Introductory Organic Chemistry Laboratory (CHM 361-Section 601): Summer 2018

Instructor: Manjira Kumar (PhD)

Course title/number	Introductory Organic Chemistry Laboratory (CHM 361)
Semester/year	Summer III 2018
Days/time	Mon/Tues/Wed/Thr (12.30 PM – 4.00 PM)
location	S465 (lecture), S412 (lab)
Instructor	Manjira Kumar (PhD)
Office	S403
Office hours	10.00 AM – 11.00 AM, Mon/Tues/Wed/Thr
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University policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic---affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic---affairs/policies/.Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment
Course description	An introduction to experimental organic chemistry with emphasis on fundamental techniques and their application to the preparation and identification of organic compounds.
Course credit	3 hours, Prerequisite or Co-requisite: CHM 356
Required text	Pavia, D, Lampman, G, Kriz, G and Engel, R, *A Microscale Approach to Organic Laboratory Techniques:, 6th edition*.
Other required items	safety goggles, bound laboratory notebook, paper towels
recommended	laboratory coat or apron

Learning outcomes	(1) Perform and understand basic laboratory operations including purifying and identifying organic compounds, and carrying out organic reactions. (2) Interpret experimental data. (3) Do laboratory experiments that emphasizes and reinforces the principles and concepts of chemistry in CHM 355 and 356. (4) Write a laboratory notebook
Assessment	Your ability to perform the basic laboratory operations will be accessed using product evaluations and the data in your laboratory notebook. Your ability to interpret data will be assessed in your laboratory notebook and in quizzes and exams. Your understanding of lab operations and the basic principles behind the experiments will be assessed using quizzes and exams. Your ability to keep a laboratory notebook will be assessed by actually collecting and grading sample of your notebook.
Laboratory Policies	1. Anyone who has not signed the statement acknowledging one's full understanding of the required safety measures will not be permitted to work in the laboratory. 2. Use care in following the directions of your instructor and laboratory text. Do not alter the experimental procedures without being instructed to do so by the instructor or the TA's. 3. Protective eye goggles must be worn in the laboratory at all times. Failure to do so will constitute sufficient grounds for dismissal from the laboratory. You are responsible for obtaining a pair of safety goggles. **We strongly urge you not to wear contact lenses.** 4. Clothing: Slacks or dresses cut below the knee must be worn. Shoes covering the bridge of the foot and toes must be worn. You will not be allowed to work while violating either of these rules. 5. Know the locations of all safety equipment in the laboratory. You will be tested on this. 6. All injuries, no matter how trivial, must be reported to the instructor immediately.

PASS THE SAFETY QUIZ ON MyMU BEFORE LAB (when it's available)
ACS academic lab safety guide
http://www.acs.org/content/dam/acsorg/about/governance/committees/chemicalsafety/publications/safety---in---academic---chemistry---laboratories---students.pdf

Attendance	Completion of all experiments and exams is required. Attendance is required.
Making up a lab	Only "Excused Absences", as defined in the policy, can be made up. The proper procedure is to notify me (by e-mail, phone, or in person) as soon as possible; any documentation (such as doctor's notes) have to be submitted directly to the Office of Student Affairs, MSC 2W38 who will then notify me. Note that one lab grade will be dropped in computing your score. **There will be no make-up lab**. Therefore, you will **lose your PE/lab report points**. However, if you are absent for your exam and are excused, you could take the exam within 24 hours after the exam is over. Please notify me with proper documentation ASAP.

Grading

There will be two exams in this course.

Quizzes will be unannounced. Questions may concern material previously covered but will generally be concerned with the subject of the day. Late reports will be penalized; 4 points per day and after 5 days, points will be reduced to zero.

Exam 1 (Midterm) 100 points

Exam 2 (Final) 100 points

Lab reports (20 x 5 = 100 points)

PE (10 x 8 = 80 points)

Quiz (5 x 4 = 20 points)

Total 400 points

Based on a total of 100%, grades will be the highest grade possible on the following scale:
A ≥ 90%, B ≥ 80%, C ≥ 70%, D ≥ 60%, F < 60%

Laboratory Report Grades
Introduction: 5 points, **Experiment:** 5 points, **Results and discussion:** 8 points, **Conclusion:** 2 points

Product Evaluations
Certain labs (as indicated on the schedule) will require you to have your product or experimental results evaluated. You will hand in a product evaluation form and have your product inspected by an instructor.

Date	Technique	Expt#	Title	Report#/PE*
07-10-18 (T)	**1**		Check-in/Safety training	
07-11-18 (W)	**8**, **11**,	3, 3A,	Crystallization of Sulfanilimide	07-16-18
07-12-18 (R)	8, 11, **9**	3, 3B	Crystallization of Sulfanilimide	07-16-18 (combined)
07-16-18 (M)	**20 expt B**	Handout	TLC (Benzil, Benzophenone, Benzoin)	PE
07-17-18 (T)	**12**	13	Isolation of Caffeine from Tea	PE
07-18-18 (W)	12, **14**	23/23C	t-Pentyl chloride	
07-19-18 (R)	11, 14	23/23A	n-Butyl Bromide	PE
07-23-18 (M)	14, **25**	24/24A	4-Methylcyclohexene, NMR	
07-24-18 (T)	**25**	24	IR: 4-Methylcyclohexene	7-25-18
07-25-18 (W)	11, **26**	45	Nitration of Methyl Benzoate	7-30-18
07-26-18 (R)			**Midterm**	
07-30-18 (M)	20	handout	Reduction of Benzophenone w/NaBH4; TLC	PE

07-31-18 (T)	26	33B/C	Camphor, Borneol, Isoborneol NMR: Borneol, Isoborneol	08-02-18 *(Apparatus for next reaction in oven)*
08-01-18 (W)	11/12	35/35A	Grignard: Triphenylmethanol	
08-02-18 (R)	11/12	35/35A	Grignard: Triphenylmethanol	PE
08-06-18 (M)	12, 14, 25, 26	14A	Banana oil (Isopentyl Acetate) IR, NMR	08-09-18
08-07-18 (T)	11	11 A	Acetaminophen	PE
08-08-18 (W)		43/43C	Wittig Reaction: 1,4-Diphenyl-1,3-butadiene	PE
08-09-18 (R)		52B	Nylon **(Review)**	PE
08-10-18 (F)			**Final exam**	

*PE = product evaluations (the product of a synthesis or chromatograms or spectra are to be turned in for grading at the completion of the experiment)

a date in this column indicates that a copy of your laboratory notebook for the indicated experiment is to be turned in at the beginning of the period on the indicated date

- *Instructor reserves the right to change the syllabus as needed*
- *Use of cell phones are not allowed during lecture/lab hours*