

ORGANIC CHEMISTRY LABORATORY II

(CHEM 2205) Summer 2024

Note that this course contract is subject to change with notice via Canvas website announcements and/or email notification

Instructor: Dr. Ron Davis, Jr.

Office Hours: by appointment

voice: 202-687-3566

email: rbd34@georgetown.edu

Course Website: <http://www.canvas.georgetown.edu>

Office: 103 Basic Science

Text: None Required

Recommended: McMurray, Organic Chemistry (Lecture Text, on reserve in 103 Basic Science)

Teaching Assistant

Name: _____

Contact: _____

Course Objectives:

By the end of this course, the student should be able to:

- understand and follow common safety practices when working in a synthetic organic chemistry laboratory
- identify and distinguish simple organic compounds by selecting, performing and interpreting the appropriate analytical technique (FT-IR, NMR and GCMS techniques)
- design and execute a simple protecting group synthesis strategy
- understand and use crude product analysis to determine thermodynamic parameters governing thermodynamically and kinetically controlled reactions
- design basic reaction setups which exploit LeChatelier's principle to maximize yields from various equilibrium reactions
- predict the major products of multistep reactions based upon stoichiometric ratios of reactants
- select and use an appropriate system for exclusion of various problematic atmospheric gasses from reaction setups
- generate professional quality reports on experimentation involving all of the above concepts

ORGANIC CHEMISTRY LABORATORY II

(CHEM 2205) Summer 2024

Note that this course contract is subject to change with notice via Canvas website announcements and/or email notification

Semester Schedule

Week	Day	Lab/Lecture	Procedure	Other
1	Tues	- Introductory Lecture		
	Wed	- Safety/Waste/Integrity Review - Lab Orientation		
	Thurs	Lab Lecture 1 - Spectroscopy		
	Fri	Conduct Lab 1 - Spectroscopy	CHEM118-01	
2	Tues	- Protecting Groups Lecture (Lab 2) - Thermodynamic/Kinetic Reaction Control Lectures (Lab 3)		
	Wed	Lab 2 - Williamson Ether Synthesis Experiment	CHEM118-02	Write-up 1 due
	Thurs	Lab 3 – Diels Alder Reaction	CHEM118-03	
	Fri	Reserve Day		
3	Tues	- Regiospecific Reactions Lecture (Lab 4) - Advanced Separations Lecture (Lab 5)		
	Wed	Electrophilic Aromatic Substitution Experiment	CHEM118-04	Reports 2 & 3 due
	Thurs	Steam Distillation Experiment	CHEM118-05	
	Fri	Reserve Day		
4	Tues	- Reversible Reactions Lecture (Lab 6) - Atmosphere and Moisture Exclusion Lecture (Lab 8)		
	Wed	Fischer Esterification	CHEM118-06	Reports 4 & 5 due
	Thurs	Grignard Reaction Experiment (TA)	CHEM118-08	
	Fri	Weekly Review (Prof)		
5	Tues	Optional Review		
	Wed	Lab Check Out		Reports 6 & 8 due
	Thurs	No Lab Activity (Lecture Exam)		
	Fri	Lab Final Exam		

(Tue/Fri meetings with professor, Wed/Thu meetings with TA)

Grading Scale:

Safety Quiz (1)	3%
Spectral Unknown Assignment (1)	9%
Laboratory Reports (7)	63%
Lab Final Exam (1)	25%
Total Course Grade	100%

A tentative standard rubric of 90.0-80.0-70.0-60.0 will apply to the grades

+/- cutoffs will be determined at the end of the term, but will not exceed +/- 3.0%

Blackboard website Grade Book calculations will be considered official

Rounding of final scores will be done at the discretion of the instructor

Please note that grades in this course are *earned*, not *negotiated*.

Although good-faith discussion of your report marks with your TA is encouraged, only legitimate calculation and transcription errors will be corrected in the grade book.