

Considerations and Guidelines for Preparation of Student Initiated Research Elective Proposals

Background

Scholarship is becoming increasingly important in the area of medicine. The Accreditation Council for Graduate Medical Education (ACGME) has established a requirement for each resident to demonstrate acceptable scholarly activity to complete his or her training. Scholarship, as defined by the ACGME includes the following:

- The scholarship of discovery, as evidenced by peer-reviewed funding or publication of original research in peer-reviewed journals
- The scholarship of dissemination, as evidenced by review articles, or chapters in textbooks, or on-line resources, like MedEdPORTAL
- The scholarship of application, as evidenced by the publication or presentation of a local, regional, or national professional and scientific meeting

Since our graduates will have a research requirement in their residencies, we have selected to keep our definition of scholarship the same as the ACGME, and as such, expect that there will be a “product.” We are defining a “product” as a publication (abstract or article), a poster, a presentation at a national or regional meeting, and participation in the Medical Student Research Forum in April, prior to graduation. In order for the BSOM to have a record of such projects, you **must submit your project to the PILOT page for the research course by May 1**. Additionally, since doing research takes planning, whether longitudinally or in a block, **all research SIE’s MUST be submitted by September 1** for consideration in your 4th year schedule.

Issue of Longitudinal vs. Block Rotations

Keep in mind that almost every research project requires more time than anticipated. Unexpected detours and delays happen which may be beyond the student’s control. Ample time should be given to planning, proposing, and conducting a fourth-year SIE. Longitudinal SIE’s conducted throughout the year should have an early application deadline to provide ample time for the research (e.g. no later than Sept. 1), and conclude by May 1st.

Student-Defined vs. Faculty-Defined Research Projects

Student-defined research project: SIE’s that encompass all the phases of the scientific method, from hypothesis to data collection to analysis and conclusions. Students conduct the research with varying degrees of independence and faculty guidance.

Faculty-defined research project: SIE’s in which the hypothesis and research design are already established. In such projects students often perform the data collection and analysis. In well-organized projects students may also participate in writing up the results for presentation or publication.

All SIE proposals should include a section discussing student and faculty roles in the various phases of the project. Since much research now is conducted in teams, this section should also discuss the roles of other key personnel. Such a discussion of research roles/responsibilities has become a standard requirement in grant proposals and journal submissions. It also affords students and mentors an opportunity to discuss expectations for authorship of research results.

In general completing a student-defined research project during year 4 is most feasible as a longitudinal SIE, while participating in a faculty-defined research project is feasible as either a block rotation or longitudinal SIE.

Possible types of research and probable time allotments

Case description: A case description involves closely following one individual or group of people. In medicine, this is generally used to describe a rare condition, a novel treatment for a condition and the like. (2 weeks)

Survey: Using validated surveys (ideal) or surveys developed by the researcher to examine attitudes and beliefs. This type of research is often used in educational research. (2-4 weeks depending on student role)

Discovery-driven research: Research that is closely associated with individual Principal Investigators (PIs), who propose to investigate particular hypotheses or phenomena. Strives to deliver "understanding" with the tangible product being research reports, related scientific presentations, and ultimately, peer-reviewed journal manuscripts. (4-8 weeks depending on student role)

Outcomes research: Measures a variety of impacts on patients and patient care (function, quality of life, satisfaction, readmissions, costs, etc). (4-8 weeks depending on student role)

Effectiveness research: Emphasizes the contrast with efficacy studies, and highlights the goal of learning how medical interventions affected real patients in "typical" practice settings. Effectiveness studies seek to understand the impact of health care on patients with diverse characteristics. (4-8 weeks depending on student role)

Translational research: Collaborations across multiple disciplines that brings together the basic and clinical sciences so that laboratory research and discovery can be "translated" into new diagnostic and therapeutic applications at a much faster and successful rate. (4-8 weeks depending on student role)

Format for the Research SIE

Title - The title of the elective should be succinct and specific as possible.

Department - The department offering the course must be designated. If the elective is a conjoint effort of two departments, or with a non-medical college of the university, both should be listed. A lead department should be designated.

