NOORDA COLLEGE
of OSTEOPATHIC MEDICINE

Student Research Handbook

(2025-2026)

Introduction and Purpose of Research

As you embark on your journey through medical school, we would like to emphasize the importance of research in your medical education, its impact on your future patients and its critical role in advancing our understanding of health, disease, and treatment options.

Engaging in research will provide you with a deeper understanding of the scientific process and evidence-based medicine and help you to evaluate new findings and their relevance to your patients. By developing a strong foundation in research, you can better appraise the quality of studies you read and effectively incorporate better treatments options for your patients.

Participating in research projects during your medical education will help you develop essential critical thinking and problem-solving skills. These abilities are not only vital for interpreting research findings but also for diagnosing and treating patients in your clinical practice. Research experience will also enhance your communication skills, as you will need to convey complex information to your colleagues, patients, and the broader scientific community.

Research will expose you to a diverse range of medical disciplines, fostering a spirit of collaboration and interdisciplinary understanding. This will enable you to appreciate the interconnectedness of various medical specialties and understand how they can work together to provide optimal patient care. This collaborative mindset is particularly important in the era of personalized / precision medicine, where tailoring treatments to individual patients requires a deep understanding of multiple disciplines.

Research can open doors for career development and opportunities. Many medical specialties highly value research experience, and it can be a deciding factor in residency and fellowship applications, especially when all other factors are considered equal. Additionally, research can lead to academic appointments, leadership positions within professional organizations, and opportunities to influence patient care around the world.

Finally, and most importantly, your engagement in research will ultimately benefit your future patients. By staying at the forefront of medical knowledge and incorporating evidence-based practices into your clinical decision-making, you will be providing the best possible care for your patients. This commitment to research and continuous learning will also serve as a positive example for your colleagues and the next generation of healthcare professionals.

We encourage you to seize the opportunities for research that are available during your medical education and to continue fostering a lifelong passion for discovery and learning.

Sincerely,

The Department of Research at the Noorda College of Osteopathic Medicine

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2025-2026 Academic Year Required Research Events

See your Research Foundations Course Materials for Exact Dates for Required Events

Faculty Research Presentations and Mentor Match (OMS I)
Research Seminars (OMS I and Research Track)
Noorda-COM Symposium (OMS I &II)
Research Foundations IV Capstone (OMS IV)
Research Track Begins (only those enrolled)

Student Research Requirements

Year 1 Research Requirements for Medical Students

Semester 1:

1. CITI Training Certification: Complete all CITI Core Training Certification Modules (see section "CITI Training Certificates"), which will provide you with the necessary knowledge and understanding of research ethics, regulations, and best practices.

2. Research Foundations I: Complete all modules given for the first semester through your research foundations course including assignment to a research lab. The modules will teach you the essentials of making observations in clinical practice and formulating testable hypotheses.

3. Research Speaker Series: Attend 3 of 4 scheduled research seminars. In person attendance is required for credit.

Semester 2:

All students must complete:

1. Research Foundations I: Complete all modules given for the second semester given through your research foundations course. These modules will teach you about IRBs and humans ethics in research, as well as the building blocks of research publications.

2. Research Engagement: Engage in research in targeted projects in the lab of your research mentor (see section "Selecting a Research Mentor"). This exposure to different research areas will help you refine your interests and develop expertise in your chosen field. Please note that research assignments may differ between research mentors. Satisfactory participation will be evaluated by your research mentor via end of semester evaluation (see section "Research Mentor Evaluations"). Fulfillment of research lab requirements is required for satisfactory completion of Research Foundations for the semester.

3. Research Speaker Series: Attend 3 of 4 scheduled research seminars. In person attendance is required for credit.

4. Abstract Submission and Presentation: Submit an abstract and present your research findings at the May Noorda-COM Symposium. This event allows you to showcase your work, gain valuable feedback from peers and faculty, and learn about the research being conducted by other students.

Year 2 Research Requirements for Medical Students

Semester 1:

All students must complete:

1. Research Foundations II: Complete all modules given for the first semester, second year through your research foundations course. These modules will teach you the essentials of clinical research and data gathering.

2. Research Engagement: Engage in research in your mentored lab. This ongoing commitment to research will allow you to deepen your understanding of your chosen field, refine your research skills, and contribute to the advancement of medical knowledge. Please note that research assignments may differ between research mentors. Satisfactory participation will be evaluated by your research mentor via end of semester evaluation (see section "Research Mentor Evaluations"). Fulfillment of research lab requirements is required for satisfactory completion of Research Foundations for the semester.

Semester 2:

All students must complete:

1. Research Foundations II: Complete all modules given for the first semester, second year through your research foundations course. These modules will teach you the essentials of gathering data from clinical practice.

2. Research Engagement: Continue to engage in research in your research lab. This sustained involvement in research projects will help you build a strong foundation for your future career as a physician-scientist or a clinician with a commitment to evidence-based medicine. Please note that research assignments may differ between research mentors. Satisfactory participation will be evaluated by your research mentor via end of semester evaluation (see section "Research Mentor Evaluations").Fulfillment of research lab requirements is required for satisfactory completion of Research Foundations for the semester.

3. Abstract Submission and Presentation: Submit an abstract and present your research findings at the May Noorda-COM Symposium. This event allows you to showcase your work, gain valuable feedback from peers and faculty, and learn about the research being conducted by other students in different stages of their medical education. Some students will not have research to present or will be asked by their mentor to forgo this requirement; this is permitted as determined by your research mentor.

By meeting these research requirements during your second year, you will continue to develop essential research skills, foster a spirit of inquiry, and make meaningful contributions to the medical community. Your ongoing commitment to research will not only benefit your medical education but also have a lasting impact on your future patients and the broader field of medicine.

