

BIOS 740 Laboratory Methods in Functional Genomic Workshop

Website: Blackboard

Instructor: Geraldine Grant PhD **Office:** 207 Discovery Hall, Manassas

Contact: Email: ggrant1@gmu.edu **Office Hours:** By Appointment only.

Students must use their MasonLive email account to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

General **University Catalog:** <http://catalog.gmu.edu/>
University Policies: <http://universitypolicy.gmu.edu/>

EXAMS: **Final laboratory based exam 45%**
Lab report (45%) and lab notebook (10%) due via Blackboard or by email to Dr. Grant at ggrant1@gmu.edu.

Rationale:

This class will introduce you to the techniques and practice of Mammalian Cell/Tissue Culture and molecular biological techniques which are used in translational research and genomic studies.

This class will consist of 4 pre lectures on Mondays, followed by a full week of 9am to 6pm laboratory exercise.

THE LABORATORY MANUAL IS AVAILABLE ON LINE HOWEVER YOU WILL NOT BE ALLOWED TO BRING THIS MAUAL TO CLASS. YOU ARE EXPECTED TO DOWNLOAD THE MANUAL BEFORE CLASS AND REWRITE YOUR OWN WHICH YOU WILL BE ALLOWED TO BRING TO CLASS.

Grading and Exams:

1. There will be one laboratory/lecture based exam which will account for **45%** of your grade.

2. The final items you will be graded on account for 55% of your grade and are;

1. Your **laboratory notebook (10%)** in which you will keep a running account of your days in the lab – the keeping of a detail accurate lab notebook is essential to laboratory practice. In this note book you will detail your experiments AND your results. THIS NOTEBOOK IS NOT TO LEAVE THE LAB DURING THE WEEK OF CLASS - *ask me why*.
2. A written complete **laboratory report (45%)** detailing your results and analysis of the data collected over the week. This report is to be written in the style of a **primary research paper**. Abstract, Introduction, Materials and Methods, Results, Discussion and concluding paragraph. The sections of the Materials and Methods and results including
 - a. Protein analysis (BCA) and images of western blot gels
 - b. RNA, quantity and qPCR data
 - c. Toxicity data – analyzed
 - d. Primary Culture - images
 - e. ICC and H&E results and images etc.

Academic Integrity

THE HONOR CODE IS STRICTLY ENFORCED IN THIS CLASS.

The integrity of the University community is affected by the individual choices made by each of us. GMU has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me.

Disability Accommodations

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the ODS

Schedule for BIOS740

	Monday	Tuesday	Wednesday	Thursday	Friday
9am	Set up Rm 223	Set up Rm 223	Set up Rm 223	Set up Rm 223	Set up Rm 223
9:30 AM	Trypsinize cells count and seed	Make toxicity assay dilutions and add to plates. Add TGFbeta to slides	Wash WB add 2# antibody 45 min. Wash and visualize	Fix and stain slide cells for EMT and visualize. QPCR, primary cells culture and western data analysis	Develop Toxicity Assay and all other relevant data, Questions
10am					
12am	Set up 96 well dishes and slides	Western Blot: Load gel			Free
1pm	Lunch	Lunch	Lunch	Lunch	
2pm	Extract RNA and Protien	Make cDNA for QPCR	Stop PAGE Gel, transfer and block 1 hour	Fix and stain slide cells for EMT and visualize. QPCR and Western data analysis	EXAM
3pm					
4pm	Quantify RNA and Protein		QPCR		
5pm		Add 1# Antibody			
Key					
	Primary Cell Culture				
	Toxicity Testing				
	QPCR				
	Western Blotting				
	Multiple techniques converging - QPCR, Immunocytochem, western blotting and primary culture				