



CHM4413L: Biophysical Laboratory

for UF Chemistry Majors

Sections 07D1 (M), 1222 (T), 126G (W), 126H (R)

Fall 2016 (August 22 – December 7)

(2 Credit Hours)

Course Website: <https://ufl.instructure.com/courses/329992>

Course Materials and “Manual”: All course materials will be available through our secure course website, listed above, which is a Canvas LMS site hosted by Instructure. There is no printed textbook or lab manual, but feel free to print whatever you want from our website if that is your method.

Instructors: Gail Fanucci, P Brucat, and Zhanglong Liu

Contact info: Your instructors are to be contacted through the Canvas Messaging tool. You can also reach Prof. Fanucci at gefanucci@gmail.com. For some odd reason the Canvas app will not effectively work on her smartphone. In extreme emergency situations you may also text Dr. Fanucci at 352-219-5201. Please respect usage of this number.

Office Hours: Fanucci Mondays 4th period CLB311F
Liu TBA CLB311G
Brucat posted on Canvas

Teaching Assistants (Contact through Canvas Messaging)

Maria (Pilar) Buteler Jacqueline Esquiaqui
Trang Tran Qiong Wu
Jorge Medina

Weekly “Lectures”

We all meet together Friday period 4 in FLG 230 for background information, discussion of the lab activities, and expectations for assignments. Attendance is MANDATORY. You will check a sign-in sheet upon entry. It pains us to do this for a 4xxx level class but too much information is given during these meetings regarding the laboratory reports and expectations. **Attendance will be graded.** (see below)

Lab Sessions

Each section is assigned a specific afternoon meeting time, usually occurring in LEI248. Some data analysis and database activities will be held in a more traditional classroom. Locations will be posted in announcements so please set up your Canvas account to automatically notify you of announcements. Please be prepared for all lab sessions. Contact your instructors at least one week in advance if any potential absences are anticipated.

Lab Safety

You are expected to have and use all proper safety equipment and procedures when in the laboratory. This includes, but is not limited to, eye protection and appropriate clothing/skin covering. We will also be using optical and IR lasers which require specific radiation safety procedures. For more information about lab safety see the course website and consult your lab instructor.

FALL SEMESTER 2016

	S	M	T	W	T	F	S
Aug.	14	15	16	17	18	19	20
				Drop/Add		Registration	
	21	22	23	24	25	26	27
	28	29	30	31			
Sept.					1	2	3
	4	Holiday	5	6	7	8	9
	10						
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	
Oct.							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
						Homecoming	
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					
Nov.			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
						Tent.	
	27	28	29	30			
Dec.					1	2	3
	4	5	6	7	8	9	10
					Reading Days		
	11	12	13	14	15	16	17
						Commencement	
	18	19	20	21	22	23	24
		Grades Due	Deg Cert.				

Ethics

We expect department and conduct appropriate of research professionals of students in this course. This includes the complete understanding of academic integrity, plagiarism, and data fabrication.

Groups

Each lab section will be divided into **four groups of (nominally) three people**. You will work together as a team in lab, but pre-lab quizzes and some assignments will be submitted individually. Midway through the semester you will have the opportunity to request replacement into a different group. Your first team membership will be assigned by the faculty. If there are troubles within your group dynamic, these can be reported and teams can be regrouped for the second half of the semester. Please pay attention to all assignment designations and Groupings on the Canvas LMS site hosted by Instructure

Lab Notebook and Data Plotting

Every good Chemist has a lab notebook by their side. It is a journal, evidence of discovery, a historical record, and a valuable tool. You will keep a proper lab notebook in this course. Your notebook will be graded and checked upon leaving each lab period. You should come to lab prepared with all tables and notes within the lab notebook. TAs will check your notebook at the beginning of the laboratory period to ensure you have come prepared. Even when working in a group each student should have complete data notes within their own lab notebook. You also should have at least one person in your group come with a laptop that has sufficient software to plot data before you leave the laboratory session. It is your responsibility to repeat data measurements in cases where things have gone awry. Many assignments are to show your pre-processed data or preliminary graphs BEFORE leaving the laboratory period. This will be assessed in your **Data Processing** grade (see below). Your notebook itself (organization, completeness, etc.) will be assessed every lab session as “acceptable” (100%), “unacceptable” (50%), or “missing” grade (0%). This assessment will be averaged for the term to yield your **Notebook** grade (see below). One unacceptable (but not “missing”) grade will be dropped from the term’s Notebook grade calculation (if it exists).

Course Grade Computation

Your course letter grade will be derived from a simple calculation: the weighted average of your performance in:

Prelab Quizzes (6)	10%
In-Class Quizzes (3)	5%
Post Lab Assignments (8)	7%
Titles & Abstract Assignment (3)	10%
Data Processing (10)	20%
Notebook	8%
Attendance	5%
Experimental Design (4)	10%
Video Reports (2)	15%
<u>Full Report (1)</u>	<u>10%</u>
Total	100%

Your course grade will be determined from your total course performance percentage as follows:

85%	A
80%	A-
75%	B+
70%	B
65%	B-
60%	C+
55%	C
50%	D
< 50%	E

All grades will be posted in the Canvas GradeBook, as available.