Year 3 Research Requirements for Medical Students

As you enter the clinical phase of your medical education at Noorda College of Osteopathic Medicine, the focus of your research shifts towards applying the knowledge and skills you have gained during your preclinical years to real-world clinical scenarios. In Year 3, the research requirements emphasize the importance of integrating research and clinical practice, encouraging you to reflect on and learn from the cases you encounter during your clerkship experiences. Here is an overview of the research requirements for Year 3:

All students must complete:

1. Research Foundations III: Complete all modules given for the third year. These modules will teach you how to prepare and present case reports. The course involves the following:

    a. Case Study Preparation and Writing: During your third year, you are required to prepare, write, and present at least two case studies based on cases you directly or indirectly encounter while on your clerkship experiences. These case studies should be well-researched, clearly written, and include a thorough analysis of the clinical presentation, diagnostic process, management, and outcomes of the patient. Students have the flexibility to present their case studies during 3rd or 4th year. These presentations will be completed virtually.

You may optionally complete:

2. Abstract Submission and Presentation (Optional): Submit an abstract and present your research findings at the May Noorda-COM Symposium. This event allows you to showcase your work, gain valuable feedback from peers and faculty, and learn about the research being conducted by other students in different stages of their medical education.

The process of preparing and writing case studies will help you develop essential skills for lifelong learning, critical thinking, and evidence-based practice. By analyzing and reflecting on the cases you encounter, you will gain a deeper understanding of the complexities of patient care and the importance of staying informed about the latest medical research.

To ensure the quality and relevance of your case studies, be sure to collaborate with your clerkship preceptors and research mentors. Their guidance and feedback will be invaluable in helping you to identify suitable cases, access relevant literature, and refine your case study write-ups.

By fulfilling these research requirements in your third year, you will continue to advance your medical knowledge, hone your research skills, and contribute to the medical community's understanding of various clinical scenarios. This ongoing commitment to research and learning

will ultimately help you provide the best possible care for your future patients and stay abreast of advances in medicine throughout your career.

Year 4 Research Requirements for Medical Students

As you enter the final year of your medical education at Noorda College of Osteopathic Medicine, it is time to reflect on your research journey and prepare for your capstone experience. This represents the culmination of your research efforts throughout your medical school experience.

Here is an overview of the research requirements for Year 4:

1. Research Capstone: Towards the end of your 4th year, you will complete the requirements for the Research Foundations IV course. This course will include speakers that present to you relevant topics in clinical research. Additionally, you will engage in a one-day clinical research workshop designed to prepare you for the research and scholarly activity that will be required of you during your residency and set the stage for your future clinical practice.

2. RF 301 Completion: Any case studies not completed during 3rd year must be completed before the end of fall semester of your fourth year.

Academic Eligibility for Active Research:

Students may not be eligible for active research participation due to academic performance. This will be a decision made by the research department. Affected students and their mentors will be notified accordingly. These students still be a member of their assigned research lab and are required to follow the content of research foundations and complete required modules.

Any student concerned about their eligibility, may schedule a meeting with the research department to discuss their involvement in research or redress after academic standing is adequately revised.

Selection of a Research Mentor

In September, Noorda College of Osteopathic Medicine (Noorda-COM) will hold a series of faculty research presentations. This event provides an opportunity for faculty members to showcase their ongoing research projects and give insights into the activities within their labs.

After the presentations, first year students will have the opportunity to express their interest in their top choices for research mentors. The selection process is designed to match students with mentors based on several factors. These include the student's expressed interest, residency goals, available space in laboratories, academic eligibility, and funding.

The mentor-student matching process is carefully designed to ensure that both students and mentors benefit from the partnership. Students are encouraged to consider their future career goals and how the mentor's research aligns with these aspirations when indicating their preferences.

Within two weeks of the faculty research presentations and student interest submissions, the results of the matching process will be announced. Students and mentors will be notified of their matches, allowing them to begin planning their research endeavors for the academic year.

The selection of a research mentor is a significant step in a student's medical education journey. A well-matched mentor can provide invaluable guidance, support, and inspiration, fostering a productive and enriching research experience for the student.

Multiple Projects and Cross-Laboratory Collaboration

At Noorda College of Osteopathic Medicine, we greatly value and encourage cross-laboratory collaboration and participation in multiple research projects. Our goal in assigning students to specific research labs is not to limit their experiences, but to provide a home base for their research efforts while also allowing for exploration of other interests. Engaging in additional projects, whether within another lab at Noorda-COM or externally, can provide unique learning experiences, broaden research perspectives, and foster a dynamic environment of scientific collaboration.

However, students considering cross-laboratory collaboration or multiple projects should keep the following considerations in mind:

1. Balance: Striking the right balance between research activities and academic responsibilities is essential. While research is a valuable part of your medical education, it should not come at the expense of your other coursework. Ensure you manage your time effectively to maintain your academic performance while participating in research.

2. Communication: Open and regular communication with your primary research mentor is critical. If you are engaged in other projects, ensure you keep your mentor informed. This will help manage expectations and prevent any misunderstandings about your commitment to the primary research lab.

3. Commitment: While pursuing additional research opportunities, remember your obligations to your assigned lab. Your commitment to this lab should not be compromised by other projects. Fulfilling your responsibilities to your primary lab is a professional obligation and a vital part of your research training.

The potential to collaborate across laboratories and projects can significantly enhance your research skills and expand your professional network. However, it should be approached with a clear understanding of the commitments it entails and the need for strong time management and communication skills.

Changing Primary Research Mentor

Changing a primary research mentor is generally not needed because of the ease of cross-laboratory collaboration. However, we understand that there may be extreme circumstances where a student might consider switching their primary research mentor. This decision should

not be taken lightly and should be based on careful thought and consultation. It is also important to remember that such changes can have significant implications for the student's research trajectory, the dynamics within labs, and the ongoing projects within the original and proposed labs.

In case a student feels the need to switch their primary research mentor, the following procedures should be followed:

1. Discussion with Current Mentor: The student should initiate a conversation with their current primary research mentor. During this discussion, the student should explain their reasons for wishing to switch labs and seek the mentor's approval. This step is important to maintain transparency and professionalism.

2. Approval from Proposed Mentor: If the current mentor agrees, the student should then approach the proposed new research mentor, explain the situation, and seek their acceptance to take on the new role. The proposed mentor should be fully aware of the student's current status, future goals, and the reason for the switch.

3. Formal Request: Upon obtaining approvals from both mentors, the student should send an official request email to the Associate Dean for Research. This email should outline the reasons for the request, and both the current and proposed mentors should be cc'd. This formality ensures that all parties involved are aware of the change and have given their approval.

