

Department of Biomedical Engineering
125:607 Future Faculty I; 125:608 Future Faculty II
Fall 2024; Spring 2025

Instructors: Professor Francois Berthiaume, fberthia@soe.rutgers.edu
Professor Rick Cohen, rick.cohen@rutgers.edu

Class Schedule: Mondays at 10:20 am, BME 107
First class: Sept. 16

TAs for spring 2025: one to two TAs are assigned to each experiment/week

Objectives:

“During the 2nd year of studies, all Ph.D. candidates will take two 1-credit courses over the span of the year. These courses cover basic concepts in teaching and learning. Students will be exposed to different styles of learning and teaching methods and their application to Biomedical Engineering. Students will be expected to apply the principles to laboratories and lectures in the undergraduate program.”

Fall 2024 Schedule

Date	Tasks/Activities	PFF Grad Student Presenter
Sept 9	NO CLASS	None – Email Dr. Berthiaume with advisor's name and 1-2 sentence thesis project description
Sept 16	Organization	None – Dr. Berthiaume will explain everything
Sept 23	Organization	None – Lab assignments finalized
Sept 30	No meeting	(PFF students preparing presentations)
Oct 7	No meeting	(PFF students preparing presentations)
Oct 14	No meeting	(PFF students preparing presentations)
Oct 21	No meeting	1 – 3 PFF students presenting
Oct 28*	Lab presentations	1 – 2 PFF students presenting
Nov 4	Lab presentations	1 – 3 PFF students presenting
Nov 11*	Lab presentations	1 – 2 PFF students presenting
Nov 18	Lab presentations	1 – 3 PFF students presenting
Nov 25*	Lab demos	PFF students demonstrations in lab
Dec 2	Lab demos	PFF students demonstrations in lab
Dec 9	Lab demos	PFF students demonstrations in lab

*seminar week

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Spring 2025 Schedule

Introduction	Topic	Activity/Lab	Faculty Presenting
Jan 23, 2025 3:50 pm RWH 102	0 – Course Orientation	Lab Biosafety training (online) Teamwork training (online) Due Jan 28 10 a.m.	Francois Berthiaume fberthia@soe.rutgers.edu
Week of	Topic	Activity/Lab	Graduate Teaching Assistant
Jan 28 – 31	1 – Statistics Part One: Descriptive Statistics	Human factors and medical device design	Alexa Chu aqc4@scarletmail.rutgers.edu
Feb 4 – 7	2 – Statistics Part Two: Experimental Design, Analysis of Variance	Assessment of age and gender impact on visual acuity	Weronika Wasniowska wk11@gsbs.rutgers.edu
Feb 11 – 14	3 – Biomechanics and Biomaterials: Biomechanical Testing	Four-point bending test of pipe (bone mimic) and plate	Alfredo Zamaloa, Joshua Anjorin adz17@gsbs.rutgers.edu joa45@gsbs.rutgers.edu
Feb 18 – 21	4 – Biomechanics and Biomaterials: Soft Tissue Biomechanics	Uniaxial tensile test and creep test of rubber band and chicken skin	Chidera Ntiwunka-Ifeanyi, Matthew Morris cn409@scarletmail.rutgers.edu mm3599@gsbs.rutgers.edu
Feb 25 – 28	5 – Image Capture and Analysis: Fluorescence Microscopy Data Collection and Image Processing Techniques	Microscopic imaging methods (transmission, phase contrast, fluorescence) and quantitative image analysis	Olivia Parker, Sophia Lowe odp7@scarletmail.rutgers.edu sml322@scarletmail.rutgers.edu
Mar 4 – 7	6 – Biometrics and LabView	LabView tutorial and finger-based biometric analysis	Alexis Sullivan acs352@rutgers.edu
Mar 11 – 14	7– Tissue Engineering and Analysis: Gel Permeation Chromatography	Gel permeation chromatography of mixture of macromolecules	Alexandria Logan arl168@gsbs.rutgers.edu
Mar 18 – 21		Spring Break	
Mar 25 – 28	8 – Tissue Engineering and Analysis: Enzyme-Linked Immunosorbent Assay (ELISA)	Competitive ELISA to quantify albumin in samples	Alana Martinez, Isabel Brandtjen amm815@scarletmail.rutgers.edu ikb19@gsbs.rutgers.edu
March 27 3:50 pm	Final Project Explanation		
Apr 1 – 4	10 – Respiratory Physiology – Measurements and Analysis	Pulmonary function measurements	Fuying Dong fuying.dong@rutgers.edu
April 3	April 3 – Select your final project team	Email me your project team members	Francois Berthiaume fberthia@soe.rutgers.edu
Apr 8 – 11	9 – Cardiac Physiology: Cardiovascular Physiology and Key Measurements	ECG and pulse data collection and analysis	Chi Han ch1143@gsbs.rutgers.edu
April 10	Final Project Summary Plan	One page describing which topic you chose and who does what in Project	
Apr 15 – 18	Make-up lab week (if needed)		
Apr 17	Final Project Evidence Generation Plan	First 3 slides of Project presentation, including Evidence Generation Plan	
Apr 24, May 1, May 8	Office hours to discuss your plans, slides, etc. as needed (individual team meetings also possible by appt)		
May 12	Final Project Presentation	VoiceThread Presentation submitted (in lieu of final exam)	

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Spring 2025 class hours and location:

All labs are conducted in the first floor teaching laboratories (BME 115, 117, or 121).

Monday	Tuesday	Wednesday	Thursday	Friday
8:30 – 11:30		8:30 – 11:30		8:30 – 11:30
Section 5	10:20 – 1:20	Section 2	10:20 – 1:20 Section 3	Section 4
	Section 1	12:10 – 3:10	12:10 pm Prep Future Fac*	12:10 – 3:10
		Section 6		Section 7
	3:50 – 5:10 Lecture			3:50 – 6:50
				Section 8

* To discuss if some PFF students have conflict

Lab Policies for undergraduate students:

- A flash drive to record the lab data is mandatory. Please make sure you bring the flash drive to the lab.
- IMAGEJ and Matlab software are recommended but not required.
- You must attend the laboratory section in which you are enrolled. We are not allowed to have more students than the section size (24) in the laboratory at one time. Accommodations will not be made for “make-up” sessions except, where possible, in the event of documented medical absence or university-sponsored event (e.g., varsity athletic competition).
- You must be on time to the laboratory. If you miss the quiz, there will not be a makeup. If you do not attend the lab, lab report (individual or group) cannot be submitted.
- Lab reports are uploaded on Canvas; they are due one week from the lab activity at 11:59 PM. Late reports are submitted to TA. Late reports will be penalized 10 points per day late, or part of a day late.
- You will work in teams to conduct the laboratories. The team reports will require a submission of individual contribution to the team. Specific instructions will be given by the TA for each lab.