UF's Grading Policy: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Laboratory Schedule (Subject to change; See <https://ufl.instructure.com/courses/329992> for latest info)

Wee k	Date	Module	Details
1	Aug 22 nd -26 th	Lab Introduction, Protocols (Safety, Clean-Up), Measurement/Calibration	-Notebook ¹ Initial Lab Groups defined
2	Aug 29 th –Sept 2 nd	Molecular Electronic Structure: The Conjugated Dye	-Online Prelab Quiz ; Due noon day of lab session -Table of Wavelengths and Calculated Variables ; Due by end of lab ² -Notebook ¹ ; Due by end of lab -Title and Abstract submission ; Due Sept 12 th -Post Lab Questions ; Due Sep 19 th
3	Rotation 1: Sept 5 th -16 th This rotation is by section:	Activity A: Library Lecture on Using Databases Note: Monday's section (07D1) uses Friday lecture time (F4) for the activity	-Library Assignment submission Due Sept 19 th
4	M/T A then B W/R B then A	Activity B Data Discussion (MATLAB) Plotting	-Graphs with Figure Captions (data from Conjugated Dye activity) Due Sept 19 th
5	Sept 19 th -23 rd	Absorption & Fluorescence Fluorescence Self Quenching	-Online Prelab Quiz ; Due noon day of lab session -Evaluate SNR of Absorption/Emission ; Due by end of lab ² -Notebook ¹ ; Due by end of lab
6	Sept 26 th -30 th	Fluorescence Quenching by Halide Ions and pH	-Two Graphs with Figure Captions for Data Analysis Due by end of lab ² -Notebook ¹ ; Due by end of lab
7	Oct 3 rd -7 th	Effects of Ionic Strength on Fluorescence Quenching	-Re-do Prelab Quiz ; Due noon day of lab session -Data Analysis; Due by end of lab ² -Notebook ¹ ; Due by end of lab -Post Lab Questions ; Due Oct 10 th -Video Lab Report (see guidelines) ; Due Oct 17 th
Lab groups redefined			
8	Oct 10 th -14 th	NMR Lecture/Demonstration (Room TBA)	-Experiment Description ; Due by end of lab ² -Notebook ¹ ; Due by end of lab
9	Oct 17 th -21 st	NMR Data Acquisition	-Online Prelab Quiz ; Due noon day of lab session -Preliminary Data Analysis and Table; Due by end of lab ² -Notebook ¹ ; Due by end of lab -Graphing Assignment ; Due one week after lab session -Full Lab Report (see Guidelines) Due Nov 4 th
10	Rotation 2: Oct 24 th - Nov 4 th This rotation is by group.	Phase Diagram (Microscopy)	-Online Prelab Quiz ; Due noon day of lab session -Graph with Figure Caption; Due by end of lab ² -Notebook ¹ ; Due by end of lab -Title and Abstract submission ; Due Nov 14 th -Post Lab Questions ; Due Nov 14 th
11		Experimental Design A	-References For Design submission ; Due one week after lab session
12	Rotation 3: Nov 7 th - 18 th This rotation is by group	Membrane Permeability	-Online Prelab Quiz ; Due noon day of lab session -Graphs with Figure Captions ; Due by end of lab ² -Notebook ¹ ; Due by end of lab -Video Lab Report (see guidelines); Due Dec 5 th
13		Experimental Design B	-Outline of Exp. Design ; Due by end of lab ² -Title and Abstract submission ; Due by end of lab ²
14	----- Thanksgiving week -----		
15	Nov 28 th -Dec 2 nd	Experimental Design C	-Oral Presentation ; presented live during lab session
16	----- Reading Days -----		

¹ See notebook grading policy.

² This activity will be checked by TA at the end of the lab session. Final submission to Canvas must be made within 24 hours.

Absences

Excused absences are allowed in accordance with [UF policy](#). Consult with your instructor at least one week in advance of their occurrence.

Lecture/Discussion Schedule (tentative)

Week	Date	Topic
1	26-Aug	Conjugated Dye Introduction/ Particle in a Box
2	2-Sept	Abstract/Tables/Figures
3	9-Sept	Section 07D1 only: Library Activity (all others: no meeting)
4	16-Sept	Fluorescence Spectroscopy and Relaxation
5	23-Sept	Fluorescence Quenching Mechanism
6	30-Sept	Discussion of Video Reports
7	7-Oct	Equilibrium and NMR Lecture
8	Homecoming	Holiday, no meeting
9	21-Oct	Phase Behavior and Instrumentation
10	28-Oct	Discussion of Full Report
11	4-Nov	Transport Properties and Diffusion
12	Veteran's Day	Holiday, no meeting
13	18-Nov	Experimental Design Philosophy
14	25-Nov	Experimental Design Critique
15	2-Dec	TBA (as needed)

There will be ~4 in-class quizzes administered during lecture time on Friday.

Getting Help

For quickest response, you might find posting questions to the Canvas Discussion Board might be a good choice. Messaging the Instructor, TA, or even a classmate from within Canvas also works.

For Username/Password issues, such as difficulties logging into any Gatorlink-authenticated site at UF, (including our Canvas), please contact the UF Help Desk at: helpdesk@ufl.edu (352) 392-HELP - select option 2

University Policy on Accommodating Students with Disabilities

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<https://www.dso.ufl.edu/drc>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

University Policy on Academic Misconduct

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>

We, the members of the University of Florida Community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity

Disclaimer

Note: All aspects of course operations, including grading, course policy and policy execution, are subject to change at any time at the sole discretion of the course instructor.