Please note that such a change should be considered an exception rather than the norm. Switching laboratories can disrupt the continuity of your research and may cause unintended complications. It is recommended that students thoroughly discuss any concerns or issues with their current research mentor before deciding to switch labs.

Research Mentor Evaluations

Students will be evaluated by their research mentor each semester as a part of Research Foundations. The research mentor will be asked to evaluate whether the student has demonstrated satisfactory involvement in research, considering the specific circumstances of the lab, mentor, and student. This is meant to be a collaborative checkpoint for each student and mentor.

Students who do not fulfill their research obligations for a semester will be referred to the Professionalism, Academics and Clinical Committee (PACC) for a professionalism review. Further, participation in your research lab is required for satisfactory completion of Research Foundation courses.

Please note: Regular communication between students and mentors is crucial. If any issues arise during the semester, students should not hesitate to communicate with their research mentor promptly. Waiting until the end of the semester to explain a lack of participation is not a wise course of action and could lead to a professionalism concern. Always maintain open and timely communication to ensure a smooth and productive research experience.

Guidelines for Professionalism in Research

At Noorda College of Osteopathic Medicine, we strive to maintain a high level of professionalism in all research-related activities, including laboratory work, symposiums, presentations, and case study discussions. As future physicians, it is crucial for medical students to demonstrate a professional demeanor not only in clinical settings but also in academic and research environments. Adhering to appropriate dress codes and exhibiting professional behavior are essential aspects of this commitment.

Here are some guidelines for maintaining professionalism in research events and laboratory settings:

1. Dress Code for Research Events: Dress appropriately for research events by adhering to a "business casual" or "professional" dress code. White coats are also acceptable but not required. Refrain from wearing casual attire, such as jeans, shorts, t-shirts, athletic wear, or flip-flops.

2. Dress Code for Laboratory Settings: When working in a laboratory setting, prioritize safety and adhere to the specific dress code requirements of the lab. This generally includes wearing long pants, closed-toe shoes, and a lab coat. Additionally, you may be required to wear gloves, goggles, or other personal protective equipment (PPE) as needed. Always follow the laboratory's guidelines to ensure a safe and professional environment. Always maintain proper grooming standards such that you do not compromise lab safety.

3. Professional Behavior: Exhibit professionalism by being punctual, prepared, and engaged during research events and laboratory sessions. Show respect to your peers, faculty, and guest speakers by actively participating in discussions, asking thoughtful questions, and providing constructive feedback. Maintain a positive and collaborative attitude and be open to learning from the experiences and expertise of others.

4. Electronic Device Etiquette: Be mindful of your use of electronic devices during research events and laboratory sessions. Silence your cell phone and refrain from using it for non-essential purposes during presentations and discussions. When using a laptop or tablet, ensure it is for note-taking or relevant research purposes only.

5. Laboratory Safety and Reporting: Safety is an important aspect of all research. Link to Noorda-COM Biosafety Manual. Some aspects of safety are great enough that they have received dedicated sections within the handbook.

    a. Training: CITI training will be used for safety training. Training may be unique to laboratories so your research mentor will provide you with the information on which CITI courses will be required for your laboratory. See section the section titled “CITI Training Certificates” for further information.
    b. Exposure and Incident Prevention: The institutional biosafety committee (IBC) maintains policies to help prevent risk of exposures or incidents. All Noorda-COM

approved laboratory space has been approved by the IBC, and laboratory protocols must be approved by the IBC before individual groups are allowed to proceed with experimentation. Forms detailing the control of exposure to bloodborne pathogens, potentially hazardous chemicals, microorganisms or other biohazards can be found in the IBC Forms folder. These forms are reviewed and updated regularly by the IBC.

c. Exposure and Incident Procedures Reporting: If an exposure or incident occurs, immediately follow the protocols outlined for the given exposure that you covered in CITI training. Within 24 hours, report the incident to your mentor, who will file the appropriate incident report. Incident report forms are found in the IBC Forms folder.

6. Laboratory Cleanup: Take pride in your laboratory and remember that others will use the laboratory shortly after you do. Please be sure to clean up your lab space prior to your departure.

7. Device Damage: Although proper device and supply usage will generally not provide any negative consequences. Accidents may occur. When an accident occurs, please immediately alert your research mentor and/or laboratory manager. Do not try to "fix" a broken device as this could result in personal harm and/or additional device damage. Please remember personal safety first.

By adhering to these guidelines, you will demonstrate your commitment to professionalism and contribute to a positive, respectful, and collaborative research environment. This approach will not only benefit your own learning experience but also reflect well on Noorda College of Osteopathic Medicine as a whole.

Respect for Faculty and Staff

At Noorda College of Osteopathic Medicine, fostering a respectful and inclusive environment is of utmost importance. As future physicians, it is essential for medical students to cultivate and maintain professional relationships with faculty, staff, and their peers.

Here are some guidelines to promote respect for faculty and staff:

1. Communication: Maintain open, honest, and respectful communication with faculty and staff. Address them using appropriate titles (e.g., Dr., Professor) and express your thoughts or concerns in a clear and courteous manner. Be receptive to feedback and be open to engaging in constructive dialogue.

2. Active Listening: Demonstrate your commitment to learning by actively listening to faculty and staff during lectures, presentations, or discussions. This includes taking notes, asking relevant questions, and providing thoughtful feedback when appropriate.

3. Time Management: Respect the time and efforts of faculty and staff by being punctual for classes, meetings, and research sessions. Submit assignments and complete tasks on time and notify the appropriate individuals in advance if you are unable to attend or need an extension.

4. Professional Behavior: Uphold a high standard of professionalism in all interactions with faculty and staff, whether in person, via email, or on social media. Be aware of your tone, language, and non-verbal cues, and always maintain a respectful demeanor.

5. Support and Collaboration: Foster a supportive and collaborative atmosphere by being open to the perspectives of faculty, staff, and your peers. Recognize and appreciate the diverse backgrounds, expertise, and contributions of everyone involved in your medical education.

