate captions?
- Did the student follow the abstract and poster guidelines carefully?
- Does the poster have good visual impact, and is it clear and legible to the

- observer?
- Was the abstract submitted to a professional organization through a peer-reviewed process, if indicated?

Plagiarism, Honor Code and Copyright

Plagiarism

1. a piece of writing that has been copied from someone else and is presented as being your own work
2. taking someone's words or ideas as if they were your own

Honor Code and Plagiarism:

The essence of the Student Code of Honor is very simple:

1. Do you own work, or
2. Suffer the consequences
(Referral to committee on student progress, possible course failure, program suspension or expulsion, etc.).

Plagiarism is a serious academic offense. It simply means, identify your source of information with a reference.

Copyright

The right of an author or his assignee, to print and publish his literary or artistic work, exclusively of all other persons. This right may be had in maps, charts, engravings, plays, and musical compositions, as well as in books, journals, photos, paintings, graphs and many other forms of original expression.

If you want to include any work created by another for a project (such as this one) that will be submitted for mass publication and distribution, you must obtain permission to use it FROM THE AUTHOR. It's very simple, simply write to the author or publisher of the material and ask to use it for "XYZ" purpose. You'll either get a yes or a no.

Summary

Writing acceptable and readable articles, papers, texts, and learning materials is central to the professional and intellectual development of a profession. Without the addition of contributions to the written materials of a profession, the profession will surely die. The Graduate Project is the first step in creating that recognition in our students and encouraging them to continue research, writing, and exploring content media long after leaving school. The Graduate Project is the final representation of student work and mastery of program content. The core concepts of ethics, research, epidemiology, and biostatistics are thus incorporated into the final project. The project must demonstrate the student's ability to project what he or she has learned in the program.

Helpful Online Resources

- [Institutional Review Board \(IRB\)](#)
- [JAMA Style Manual](#) (go through the HPD library, search JAMA)

- [Uniform Requirements for Manuscripts Submitted to Biomedical Journals](#)
- [Guides to AMA and ICMJE Styles](#)

References

Stuart, E.B. (1979). A manual for preparation of theses and dissertations for the school of engineering (4th ed.). Pittsburgh, PA: The University of Pittsburgh.

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