

## RESEARCH ELECTIVE APPROVAL FORM

A student may apply for a **maximum of (8) weeks** of fourth year credit in research. All policies and guidelines pertaining to the scheduling of 4<sup>th</sup> year electives apply. The research project should be sufficiently well defined and the required supporting infrastructure well developed so that the student will be able to start with data acquisition and/or data analysis on day one, and complete data analysis by the fourth week. The student will write a report in the standard format of a scientific publication, including the Introduction, Materials and Methods, Results, and Discussion sections. **The goals of this elective are to train medical students in biomedical research and to give them the opportunity to publish in the scientific literature.**

- Your preceptor must write a brief paragraph confirming his/her willingness to precept you.
- A summary of the proposed project which must include:
  - A description of the project
  - An outline of your role and responsibilities
  - Method by which your performance will be evaluated and graded.
- If the elective is arranged with a faculty member at BUMC you must obtain the signature of the preceptor (Part 2).
- If the elective is done outside of BUMC the signatures of both the supervising preceptor and the comparable department at BUMC must be obtained (Parts 2 & 3).
- **All material must be submitted to the Registrar's Office at least (8) weeks prior to the start of the project.** Attach all supporting documentation to the Approval Form.
- Research done outside of BUMC will count toward your outside elective time.
- Research does count toward your (12) weeks in any one discipline.

### Part 1: Student Information

Name: \_\_\_\_\_ Student signature: \_\_\_\_\_  
(Please print)

Mailbox # \_\_\_\_\_ Email: \_\_\_\_\_

Project start date: \_\_\_\_\_ Project end date: \_\_\_\_\_

### Part 2: Preceptor Information

- **Faculty must have constructed a research proposal with their student 8 weeks prior to the start of the project**
- **Any IUCAC or IRB approvals must be dated before any research can commence**
- **Faculty must have a minimum of once-a-week meetings with the student**
- **To receive credits a student must be spending on average 40 hours or more a week on the project.**

Name: \_\_\_\_\_ Preceptors Signature: \_\_\_\_\_  
(Please print)

Department and Institutional Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

### Part 3: BUSM Departmental Approval if Elective Done Outside of BUMC

BUSM Department Head or Designee: \_\_\_\_\_  
(Please print)

BUSM Department Head or Designee Signature: \_\_\_\_\_

## **Classification of a Research Elective's Discipline**

### **Purpose:**

To provide a set of principles that defines the discipline of a research elective project.

### **Rationale:**

Determining the discipline of a research elective project has an impact on scheduling at the BUSM. Pursuant to BUSM policy, there are limits on the number of credits in a single discipline that may be taken and count towards graduation. These limits exist to promote a balanced curriculum. When taken for credit, research elective projects count against this limit. A set of principles is required to guide the administration, faculty, and students in determining the discipline of a research project. This information is then used by the Registrar to ensure that the BUSM's limit on coursework in a single discipline is not violated.

### **Scope:**

This applies to BUSM students who seek graduation credit by completing a research project through an approved research elective. This is conducted under a faculty mentor who sponsors and oversees their project. This assumes all prerequisites for conducting the research have been met. This classification is not necessary for students who undertake research without credit.

### **Recommendation:**

For the purposes of categorizing a research elective project, the following principles should be used:

- 1) A research project's discipline will be categorized by the clinical Department of the faculty mentor under which the project is being conducted.
- 2) If the faculty mentor holds more than one Department appointment, the project will be categorized under the Department most applicable to the project being conducted.
- 3) If a project holds multidisciplinary categorization, the project will be categorized according to the faculty mentor's primary clinical appointment.
- 4) If the faculty mentor does not hold any clinical appointment, the faculty's primary appointment will serve to categorize the project's discipline.

# Research Elective in Biomedical Science Department: Any BUSM department Boston University School of Medicine

*Course Director(s): as specified in the submitted research proposal*

## SUMMARY OF ELECTIVE

The research elective in biomedical sciences will expose for a period of four weeks one medical student per rotation to biomedical research. The student will select a research project as defined by a scientist mentor who will serve as the project's **technical advisor**. The research project will be sufficiently well defined and the required supporting infrastructure well developed so that the student will be able to start with data acquisition and/or data analysis on day one, and complete data analysis by the fourth week. The student will write a report in the standard format of a scientific publication, including the Introduction, Materials and Methods, Results, and Discussion sections. The goals of this elective are to train medical students in biomedical research and to give them the opportunity to publish in the scientific literature.

## DESCRIPTION OF RESEARCH ELECTIVE

The student will meet with the technical advisor prior to the start of the elective at which time they will agree to a plan of operations and a research timeline to be followed during the elective. The plan of operations includes a mutually agreed number of work hours per week to satisfy the BUSM minimum of 40 hours per week, a description of the specific research activities to be performed by the student, and the required deliverables of the rotation. Finally, in this preparatory meeting, they will also agree on completing all operational project pre-requirements to be fulfilled prior to the elective's start date, including IRB and/or IUCAC approvals.

The research elective will take place in the laboratory or general facilities available to the technical advisor.

During the first few days of the rotation, the student will be trained on the specific techniques by the technical advisor or by a senior member of the laboratory. During the elective, the student will meet with the technical advisor at least once a week to review research progress. Furthermore, a mid-clerkship review by the technical advisor will be performed, which will be submitted to the course director. This review will be documented, with any points for improvement relayed, and will include a statement on whether or not the student is at the expected timeline for the project. If the student is not meeting the expected timeline, then the reviewer needs to provide a plan (which may be as short as a statement or longer depending on the needs) on how to get the student back on the timeline if possible. If getting back on track with the project is not possible, then an alternate plan needs to be defined where the student can meet research project objectives and hourly requirements to receive credit for the rotation.

The rotation will be graded according to a **Honors, Pass, Fail scale** depending on the degree of success of the research activities. An Honors grade requires submission of a first draft manuscript to the technical advisor and the course director. A Pass grade requires successful completion of data acquisition and analysis.

**GOAL** The purpose of the research elective is for the BUSM student to develop scientific skills in biomedical science.

## OBJECTIVES

By the end of the research elective, the BUSM student will be able to:

- **Apply** scientific methods for the study of problems in biomedical science (U, R, E)
- **Analyze** scientific data (U, R, E)
- **Synthesize** new knowledge from experimental findings (U, A, R, E)
- **Construct** a scientific paper (A, R, E)
- **Communicate** scientific knowledge (A, R, E)

## **FACULTY REQUIREMENTS**

The faculty for this elective must satisfy the following conditions to use this course to support a student research project:

- 1) They must have constructed a research proposal with their student and submitted this to the Electives and Research Subcommittee Chair 8 weeks prior to the start of the rotation
- 2) Any IUCAC or IRB approvals must be dated before submission of the research proposal for review.
- 3) The faculty must have a minimum of once-a-week meetings with the student

## **EVALUATION**

**The faculty acting as the technical supervisor must also specify the following in their proposal:**

- based on the learning objectives, how the student will be evaluated in conducting the proposed research project
- that they will be responsible for mid-clerkship feedback
- that they will be doing the final formative evaluation

## **NUMBER OF STUDENTS**

Specify the number of students per period that can participate: One student

## **LENGTH OF ELECTIVE**

Minimum-4 weeks Maximum-8 weeks