6. Confidentiality and Privacy: Respect the privacy and confidentiality of faculty and staff by not sharing their personal information without permission or discussing sensitive matters inappropriately.

7. Gratitude and Appreciation: Express your gratitude and appreciation for the efforts, guidance, and support provided by faculty and staff throughout your medical education. A simple thank-you or acknowledgment of their hard work can go a long way in promoting a positive and respectful environment.

By adhering to these guidelines, you will contribute to a culture of respect and professionalism at Noorda College of Osteopathic Medicine. As future physicians, cultivating respectful relationships with faculty and staff will not only enhance your learning experience but also prepare you for maintaining professional relationships throughout your medical career.

Faculty Research Mentor Responsibilities

Faculty research mentors play a critical role in guiding and supporting medical students in their research endeavors. The following are some key responsibilities that faculty research mentors should fulfill:

1. Meeting Frequency: Mentors should meet with students at a frequency appropriate to ensure that students have a research plan aligned with their future goals for residency. Regular meetings help students stay on track and address any challenges or concerns that may arise.

2. Deadlines and Communication: Mentors should ensure that students are aware of and informed about upcoming deadlines related to their research responsibilities including abstract and poster deadlines, research hours and events. Clear communication is essential for students to effectively manage their time and prioritize tasks.

3. Project Guidance: Mentors should provide guidance to students about the direction of their projects, offering expertise and insight to help students make informed decisions about their research.

4. Compliance and Applications: Faculty mentors are responsible for submitting IRB, IBC, and IACUC applications in a timely manner and engaging in correspondence with the committees. Students may assist in the preparation of these applications, but the primary responsibility lies with the mentor.

5. Balancing Hours and Goals: Mentors should provide guidance about the number of hours a student should work to achieve their residency and research goals. To this end, the student and

mentor should consider life situations, residency goals, academic preparation, and board preparation. Students wishing to match to more competitive residency programs may need to complete many more hours of research than those required. However, they should not prioritize excess hours over coursework.

6. Research Mentor Evaluations: Mentors should, however they see appropriate, complete reports for each student at the end of the semester to notify the research department of their satisfactory or unsatisfactory participation in the research lab. They should look to discuss hallmarks of participation, teamwork with other students, reliability, and communication with their students, and make their evaluation with these tenants in mind.

By fulfilling these responsibilities, faculty research mentors can help students maximize their research experiences and lay the foundation for successful careers in medicine.

External Projects

At Noorda-COM, we believe that engaging in research collaborations outside our institution can offer students a wider perspective, diverse experiences, and invaluable networking opportunities. These projects can provide unique insights and enhance your research skills, thereby enriching your medical education and future career. They may involve initiating new work, continuing projects from previous institutions, or collaborating with partners introduced by your mentor.

However, when participating in external research projects, students must remember that they are ambassadors for Noorda-COM, and our standards for research and professional behavior extend to all such engagements. This includes adherence to our policies related to the Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), and Institutional Biosafety Committee (IBC).

Students are encouraged to pursue external research opportunities with the following guidelines:

1. Proposal Submission: Students must fill out the External Projects Request Form, outlining the nature of the project, the proposed plan of work, and the parties involved. This proposal should be submitted for review to the Associate Dean for Research. The link can be found here: Link to External Project Request Form

2. Ethics Approval: Along with the proposal, students should also provide documentation indicating the ethics approval of the project. This step is crucial to ensure the proposed research aligns with the ethical standards set by Noorda-COM and the broader scientific community.

3. Noorda-COM Mentor Involvement: Every external project should have a Noorda-COM member acting as a mentor. This could be the student's primary research mentor or another faculty member approved by the primary mentor. The mentor's involvement may vary, but they should, at the very least, maintain regular communication with the student about the project's progress.

4. Review and Approval: The Associate Dean for Research (or other faculty member designated by the Associate Dean for Research) will review the proposal and, if it complies with Noorda-COM's research practices, grant approval for the external project.

We aim to facilitate this process and ensure a smooth transition for students participating in external research projects. However, we also emphasize the importance of maintaining our high standards of research integrity and professionalism in all endeavors, whether internal or external.

Noorda-COM Symposium

The Noorda-COM Symposium is an annual event held every May to celebrate and showcase the research accomplishments of our medical students. This intercollegiate symposium invites students from various institutions to present their research findings in the fields of clinical medicine, medical education, and basic science.

As a student of Noorda College of Osteopathic Medicine, you are required to submit your research and present it at the symposium (OMS I only, OMS II requirement determined by research mentor). We are proud to accept all student abstracts for presentation as posters. This provides an opportunity for every student to share their work with peers, faculty, and other professionals in the field. Poster presentations offer a unique format for interactive discussions and networking, allowing presenters to engage with attendees and receive valuable feedback on their research.

In addition to poster presentations, a select number of outstanding projects will be chosen for the prestigious podium presentations. These presentations represent the highest level of achievement in research and are reserved for those projects that demonstrate exceptional quality, innovation, and potential impact on the field. Being selected for a podium presentation is a significant honor and provides an excellent opportunity for students to showcase their work in a more formal setting.

The Noorda-COM Symposium covers a wide range of research topics, including clinical studies, educational research, and basic science investigations. This diversity ensures that attendees will be exposed to the latest advancements and insights in various areas of medicine. The symposium also fosters interdisciplinary collaboration and encourages the exchange of ideas between researchers from different fields.

To participate in the Noorda-COM Symposium, you will need to submit your abstract by the specified deadline. Detailed guidelines for abstract submission, including formatting requirements and submission instructions, will be provided separately. Please ensure that you adhere to these guidelines to ensure a smooth review process and successful presentation.

In preparation for the symposium, we encourage you to take advantage of the resources and support available at our institution. This may include attending workshops on research presentation skills, seeking feedback from faculty mentors, and practicing your presentation with peers. By investing time and effort in your preparation, you will be better equipped to deliver a compelling and impactful presentation at the symposium.

We look forward to your participation in the Noorda-COM Symposium and celebrating your research accomplishments alongside your fellow students and colleagues from other institutions. This event is an excellent opportunity to share your work, learn from others, and develop valuable skills that will benefit you throughout your medical career.

