

**Ohio University College of Osteopathic Medicine**  
**Centers for Osteopathic Research and Education**  
**Class of 2010 Elective Research Rotation**

*Last update: 9.30.08*

<b>Course Title:</b>	<b>Retrospective, Prospective, and Meta-Analysis Studies</b>
<b>Instructor of Record:</b>	<b>Peter B. Dane, D.O.</b>
<b>Credit Hour:</b>	<b>9 to 12 credits</b>
<b>Rotation Length:</b>	<b>3 to 7 weeks</b>
<b>Prerequisites:</b>	<b>Family Medicine Clerkship</b>

**Syllabus Components**

1. Rotation Description, Purpose and Philosophy
2. Rotation Objectives
3. Orientation to Rotation
4. Required Activities and Assignments
5. Student Performance Evaluation
6. Recommended Resources
7. Standards of Professional Conduct
8. Tips for Successfully Completing the Rotation

**1. Rotation Description, Purpose, and Philosophy**

The purpose of this rotation is to provide the student with the opportunity to develop or enhance his/her knowledge and skills to a level appropriate for a beginning researcher. Student research can consist of any of the following types of studies: a retrospective study, a prospective study, a survey study or a meta-analysis. To accomplish this, the rotation provides a broad overview of research via hands-on experience.

In hospital and ambulatory settings (as appropriate), the student is expected to encounter a variety of experiences that may lead to a clinical question answerable through the conduct of research. To achieve rotation objectives, the student is expected to apply research-based concepts of diagnosis and management to the patient, develop a working knowledge of both inpatient and outpatient treatment modalities, research design, statistics and hypothesis testing, human subject protection, protocol development, and dissemination of research findings as means of contributing to evidence-based medicine. Throughout the rotation, students should have multiple opportunities to perform different aspects of research and to practice problem-solving skills.

Although no restrictions are placed on the maximum number of research projects in which a student is allowed to participate, a maximum of 7 weeks is allowed for officially registered research electives. All other research activities will need to be conducted during personal time. This time can be divided across two adjacent academic years (for example, 4 weeks in the third year and 3 weeks in the fourth year).

The initial weeks of the Elective Research Rotation (up to four) may be used for didactic instruction and development of the research proposal. If human subjects are to be used in the

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proposed research, then Institutional Review Board review of the proposal and all associated documents will be required. Prior to submitting any materials to a hospital compliance or research office, students are required to contact the CORE Research Office (CRO) ([coreresearch@oucom.ohiou.edu](mailto:coreresearch@oucom.ohiou.edu); 740-593-2380). If applicable, it is expected that a proposal be ready for submission to the IRBs of the student's CORE hospital and, subsequently, to Ohio University, as well as to any relevant funding agencies, by the end of this first period.

Approval of a second block of time will be contingent upon several factors, such as successfully clearing the IRB process and obtaining funding for the research proposal, if applicable, and meeting all goals for the first block. Typically, this second block of time is used to initiate the study's protocol, gather data, perform data analyses, and prepare a final manuscript. For larger studies, this short amount of time may not be adequate to complete all necessary steps of a project. Because research is a longitudinal process, it may be necessary to continue working during your "free time" on the project concurrently during subsequent rotations as well. Approval to remain an active participant in the research is contingent upon research activities not conflicting with rotation requirements. Variations in the rotation schedule will be negotiated with the student's CORE Assistant Dean.

Students electing to register for a research rotation will be expected to manage all aspects of their study. This may require the student to meet with other students, faculty, or support personnel from the CORE Research Office to discuss progress and problems. If needed, distance-learning equipment can be used to facilitate such meetings. Students will also meet regularly with their research advisor and their CORE Assistant Dean, to confirm that research goals are being met. Students are responsible for arranging any and all necessary meetings.

### 2. Rotation Objectives

Learning objectives for this rotation should guide the student's learning activities and serve as a baseline for assessment of the student's enhanced knowledge, skills, and professional behavior.

#### **Rotation Objectives: Knowledge Domain**

1. Define/State a research hypothesis and objectives.
2. Effectively review the literature.
3. Write a research protocol.
4. List variables/factors to be studied that will provide an answer to objectives and explain the process of choosing a research design.
5. Explain the importance of required documents (e.g., CITI Human subjects protection training, Institutional Review Board, Informed Consent Process, etc.).
6. Determine inclusion/exclusion criteria to be applied to selecting study participants and/or studies to be included in the review.
7. Describe the process involved in proper and legal collection of data or information.
8. Translate the results of the study into a more practical or actionable outcome.
9. Comprehend statistical results, discuss the implications of the study outcome, justify the importance of study and its contribution to evidence-based medicine.
10. Complete and present a poster and/or submit a manuscript for publication in a peer-reviewed journal.

#### **Rotation Objectives: Research Skills Domain**

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During this elective rotation, the student is expected to develop her/his competencies in the following research skills. The expected level of student engagement in the skills being developed: Observe (O), Assist (A), Master (M).