Director & Faculty - The director of the elective should be the individual who has the major responsibility for organizing and running the program, and for evaluating students. All faculty involved in presenting the program should be listed, along with academic rank and affiliation. When appropriate, guest faculty should be included. (Credentials of preceptor must be included if preceptor is not WSU faculty. Credentials should include medical school from which preceptor graduated, certifications, and academic affiliations.)

Time & Location - Include under this heading whether the elective is a longitudinal, or block rotation. Indicate the duration of the student's participation in the research activity. The location(s) must also be included, e.g., the School of Medicine on campus, a particular hospital, or outside the Dayton area.

For **block** SIE's, provide an anticipated daily schedule of activities and hours using this template

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
AM							
PM							

For **longitudinal** SIE's, estimate the approximate minimum hours for the phases of the research that you will be involved with (after the identification of research problem), which means having a primary role. The hours noted below are the MAXIMUM that may be utilized for each of the phases of research. If requesting more than the maximum number of hours, then a detailed explanation, with some evidence, as to why more hours are needed will be required. Not all of these areas will be required for each project—for example, in most cases, students will do only one of the “dissemination” areas (manuscript, poster or national/regional presentation).

- Literature review (20 hours)
- Determine the purpose of research, specific research questions or hypotheses (10 hours)
- Data collection (60 hours)
- Analyzing and interpreting the data (50 hours)
- Reporting the research findings (20 hours):
 - Manuscript preparation (30 hours)
 - Poster preparation (20 hours)
 - Presentation preparation (20 hours)

For credit for a 4 week elective, a minimum of 160 hours needs to be accounted for; thus as noted with the above hours, if doing a poster or oral presentation, then more hours will need to be accounted for in at least one of the other areas. If the research SIE is for 2 weeks, then a minimum of 80 hours needs to be described. For case reports or less involved projects, the expectation would be that a student then apply for a 2-week elective.

Number of Students - The number of students that are accepted in the project. In general, this will be just one student. If more than one student is participating in a particular research project, then each student will be expected to have different roles or the project needs to be so massive as to require the participation of more than one students—and all need to submit the SIE at the same time. If this is the case, then the research should be of very high quality, with plans of dissemination at the national or regional level.

Prerequisites – Completion of 3rd year clerkships and CITI training. The CITI certificate of completion MUST be included in the SIE application. No proposal will be reviewed without proof of completion.

Course Description – Provide a detailed description (1-2 paragraphs) of the research project. Include a timetable for the overall project. Supplementary materials, such as a grant proposal or research protocol, are encouraged. The student should follow the learning objective template for research experiences, which corresponds to categories for a structured abstract, which are as follows:

1. Understand model/system under study (background and significance).
2. Read and understand key articles relevant to the current scope of the field (literature review).
3. Understand basic experimental design (including research question, research techniques, data collection and analysis).
4. Develop skill in an experimental procedure (methods and data collection).

Content Categories – Provide specific information about the student’s participation in the research project, and the expected educational benefits to the student. Describe in detail:

- (a) The role the student will fill to complete the project.
- (b) Specific learning objectives to be achieved through participation.

Learning Methods – Describe the learning methods for the elective. How will the learning objectives be achieved? Describe in detail:

- (a) Specific activities the student will perform.
- (b) Role of faculty in providing direct supervision and structured educational experience throughout the elective period.

Evaluation – Research electives should include faculty evaluation, and submission of a deliverable finished project. It is not reasonable to expect a completed manuscript in a one-month rotation, but the elective should produce significant progress toward completion of a sound research project, and at a minimum include a structured abstract. Evaluation should include the following three elements:

- (a) Faculty evaluation - by observation and/or objective examination, with description of the evaluation forms to be submitted.
- (b) Self-assessment of research progress and next steps.
- (c) Summary documents – to demonstrate the productivity of the student at the completion of the elective period. At a minimum a structured abstract is expected. One may also include a completed research protocol, a summary of data collected, a completed manuscript, poster or other presentations.
- (d) Evaluation criteria – Pass/Fail.