Attendance at Required Research Events

Attendance at required research events is an essential part of the academic and professional expectations for all students at Noorda-COM. These events, as outlined in this handbook, not only offer enriching learning experiences but also provide opportunities to showcase your research, network with peers and faculty, and stay informed about ongoing research projects in the community.

Importance of Attendance: Consistent attendance at these events is crucial. Missing these events can place an unfair burden on your peers, faculty, and staff, and potentially disrupt the overall flow and success of these events. Additionally, attendance at these events contributes to your professional development and understanding of the latest developments in the field of medical research.

Unavoidable Absences: We understand that unforeseen circumstances may arise that prevent attendance. In such cases, prior approval must be sought and granted to excuse an absence. The approval form and policies regarding acceptable reasons for missing a required event can be found here: Link to Excused Absence Request

Consequences of Unexcused Absences: Please be aware that unexcused absences from required research events will result in a recommendation to the Professionalism, Academics and Clinical Committee (PACC) for review. This could have implications for your academic standing, so it's crucial to prioritize these events and communicate effectively if issues arise.

Poster Printing at Noorda-COM

At Noorda College of Osteopathic Medicine, we understand the importance of presenting research findings in a professional and visually appealing manner. To support our students and faculty in their research endeavors, we are pleased to offer in-house poster printing services for large scientific posters.

Our state-of-the-art printers and resources allow us to create high-quality, professional posters that effectively communicate your research findings and capture the attention of your audience. This service is provided free of charge to all Noorda-COM students and faculty, ensuring that everyone has access to the tools needed to present their work in the best possible light.

To ensure that your poster is printed in a timely manner and meets your expectations, please adhere to the following guidelines:

1. Poster Submission Deadline: Posters must be submitted **at least two weeks** prior to the date the poster will be needed. This allows sufficient time for the printing process and ensures that any unforeseen issues can be addressed without delaying your presentation.

2. File Format: Submit your poster design as a high-resolution PDF file. This format ensures the best print quality and prevents any formatting issues that may arise with other file types. You can find a link for templates of approved poster designs and how to videos here: Link to Templates

3. Poster Dimensions: Make sure your poster dimensions are consistent with the requirements for your specific presentation or conference. If you are unsure of the required dimensions, consult the event guidelines or contact the event organizer for clarification. Of note, the large printing service for Noorda COM typically can print posters a maximum of 36x48 inches. This will be the dimensions of the posters used for symposiums. If you are traveling to an external conference that allows for larger posters, you may need to either downsize your poster to 36x48 inches or print the poster externally.

4. Proofread and Review: Before submitting your poster for printing, thoroughly proofread your content and double-check your design for any errors or inconsistencies. This will help minimize the need for last-minute changes and ensure that your poster looks polished and professional.

5. Submission Process: To submit your poster for printing, submit your file here: Link to Submit Posters for Printing

By following these guidelines and taking advantage of the poster printing services available at Noorda-COM, you can present your research in a visually engaging and professional manner. Students are permitted to print posters externally, outside of the prescribed internal process at their own cost. Posters printed externally must still comply with Noorda-COM poster guidelines.

Student Travel Grants

At Noorda-COM, there are a limited number of student travel grants available to students each year. Students should first seek funding help from their research mentor prior to applying for institutional funds. Faculty mentors that have internal grant allocations should use those funds first before submitting student travel grant requests. To request student travel funds, please follow the steps outlined below:

1. Determine Eligibility: Ensure that you meet the eligibility criteria for receiving travel funds. This typically includes being an active medical student in good academic standing and having a research project or presentation accepted at the event. Students should not submit funding requests for the same paper.

2. Complete the Application Form: Obtain and complete the Student Travel Funds Request Form, which is available through the college's website or research office. Be sure to provide accurate and detailed information regarding the event, your role in it, and the anticipated expenses. The application can be found here: Link to Student Travel Request

3. Obtain Supporting Documentation: Gather any required supporting documentation, such as a letter of acceptance for your presentation or poster, event registration confirmation, and cost estimates for travel, accommodations, and registration fees.

4. Obtain Approval from Research Mentor or Faculty Advisor: Discuss your plans and the travel funding request with your research mentor or faculty advisor. Their approval and signature will be required on the application form.

5. Submit the Application: Submit the completed application form and supporting documents to the appropriate office or committee responsible for evaluating travel funding requests. Be sure to adhere to any specific submission guidelines and deadlines.

6. Await the Decision: Allow ample time for the evaluation of your application. Decisions regarding funding are typically based on factors such as the significance of the event, the relevance of your research, and the availability of funds. You will be notified of the decision via email or other official communication. Although we will try to accommodate as many requests as possible, there may be instances where part or all of your request is denied.

7. If Approved, Follow Reimbursement Procedures: If your travel funding request is approved, be sure to keep all receipts and follow the college's reimbursement procedures to receive your allocated funds. This includes submitting receipts at this link Travel Receipt Submission Link , a post-event report, and a photo documenting your participation. Receipts, photos, and post-event report must be submitted **within ten days** of your return from the event.

Remember that receiving travel funds is a privilege and an opportunity to represent Noorda College of Osteopathic Medicine at professional events. Always maintain a high level of professionalism, respect, and integrity when attending these events, and express gratitude for the support you have received.

Case Studies

Guidelines for Publishing Case Studies

Obtaining Consent

1. Explanation of the Case Study: Clearly explain the purpose, scope, and nature of the case study to the patient. Ensure they understand what information will be used and how it will be presented.

2. Discussion of Confidentiality: Assure the patient that their identity will be protected and any identifying information will be altered or removed.

3. Voluntary Participation: Emphasize that participation is completely voluntary and that they can withdraw their consent at any time without any consequences to their medical care.

4. Questions and Clarifications: Allow the patient to ask questions and provide clear, understandable answers. Ensure they fully understand what they are consenting to.

5. Documentation of Consent: Have a written consent form that the patient can sign. This form should be stored securely. Here are Noorda COM's approved consent and HIPAA release forms that a patients should sign Noorda HIPAA Release Form and Case Report Consent Form.

6. Copy to Patient: Provide the patient with a copy of the signed consent form for their records.

7. Clinic Procedures: The attending physician (if there is one) should give consent to the gathering of data and all facility procedures should be strictly followed. Ensuring compliance to clinic guidelines is the sole responsibility of the research group.

