LAB ROTATION GUIDELINES

BMSC 8215 COURSE DIRECTOR

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COURSE OBJECTIVES

The objectives of the 1st year laboratory rotations are to:

- Identify faculty research program appropriate for the student's dissertation research
- Establish mentor-mentee relationships that support student progress
- Expose students to different approaches and new techniques
- Practice communication skills for preparation of rotation presentation and report

2023-2024 COURSE SCHEDULE

Rotation Dates	Forms Due	Symposium Presentations, Reports and Evaluations Due
Rotation #1: Sept 11 to Dec 8	Aug 28 – Sept 6	December 8
Rotation #2: Jan 8 to March 22	Nov 17 – Dec 15	March 22
Rotation #3: March 25 to June 7	Feb 19 – March 18	June 7

Oral presentations are scheduled in the morning from 9:00 am to 1:30pm on the dates indicated in the table. The symposium will be held virtually until public health guidelines permit us to hold it in-person again. The rotation report must also be submitted to the Course Director at each semester's symposium.

POLICIES & PROCEDURES

- Only IBS PhD Trainer faculty with active programs and funding can host a rotation student. Please refer to the published list at https://ibs.smhs.gwu.edu/phd-training-faculty.
- A rotation availability list of trainers who seek students is distributed at the beginning of the year; please check for updates.
- Each faculty mentor may host only one student per semester.
- Students must complete each rotation with a different faculty mentor. Repeat rotations will not be permitted.
- If students have previous experience with a mentor (e.g. previous technician) and seek further experience, that rotation should be last.
- Always discuss possible rotations with the Graduate Program Director and the IBS.

- Students are responsible for contacting faculty on the rotation availability list to discuss placement for a rotation in their lab each semester. Once a placement is agreed upon, the student must submit a Rotation Commitment Form signed by the mentor and an appropriate graduate program director to the IBS office.
- Each rotation period ends with student presentations and a report on the rotation.
- At the end of the year, students will select their PhD research mentor from among the 3 they worked with, as well as their specific PhD program.
- Mentors are reminded that the student stipend becomes the responsibility of the research mentor at the end of the first year at GW.

EXPECTATIONS

- Each rotation is about 11 weeks long, and the student is expected to dedicate 30 hours per week in the laboratory (including remote hours as approved by the mentor).
- The mentor should guide the student during the rotation by having frequent meetings to discuss the research project, both conceptually and experimentally. The student should develop at least a basic understanding of the concepts behind their experiments, and acquire the technical skills to carry out experiments.
- On the final day of every semester, each student will give a short presentation on their work over the course of the rotation as part of a symposium with their classmates and faculty. Research mentors should plan to attend that event. Students will also submit their completed research report to the Course Director at this event.
- The mentor should guide the preparation of the student's research report, which is due at the end of the semester, and review the short presentation. Regardless of research progress, a report detailing the experiments, outcome and future experiments is required. It is expected that the mentor will require at least one re-write of the research report before it is handed in to the BMSC 8215 Course Director.
- At the end of each rotation, the mentor and the student should meet to discuss the suitability of the lab and any concerns.
- In addition, both mentor and student must complete separate evaluation forms, provided by the IBS office. The Course Director will not submit a grade for any student until both evaluations forms are completed and discussed.

GRADING

BMSC 8215 is graded on a Credit/No Credit basis. In order to receive credit for each rotation, the following conditions must be met:

1. Prior to the start of the semester, student submits a Rotation Commitment Form signed by an approved faculty mentor (see deadlines below)
2. Student spends the requisite amount of time (~30 hours/week) dedicated to work in the lab and remote, as reported by the mentor
3. At the conclusion of the semester, student gives a presentation conforming to instructor guidelines that describes their work over the course of the rotation as part of the symposium

4. Each student is required to ask at least one question and prepare constructive feedback for two peers at the rotation symposium.
5. Student submits a written research report (conforming to instructor guidelines) on the day of the symposium.
6. Student and faculty complete a short meeting to discuss lab suitability.
7. Student submits a Mentor Evaluation Form by the stated deadline
8. Faculty mentor submits a Student Evaluation Form by the stated deadline

PRESENTATION GUIDELINES

PowerPoint files should not contain more than eight slides, and presentations should be limited to no more than 10 minutes. A short Q&A session will take place following each presentation.

Generally, the order of presentations will be scheduled in advance and grouped by field.

Students will be asked to provide comments to peers, using the rubric below, and encouraged to ask questions.

Slide format:

1. The ppt file should have one slide with the title of your research, your name, the name of your mentor, and the name of the institution.
2. This should be followed by a slide detailing the main objective and hypothesis of your project. You should only include a slide on methods if they are not generic in order to educate your audience. You might consider a working "diagram" that puts your question in context.
3. The next slides should pertain to your results, followed by a slide on your main findings, perspective, etc.
4. Your final slide should have acknowledgement. No slide with references.
5. *Ppt format considerations*: Font ~20-24 pt, use bullets not paragraphs, legible figures
6. *Presentation considerations*: face the audience, use slide as a prompt, point at one thing on the slide (not circling)
7. *Organization considerations*: It was known – My question was – We tried – We found – This means – The next question is

You must bring your PowerPoint presentation to the symposium on a USB drive, and email a copy of it to the IBS office before the start of the symposium [gwibs@gwu.edu], along with your paper.

