

**ORGANIC CHEMISTRY LABORATORY II**

(CHEM 118 - PBPM118) Summer 2022

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

**Instructor:** Dr. Ron Davis, Jr.  
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**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

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## Semester Schedule

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

Day	Lab/Lecture	Procedure	Other
Tues, July 12	- Introductory Lecture - Identification of Organic Compounds Lecture - Protecting Group Chemistry Lecture		
Wed, July 13	Check in and Safety Tour		
Thurs, July 14	Spectral Unknown Exercise	CHEM118-01	
Fri, July 15	Williamson Ether Synthesis Experiment	CHEM118-02	
Tues, July 19	- Thermodynamic vs Kinetic Reaction Control Lecture - Regiospecific Reactions Lecture		Write-up 1 due Report 2 due
Wed, July 20	Start Diels Alder Reaction	CHEM118-03	
Thurs, July 21	Complete Diels Alder Reaction Experiment	CHEM118-03	
Fri, July 22	Electrophilic Aromatic Substitution Experiment	CHEM118-04	
Tues, July 26	- Advanced Separation Techniques Lecture - Dealing with Reversible Reactions Lecture		Reports 3 & 4 due
Wed, July 27	Steam Distillation Experiment	CHEM118-05	
Thurs, July 28	Fischer Esterification Experiment	CHEM118-06a	
Fri, July 29	Ester Hydrolysis Experiment	CHEM118-06b	
Tues, Aug 02	- Stoichiometric Reaction Control Lecture - Atmosphere and Moisture Exclusion Lecture		Reports 5 & 6 due
Wed, Aug 03	Aldol Condensation Experiment	CHEM118-07	
Thurs, Aug 04	Grignard Reaction Experiment	CHEM118-08	
Fri, Aug 05	Experiment Make Up Day		
Tues, Aug 09	Optional Review		Reports 7 & 8 due
Wed, Aug 10	Lab Check Out		Makeup Reports Due
Thurs, Aug 11	Lab Final Exam		

### Grading Scale:

Safety Quiz	3%
Spectral Unknown Assignment:	9%
7 Laboratory Reports:	63% (9% each)
Lab Final Exam:	25%
<hr/> Total Course Grade	<hr/> 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.