Ensuring Confidentiality

1. De-identification of Data: Remove or alter personal identifiers such as names, addresses, contact information, and social security numbers. Use pseudonyms or anonymize data where necessary.

2. Data Handling and Access Controls: Store patient information in secure, encrypted databases. Limit access to the data to authorized personnel only. Implement strong password policies and two-factor authentication for systems containing sensitive data.

3. Secure Communication: Use secure, encrypted channels for transmitting patient information. Avoid discussing confidential information in public or unsecured forums.

4. Training and Awareness: Train all team members involved in the case study on confidentiality and privacy protocols. Regularly update the team on any changes in data protection laws and best practices.

5. Compliance with Privacy Laws: Ensure all procedures comply with relevant privacy laws and regulations, such as HIPAA in the United States. Stay informed about changes in privacy legislation and adjust practices accordingly.

6. Regular Audits and Monitoring: Conduct regular audits to ensure compliance with confidentiality protocols. Monitor data access logs to detect any unauthorized access or breaches.

7. Data Minimization: Collect only the information that is absolutely necessary for the case study. Avoid excessive collection or retention of patient data.

8. Secure Disposal of Data: Once the case study is completed, securely dispose of any unnecessary patient data. Use methods such as digital wiping or physical destruction of paper records.

10. Patient Review: If possible, allow the patient to review the final case study to ensure their information is accurately and appropriately used.

Patient consent should be obtained and kept on file by the research group prior to the presentation of the case reports from real patients. Consent forms should be available for institutional review upon request. By rigorously following these steps, the integrity and confidentiality of patient information can be maintained, ensuring ethical and legal compliance in the creation of the case study.

Cases to be published in peer-reviewed journals should follow the editorial and ethical guidelines established the editorial board of the journal.

CITI Training Certifications

The Collaborative Institutional Training Initiative (CITI) Program is a vital part of research education, providing essential training in ethically responsible research practices. As a medical student at Noorda-COM, you are required to complete several CITI courses during your first semester, including:

- Biomedical Responsible Conduct of Research
- Research Study Design (RSD)
- Conflicts of Interest

These courses provide a foundational understanding of the ethical considerations and practical necessities involved in conducting research.

In addition to these core courses, the nature of your research may require further specialized CITI training. Depending on the specific focus of your research, you might need to complete some of the following series:

Clinical Track CITI Courses-Human Subjects Research

- CITI Good Clinical Practice Course
- CITI Health Information Privacy and Security (HIPS) for Clinical Investigators
- GCP – Social and Behavioral Research Best Practices for Clinical Research
- Revised Common Rule
- Social, Behavioral & Educational Researchers - Basic/Refresher (Recommended if pertinent to project, at Faculty Discretion)
- Public Health Research (Recommended if pertinent to project, at Faculty Discretion)

Biomedical Track CITI Courses

- Biomedical Research (Human Subjects)
- Data or Specimens Only Research
- Revised Common Rule
- Social, Behavioral & Educational Researchers - Basic/Refresher (Recommended if pertinent to project, at Faculty Discretion)
- Public Health Research (Recommended if pertinent to project, at Faculty Discretion)
- Biomedical Investigators - Basic/Refresher (Recommended if pertinent to project, at Faculty Discretion)

Your research mentor and/or collaborating institution (if applicable) can guide you regarding the additional courses you should complete based on the specifics of your research project. Ensuring you are fully trained and knowledgeable in your area of research will help maintain the high ethical and practical standards we strive for at Noorda-COM. You can find a simple how to get

started guide and more detailed instruction here: Link to How to Get Started Guide for CITI Training. More instructions are also found on your canvas course.

Working in Affiliate Laboratories

Affiliate laboratories provide valuable collaborative opportunities for students to engage in diverse research endeavors. As members of the Noorda-COM community, students are expected to respect and adhere to the specific guidelines and Standard Operating Procedures (SOPs) of each affiliate laboratory.

When working in an affiliate laboratory, it's important to remember that WE ARE GUESTS and COLLABORATORS. This perspective informs our behavior and attitudes, promoting mutual respect and cooperation. Here are some guidelines to keep in mind:

1. Understand and follow established SOPs: Before starting work in any laboratory, familiarize yourself with their specific SOPs. These documents contain crucial information about safety procedures, equipment use, and data management. Adherence to these SOPs is critical for maintaining a safe and productive working environment.

2. Maintain Professionalism: As a representative of Noorda-COM, you're expected to always uphold the highest standards of professionalism. This includes respectful communication, punctuality, responsibility, and ethical conduct.

3. Contribute Positively: Our aim is to contribute more than we take in our collaborations. This might include sharing our own expertise, volunteering for tasks, helping others, and generally fostering a positive and collaborative atmosphere.

4. Respect Equipment and Facilities: Use all laboratory equipment and facilities with care and respect. Follow guidelines for use and report any damage or issues immediately to the appropriate person.

5. Communicate Effectively: Keep open lines of communication with your affiliate laboratory mentor and peers. If you have questions or concerns, don't hesitate to ask. Regular updates about your work progress can also facilitate a smoother collaboration.

6. Safety Compliance: Safety is paramount in all research settings. Always adhere to the safety protocols of the affiliate laboratory, including using personal protective equipment (PPE) when required, handling materials and equipment safely, and following emergency procedures.

Working in affiliate laboratories is an excellent opportunity to expand your research skills, build professional relationships, and contribute to the advancement of medical knowledge. By adhering to these guidelines, you help to create a positive and productive working environment that benefits all involved. You can find links to our affiliate lab's safety manuals here:

Link to Roseman University Lab Safety Manual

Link to Rocky Mountain Lab Safety Manual (RMU uses the same manual as Noorda COM)

Rocky Mountain/Noorda COM Collaborative Wet Lab Access:

To obtain access to the RMU/NCOM collaborative Wet Lab one must complete the following CITI trainings in addition to the Noorda COM required CITI trainings:

1. Personal Protective Equipment (PPE)
2. OSHA Blood Borne Pathogens
3. Initial Biosafety Training

After completing these CITI trainings, one must complete this lab access form Lab Access Request Form and get it signed by their research mentor and a member of the Office of Research at Noorda COM or RMU (e-signatures are approved). Please send proof of these completed CITI trainings, completed lab access request form, and a profile picture to RMU's Office of Research for laboratory access (orsp@rm.edu).