REPORT GUIDELINES

Writing the rotation report provides a platform to gain experience in scientific writing and is an integral component of the rotation. Furthermore, it gives an opportunity to the students to

organize their scientific thoughts and experimental results in a scholarly way, bringing the rotation project to a conclusion. The final grade for each rotation can only be assigned after submitting the written report along with the appropriate evaluation forms. Finally, the written report for the Fall rotation will also be a graded exercise for the BMSC 8216 scientific writing course under the direction of Dr. Linda Kusner.

The written report must follow the Proceedings of the National Academy of Sciences of the United States of America (PNAS) guidelines. The written report must be formatted as a PNAS manuscript, with double columns and figures integrated in the text (see any PNAS issue for example). It must include the following sections:

1. Abstract: It should briefly describe the major finding of the study and should be no longer than 250 words. Although some rotations might not result in "major findings", you still need to describe what you did.

2. Introduction: This section should be short and provide essential background about the system used and what is known in the field. Also, briefly outline the main objective of the study, and describe the overarching hypothesis your work addresses.

3. Materials and Methods: This section should be a thorough description of the procedures and special reagents used in the study. Normally, it should be detailed enough to allow any investigator to reproduce the experiments described in the study. PNAS has specific guidelines on this section. Please read them carefully.

4. Results: In this section, you describe your experiments in detail, why you undertook them, and how you performed each experiment by including all the necessary controls. In this section, you also summarize the results and refer to any relevant figures. Each figure should include a title and a complete legend that helps the reader understand the figures. This section should not contain any interpretation of the conducted experiments.

5. Discussion: In this section, you need to interpret your findings and the outcome of your main hypothesis that was outlined in the introduction section. Compare your findings and interpretations to others in the field by citing other investigators studies. Finally, conclude the discussion section by describing experiments you would perform next in order to advance your study.

6. References: Please follow the specific PNAS guidelines.

All figures and tables should be properly incorporated in the text. When applicable, the results and discussion sections can be combined.

STUDENT EVALUATION (completed online by faculty mentor)

Recommended Grade (Pass/Fail):

Numerical ratings are based on a scale from 1 [poor] to 5 [excellent]

- Dependability and commitment
- Enthusiasm, initiative, and effort in the laboratory
- Effort to read relevant literature & fund of knowledge
- Resourcefulness, problem-solving & thought process
- Ability to learn new techniques
- Research abilities
- Interpersonal skills and teamwork
- Ethical laboratory practices
- Time management, efficiency, follow-through, and adequate record-keeping
- Student's overall performance in the rotation

Did the student spend sufficient time in the lab (including approved remote hours) as required by the course (~30 hours/week)?

Please provide a few comments on the strengths and areas for improvement that you observed in the student:

Would you consider serving as the student's permanent mentor at the end of their rotations?

Additional Comments:

Exit Meeting Date:

MENTOR EVALUATION (completed online by student)

Why did you choose this lab?

Were you given a specific project(s) to work on? Please describe:

Who helped train you - the mentor, a graduate student, technician or post-doc in the lab? Please describe:

Numerical ratings are based on a scale from 1 [poor] to 5 [excellent]

- My project was well-structured with clear aims and goals
- The mentor was readily available when I needed him/her
- It was easy to communicate with the mentor on a professional level
- The mentor regularly followed up with me on my individual progress
- I received guidance from the mentor on my paper and presentation
- Rate your experience in this lab overall

How many hours a week did you work? Briefly describe your work schedule:

What research skills did you learn? What other professional skills did you learn during the rotation?

Please describe the strengths and weaknesses of this rotation as a whole. Was the laboratory environment conducive to learning?

When considering your permanent placement at the end of rotations, do you think this mentor and lab are a good fit for your PhD completion?

Additional Comments:

Exit Meeting Date:

PRESENTATION PEER REVIEW RUBRIC (completed online by students)

Numerical ratings are based on a scale from 1 [poor] to 5 [excellent]

- Objective/Hypothesis is well-defined
- Methods are clearly explained
- Results [achieved or expected] are clearly explained, including quantitation and controls [as applicable]
- Figures provide helpful illustrations of the project and are clearly explained
- Effective design of slides including font size and visual organization
- Insightful discussion of findings as compared to expectations and previous research
- Speaks confidently using appropriate vocal volume, speech rate and articulation
- Projects competency using natural movements, postures and gestures while speaking
- Makes effective eye contact and avoids excessive reading of notes/screen

General suggestions to improve this presentation:

* In order for all students to practice addressing questions after their presentation, please have one question to ask each student you are assigned to review.