ORGANIC CHEMISTRY LABORATORY II

(CHEM 118 - Summer 2020)

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

Instructor: Dr. Ron Davis, Jr.
voice: 202-687-3566
email: rbd34@georgetown.edu

Office Hours: 2:00 - 3:00pm Wed/Thurs
or by appointment

Course Website: http://canvas.georgetown.edu
Office: 103 Basic Science
Text: **Required**: CHEM118 Course Pack (available at the University Bookstore)
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 (UV-vis, 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

Course Policies

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Semester Schedule
(Tue meetings in classroom, Wed-Fri meetings in lab)

Day	Lab/Lecture	Procedure	Other
Tues, July 7	- Introductory Lecture - Identification of Organic Compounds Lecture - Protecting Group Chemistry Lecture		
Wed, July 8	Check in and Safety Tour		
Thurs, July 9	Spectral Unknown Exercise	CHEM118-01	
Fri, July 10	Williamson Ether Synthesis Experiment	CHEM118-02	
Tues, July 14	- Thermodynamic vs Kinetic Reaction Control Lecture - Regiospecific Reactions Lecture		Write-up 1 due Report 2 due
Wed, July 15	Start Diels Alder Reaction	CHEM118-03	
Thurs, July 16	Complete Diels Alder Reaction Experiment	CHEM118-03	
Fri, July 17	Electrophilic Aromatic Substitution Experiment	CHEM118-04	
Tues, July 21	- Advanced Separation Techniques Lecture - Dealing with Reversible Reactions Lecture		Reports 3 & 4 due
Wed, July 22	Steam Distillation Experiment	CHEM118-05	
Thurs, July 23	Fischer Esterification Experiment	CHEM118-06a	
Fri, July 24	Ester Hydrolysis Experiment	CHEM118-06b	
Tues, July 28	- Stoichiometric Reaction Control Lecture - Atmosphere and Moisture Exclusion Lecture		Reports 5 & 6 due
Wed, July 29	Aldol Condensation Experiment	CHEM118-07	
Thurs, Jul 30	Grignard Reaction Experiment	CHEM118-08	
Fri, Jul 31	Experiment Make Up Day		
Tues, Aug 3	Optional Review		Reports 7 & 8 due
Wed, Aug 4	Lab Check Out		Makeup Reports Due
Thurs, Aug 5	Lab Final Exam		

Grading Scale:

Safety Quiz	3%	
Spectral Unknown Assignment:	9%	
7 Laboratory Reports:	63%	(9% each)
Lab Final Exam:	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%

Canvas 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.