Working and Researching at Clinical Sites

When engaging in clinical rotations and experiences, it is important to be aware of the specific guidelines and agreements in place with clinical affiliation sites. Noorda-COM has established clinical affiliation agreements with various healthcare institutions to provide valuable learning opportunities for students. It is crucial to understand that these clinical affiliation agreements differ from research affiliation agreements.

Before initiating any research activities at clinical sites, it is essential to ensure that an external research project request form has been submitted and approved by the appropriate authorities. This step is necessary to comply with the regulations and policies outlined in the clinical affiliation agreements.

It is important to note that not all clinical affiliation agreements allow for research activities to be performed at the respective clinical sites. Some agreements may restrict or limit research-related activities due to various reasons, such as patient privacy concerns, time constraints, or specific institutional policies.

To maintain the integrity of the clinical affiliations and foster positive relationships with partner institutions, strict adherence to the terms and conditions outlined in the clinical affiliation agreements is crucial. This includes compliance with all institutional policies, procedures, and guidelines, as well as respect for the privacy and confidentiality of patients and healthcare professionals.

Students are responsible to familiarize themselves with the specific requirements and expectations of each clinical site where they work. This may involve reviewing and acknowledging any additional training, protocols, or guidelines provided by the clinical site. Adhering to these requirements ensures a harmonious and productive experience while upholding the reputation and professionalism of Noorda-COM.

It is important to recognize that each clinical site may have its own unique culture, policies, and procedures. Adapting and respecting these differences, while maintaining the highest standards of professionalism and patient care, is essential.

By understanding and adhering to the guidelines set forth in the clinical affiliation agreements, a mutually beneficial and rewarding experience can be ensured at clinical sites, while upholding the highest standards of medical education and patient care.

Questions regarding clinical sites can be directed to Pamela Barney, Administrative Director of Clinical Education at pibarney@noordacom.org

External Research Internships for Medical Students

External research internships offer medical students valuable opportunities to gain hands-on research experience, expand their knowledge, and contribute to scientific advancements. These internships provide a platform for students to work alongside experienced researchers, collaborate on ongoing projects, and develop essential research skills. Engaging in external research internships can significantly enhance a medical student's academic and professional development.

Benefits of External Research Internships:

1. Practical Research Experience: External research internships allow students to apply theoretical knowledge gained in the classroom to real-world research settings. Through active involvement in research projects, students develop practical skills, including data collection, analysis, and interpretation.

2. Exposure to Diverse Research Areas: Internships provide students with the opportunity to explore various research fields and specialties. This exposure helps students identify their specific areas of interest and potential career paths within the research realm.

3. Collaboration and Networking: Working with experienced researchers, students have the chance to collaborate on interdisciplinary projects and build professional relationships. Networking with experts in the field can open doors to future research opportunities, mentorship, and potential collaborations.

4. Skill Development: Engaging in research internships allows students to refine their critical thinking, problem-solving, and analytical skills. They learn how to design experiments, collect and analyze data, and draw meaningful conclusions from their findings.

5. Scientific Communication: Internships provide a platform for students to communicate their research findings effectively. They learn to write research reports, create scientific posters, and deliver presentations, honing their scientific communication skills.

Finding External Research Internships:

Medical students can explore various avenues to find external research internships:

- Research Institutions: Universities, hospitals, and research organizations often offer internship programs for medical students.

- Government Agencies: National institutes and government research bodies may have internship opportunities in specialized fields.

- Non-Profit Organizations: Non-profit organizations conducting research relevant to healthcare and medicine may offer internship positions.

- Pharmaceutical and Biotech Companies: Pharmaceutical and biotechnology companies often have research internship programs for students interested in the industry.

Application and Selection Process:

Students should thoroughly research available internship opportunities, review eligibility criteria, and carefully follow application instructions. The selection process may involve submitting a resume, cover letter, and academic transcripts. Some internships may require interviews or letters of recommendation. It is essential to adhere to application deadlines and maintain professionalism throughout the application process.

Considerations:

While pursuing external research internships, students should consider the following factors:

Time Commitment: Assess the required time commitment for the internship to ensure it aligns with academic responsibilities and personal commitments.

Financial Considerations: Determine if the internship offers financial compensation or if it is an unpaid opportunity. Consider the impact on personal finances and evaluate potential funding sources or scholarships.

Mentorship and Support: Seek internships that provide mentorship and guidance from experienced researchers. A supportive environment enhances the learning experience and fosters professional growth.

Students should counsel with their research mentors, docents, and academic and clinical advisors as they consider applying for external research internships.

Research Track

The purpose of the research track is three-fold. First, it will enhance the student doctor's ability to think critically and reason scientifically. Second, the research track will provide scientific skills to enhance the student's ability to advance medical science and treatment throughout their careers. Third, it will provide targeted research experiences within the field of specialty in which the student desires to match as a resident.

Courses of the Research Track Designation

Journal Club

This course will provide the student with a knowledge of how to read, interpret and apply scientific literature. The ultimate purpose is to provide students with skills that will benefit them and their future patients throughout their careers, even as medical science advances past the training they receive in school and residency. This course is designed to add value to your education without adding excessive stress to your workload. This class will be taken multiple times during medical school. Attendance at Journal Club events is mandatory for all research track students and highly encouraged for non-research track students.

Research Internship
This course is accomplished during the summer between years 1 and 2. This course is designed to supercharge your research experience. There will be a short didactive portion to provide some theory and training. Then, you will have a chance to train with your research mentor or another eminent scientist in a specific research technique. You will come away with a marketable skill that you can tout in your applications for residency and beyond. There is a great deal of flexibility for you to decide what skill you would like to gain (machine learning, clinical trials, animal behavior, electrophysiology, flow cytometry, confocal microscopy, genetics, etc.).