1. Successfully develop his/her own protocol or collaborate with other investigators on an existing study. (M)
2. Critique literature and published studies. (M)
3. Analyze and interpret results and findings. (A)
4. Perform and document a systematic review of the literature. (M)
5. Apply knowledge from research experience to critically analyze current clinical practices. (A)
6. Design an effective data gathering/collection plan. (A)
7. Implement an effective data gathering/collection plan. (A)
8. Distinguish literature pertinent to study from a multitude of references. (M)
9. Formulate a research question. (A)
10. Perform statistical analysis. (O)
11. Modify or edit protocol and manuscript (A).
12. Create a poster. (M)

### 3. Application Process for the Rotation

The application process for this rotation orientation provides an opportunity to set/clarify expectations, answer questions and define roles, assess skill level and experience, and anticipate and proactively resolve problems. The student must meet with the preceptor and CRO Director prior to registration for this rotation. S/he should be prepared to share past research experiences and personal objectives for this rotation with the preceptor and CRO Director. Clarifying the following details with the preceptor will help to ensure a rewarding and successful rotation:

- a. Specific student responsibilities on the rotation.
- b. Specific preceptor and CRO Director expectations of the student on the rotation.
- c. Goals, objectives, structure, timeline, and expected measurable outcomes and deliverables of the rotation.
- d. Required rotation assignments and responsibilities as assigned by the preceptor and/or the CRO Director (e.g. data collection, protocol development, presentation of results to conferences and research days, submission of manuscript to peer reviewed journal, co-authorship).
- e. During this orientation, the student and preceptor should negotiate specific times (e.g. mid-rotation.) when feedback on student performance will be provided.

### 4. Required Learning Activities, Assignments, and Responsibilities

Satisfactory completion of the following activities is required to receive credit for this rotation:

- a. Meeting all objectives and deliverables identified by the preceptor and specified in the Research Rotation Form within the timeframe indicated.
- b. Submission of the rotation preceptors' completed written evaluation within 2 weeks of the end of the rotation.
- c. Submission of the online Student Rotation Evaluation through New Innovations.
- d. **Submission of all requirements/deliverables (e.g., completed poster, manuscript, oral presentations) to the preceptor, CORE Research Office and Predoctoral Education Office up to the end of the following quarter. NOTE: To satisfy this, a student's last opportunity to enroll in a research rotation will be 2 quarters prior to graduation.** Students may receive a "PR" grade for this rotation initially. If all assignments are not completed and submitted by the end of the following quarter, then the grade will turn to an "I," which will turn to an "F" six weeks into the next quarter.

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### 5. Student Performance Evaluation

A student's grade for this rotation will be based on completion of all assignments and the following criteria.

#### **The Preceptor's Written Evaluation**

A student must receive a passing grade from the preceptor in order to pass the rotation. If the preceptor and CORE Research Office consider the student's progress to be *Marginal*, then a remediation recommendation will be developed by the CORE Assistant Dean, in consultation with the preceptor and CORE Research Office, and submitted to the Associate Dean for Predoctoral Education for approval. If the preceptor or CORE Research Office fails the student, the student is awarded a grade of "F" for the rotation. The failure report must be forwarded to the Associate Dean for Predoctoral Education and to the Committee on Student Progress (CSP).

### 6. Recommended Resources

1. Contact the CORE Research Office at 740-593-2380 for more details and resources available (abstract databases, bibliographic database, study funding, travel funds, and methodological, statistical, editorial, and dissemination services).
2. Log on to: [www.ohiocoreonline.org/research](http://www.ohiocoreonline.org/research) for more information on conducting research and research resources available to pre-doctoral trainees.
3. Leedy, Paul D. and Ormrod, Jeanne E. (2004)(8th ed.). *Practical research: Planning and design*. Upper Saddle River, NJ: Merrill Prentice Hall.

#### **Recommended Reading**

*Additional recommended resources for ALL rotations are included in the Book List for the Class of 2010.*

### 7. Standards of Professional Conduct

The OU-COM Honor Code applies to all activities in the CORE as well as on the Athens campus.

Compliance with the professional standards of the Osteopathic profession, as well as with the professional standards of the hospital and outpatient offices of the student's preceptor, is a requirement for receiving academic credit for this rotation. Students are expected to maintain high professional standards of behaviors by consistently demonstrating such personal characteristics as honesty and integrity, as well maintaining patient confidentiality at all times. Violation may result in a failing grade in this rotation, regardless of other academic performance on this rotation, and could subject the student to dismissal from the hospital in which they are based. Such professional conduct shall be evaluated by the CORE Assistant Dean through observation of and interaction with the student, his/her preceptor, other hospital attending physicians and staff.

### 8. Tips for Successfully Completing the Rotation

Being successful on this rotation requires you to be a proactive student. Taking an interest in the specialty and becoming an active team member of the service is critical to learning in a clinical setting. Remember, the clinical learning environment differs from the classroom. You will be "thinking on your feet" and "learning as you go." To capitalize on "the learning moment," seek out opportunities to ask questions and speak up appropriately.

In addition, be sure to:

1. review the syllabus to ensure that you understand all requirements.

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2. discuss your previous research experiences and personal goals and objectives for this rotation with your preceptor and the CRO Director. The rotation application process is an opportune time to initiate this discussion and to develop positive rapport with you preceptor.
3. clarify the CRO Director's expectations of your activities.
4. come prepared to take advantage of the opportunities this rotation has to offer.

*If you have any questions, contact your CORE Administrator or CORE Assistant Dean.*