Discipline-based research
This course provides advanced training with research in your targeted specialty. It is designed to develop advanced practical research skills to aid in your efforts to match to a residency program and to work as a clinician scientist throughout your career. Courses are discipline specific, i.e., neurology research, pediatrics research, etc.

Discretionary or Exploratory Funds

The Office of Research recognizes the importance of fostering student innovation and supporting their exploration of new ideas and research endeavors. In line with this objective, students have the opportunity to request pilot discretionary funds through their mentor. These funds, with a maximum allocation of $500 per academic year, are intended to provide financial support for projects or initiatives that require additional resources beyond the standard provisions.

It is important to note that the availability of discretionary funds is subject to the discretion and approval of the Associate Dean for Research. While we strive to accommodate as many requests as possible, the allocation of funds is dependent upon the availability of resources and the merit and feasibility of the proposed projects.

To apply for discretionary funds, students should submit their request to their mentor, who will submit an email to the Office of Research for review. It is recommended that the email provide a clear and comprehensive description of their project, including its objectives, methodology, expected outcomes, and a budget breakdown outlining how the funds will be utilized.

Please bear in mind that the availability of discretionary funds may vary from semester to semester based on the research priorities and budgetary considerations of the institution. As such, it is advisable to plan ahead and submit requests well in advance of the intended project start date.

Authorship Etiquette in Peer-Reviewed Publications at Noorda COM

At Noorda College of Osteopathic Medicine (Noorda COM), our institutional policy regarding authorship etiquette recognizes the crucial role of the principal investigator (PI) in determining authorship and resolving disputes. The following guidelines reflect our institutional approach:

1. PI Discretion and Mediation: Authorship determination is ultimately at the discretion of the PI, who is responsible for overseeing the research project. The PI plays a pivotal role in assessing contributions and assigning authorship based on their best judgment and in accordance with scholarly conventions.

2. Open Discussion and Expectations: It is highly recommended that open discussions about authorship expectations occur early in the research process, well before authorship becomes a question. This allows for clear communication and understanding among the research team regarding the criteria and expectations for authorship.

3. Long-Term Projects and Student Contributions: Some research projects may span several years, involving multiple students who make valuable contributions. In such cases, it is important to recognize the efforts of all individuals involved, regardless of their current enrollment status.

4. PI Autonomy in Authorship Order: The PI has full autonomy to determine the order of authors based on their assessment of the contributions made. This decision should be made in a fair and equitable manner, considering the substantiality and significance of each individual's involvement.

5. Continued Authorship Recognition: Students who have contributed to a research project during their time at Noorda COM may maintain authorship on papers resulting from that work, even after leaving the medical school. However, it is important to recognize that research may continue after a student's departure, and the PI may exercise their judgment to incorporate additional authors based on ongoing contributions.

6. Dispute Resolution: Any disputes or concerns regarding authorship should be brought to the attention of the PI. The PI will serve as the mechanism for resolving such disputes. Their role involves carefully considering the merits of each argument and making a fair and informed decision based on their knowledge of the project and the involved individuals. Authorship disputes will not be mediated institutionally.

Roles in Research, Publications, and Presentations

What is the Role of a Senior Author/PI/Research Mentor?

1.The principal investigator (PI) is typically a faculty member who oversees the research project. The PI is responsible for securing funding, ensuring compliance with regulations, and providing critical guidance throughout the research process. Their contributions must always be acknowledged in any dissemination of research findings**. The PI is the corresponding author unless explicitly changed by the senior author**.

2. A research mentor provides direct supervision, offering expertise, feedback, and support to ensure the success of student researchers. Mentors play an integral role in refining research questions, troubleshooting challenges, and developing analysis strategies. Recognizing their efforts is crucial in maintaining academic integrity and honoring collaborative efforts.

3.The senior author generally represents the individual who is ultimately responsible for the project and the content of all scientific representations that are made (posters, abstract, and publications); this is often the PI or a faculty member. The senior author is responsible for the integrity of the work as a whole and should be listed as such in all related publications and presentations.

4. The senior author makes decisions about authorship lists and order. It would not be appropriate for a student to offer authorship to another student or add a student to their poster/abstract/publication for any reason except that the senior author has considered their contributions significant and worthy of authorship.

What is the Role of a First Author?

1. The first author is generally the individual who has done the most work on a project. It is their responsibility to ensure that the research is completed in a timely manner and to organize the efforts of the project. The first author is responsible for accomplishment of the work under the direction of the senior author/principal investigator.

2. Ethically, research generated under the auspices and in the lab of a PI belongs to the PI and a first author would represent their work as work done "within the [name of principle investigator]'s lab".

3. First authors **do not** submit posters, papers, abstracts, etc. without consent and direction from the PI. If a student does not adequately attribute and recognize the PI, they will often lose credibility in the academic arena as it is broadly understood that students do not work in isolation. It is also important to understand that the PI, research mentor, and senior author are putting their reputations on the line with every article or professional poster that is published. As such, it is essential to approach all research dissemination efforts with the utmost respect and professionalism.

4. First authors **do not** serve as the corresponding author on submissions unless explicitly changed by the senior author.

What is the Responsibility of All Students?

1. Ensure that your research mentor or PI is aware of and has approved of every abstract and paper submission

2. Accurately list all contributing authors, ensuring the PI and senior author are included in appropriate positions.

3. Acknowledge the contributions of research mentors, collaborators, and supporting personnel in your presentations and manuscripts. This is commonly done in an acknowledgement slide at the end of your presentation that includes the name and picture of your PI as the lab where the work was performed.

4. Discuss authorship order with your mentor and PI early in the research process to avoid misunderstandings.

Proper acknowledgment of contributions is not only a matter of academic honesty but also a reflection of professionalism and respect for the collaborative nature of scientific inquiry. Failure to adhere to these standards can undermine trust, damage reputations, and jeopardize future research opportunities.

We appreciate your commitment to maintaining the highest standards of scholarly conduct and trust that you will incorporate these best practices in all your research endeavors.

Non-Discrimination and Anti-Harassment Policy

Noorda COM is dedicated to the establishment of a research environment free of discrimination and harassment. Our policy can be found here: Link to Non-Discrimination and Anti-Harassment Policy