Organic Chemistry II Laboratory (CHEM 443) Spring 2016

Professor: Dr. Juliet Hahn
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Prelab Lecture meets in Neckers 240 from 3 to 3:50 pm Mondays with Dr. Hahn. Individual experimental lab sections meet with teaching assistants at the time for which you registered all semester long in Neckers 205.

Lab Sections and times – Organic II Lab: Section 1: Thursday 8 am to 12 noon in Neckers 205 TA: Gajanan Kulkarni Section 2: Thursday 1 to 5 pm in Neckers 205 TA: Bheemireddy Sam Section 3: Thursday 1 to 5 pm in Neckers 205 TA: Gajanan Kulkarni Section 4: Wednesday 5:30 to 9:20 pm in Neckers 205 TA: Peter Rose Section 5: Tuesday 8 am to 12 noon Neckers 205 TA: Jack Pertile

TA Emails: Sam Bheemireddy sam.edu@siu.edu Gajanan Kulkarni gkulkarni@siu.edu Jack Pertile jackpertile@siu.edu Peter Rose rosehhs@siu.edu

My office hours: 9-10 am MWF & 2-4 pm W (I teach the Organic II Lecture from 1 to 1:50 pm in Neckers 440) & other times by appointment. (Please email me to make an appointment. If you need me, I will always find the time to meet with you.) I am almost always in my office during normal business hours from 9 am to 4 or 5 pm M through F. I am usually not in my office during lunch time because I usually go to the cafeteria. (I do not wish to informally meet with my students so do not follow me to lunch to ask me office hour type questions.) I have a log sheet on my office door so you can tell if I have left for the day. If I am somewhere else other than my office, I always leave a note saying where I am so you can follow me. However I would prefer that you come during my office hours or make an appointment if you are going to come at times other than my office hour rather than just coming to see me all the time.

The lab class is independent of the lecture class so you will receive an independent grade for the lab. I am the Primary Instructor of record for this class and will be assigning your final grades for the lab. The TAs are not listed as the Primary Instructor of record so they are unable to submit your grade without me. This semester I am also teaching the Organic I Lecture, the Organic II Lecture and the Organic II Lab as the Primary Instructor of record. The labs have about 6 graduate student teaching assistants who actually teach the labs although I actually teach the once a week one hour PreLab Lecture


Additional information may also be posted on http://JulietHahn.com (and D2L)

(d) Lab notebook should be either a 3 ring binder type notebook or a spiral bound notebook which will allow pages to be ripped out to be submitted. However to make the lab notebook a permanent record, if there are any errors, please do not white out or throw out pages. Just draw a line through the error and then write near the original incorrect statements. Also your TA will sign and date your notebook, if you turn in a notebook without your TA’s signature and date, you will lose 20% from your notebook grade. (If you mess up your prelab, turn it in with the TA signature and date with the parts you do not want graded crossed out.)
This proves that you actually were in lab and did the experiment and that you are not just turning in a lab report without ever having been in the lab.)

**Lab reports** will be either (a) [Worksheet](#) based lab reports [also turn in prelab stapled to the top page of the Worksheet] due the day of the experiment in the lab or (b) [Lab Notebook](#) type lab reports [also turn in prelab stapled to the top page of the Lab notebook] pages for the particular lab which is due that day. (The first part of the Lab Notebook IS the prelab unless your prelab was a real mess and you had to write something else or add something else to make it a decent prelab when it is graded.) due one week from the completion of the experiment in the lab. The turned in prelab portion MUST have the TA’s signature and date.

****In the rest of this syllabus Lab Report means either (a) worksheet based lab report or (b) Lab Notebook type lab report. (Organic II only has Lab Notebook type lab reports)****

**PreLabs** For all labs, the prelab will consist of (a) **Introduction:** including reaction scheme and mechanism, theory and significance (b) procedure in sufficient detail that someone skilled in the art of chemistry could successfully repeat the experiment. Prelab will be checked sometime during the lab class time while the experiment is in progress by the TA. **It is the student’s responsibility to obtain the TA signature for the prelab grade and to obtain the product grade.**

During all labs, the TA will **sign (probably really initial) and date** the prelab and give each student either 10 pts, 5 pts or zero points for the prelab. **(No theory deduct 5 points, No procedure deduct 5 pts)** The prelab can never be submitted after the completion of the lab and once the prelab points are lost (defined as when the TA comes by to initial your lab report), the prelab points cannot be recovered.

If you come to lab without a prelab, please at least (a) write down the experiment name (b) your name and date (c) **obtain TA signature and date** with a **minus 10 pts** to prove that you were in lab but did not have the prelab completed.

When turning in the lab report (worksheet or lab notebook), the Prelab must be turned in with the TA signature and date to prove that the student actually performed the experiment. Otherwise the TA may refuse to accept the worksheet or the lab notebook resulting in a zero for that lab grade. Alternatively the TA may opt to accept the worksheet or lab notebook (without a TA signature and date) and to only remove a **punitive 20% (so if you have no prelab you’ve already lost 10%+punitive no TA signature pts = total 30% lost)** from the lab report grade (lab worksheet or lab notebook grade). (This is on top of the 20% points for grading the prelab listed below.)

**Worksheet based laboratory reports** will consist of the following points: (a) The signed and dated prelab (10% of Worksheet grade you already earned these 10 pts during the experimental part of the lab ) (b) Introduction (5 % - new points) and (c) procedure (5 % - new points) + (d) the completed worksheet. (70% grade) + (e) 10% product grade (If there is no product grade for the particular lab, then you will automatically get those 10% points.)

[ in points: 10 pts earned by prelab at the start of lab, 10 pts when you TA grades the worksheet in detail for the prelab again, 70 pts for the worksheet, 10 pts for product = 100 total points per lab report]
Lab Notebook based Laboratory Report will consist of the following points: (Please write legibly. If your TA and a normal person (Dr. Hahn for example or any reasonable person) cannot read your handwriting, you may lose lots and lots of points up to a total of 30% of the lab notebook grade.)

1. **Introduction** (10 Pts.): (all experiments do not have all part of the introduction) (****previously completed as a part of the prelab, Student may add additional parts when the lab report is turned in so that a student who earned zero points during the prelab, may complete this portion so that they may earn all 10 points for the introduction and 10 pts for the procedure. TA can decide that upon reading the Introduction in detail that it was not really worth 10 pts for the introduction and 10 pts for the procedure but the TA may not deduct points already given for the prelab. **Students cannot earn prelab points once the prelab points are lost.****)

   a) Significance
   b) Reaction Scheme
   c) Reaction Mechanism
   d) Theory - New Techniques
   - Characterization Methods

   (Do not discuss techniques or characterization methods that were covered in previous reports)

2. **Procedure** (10 Pts.): The procedure should be of sufficient detail that someone skilled in the art of chemistry could successfully repeat the experiment. (previously completed as a part of the prelab **** see above****)

3. **Data** (20 Pts.): for reactions this is usually masses of reactant & product and yield, for technique labs like TLC, distillation and spectra, this could be the actual spectra, temperature reading, measurement of distance, etc..

4. **Conclusion** Results, and Discussion (30 Pts.): Describe important results and observations and draw inferences from this data. Summarize and indicate the significance of the laboratory.

5. **Questions** (10 Pts.): Answer the assigned questions posted on D2L by Dr. Hahn.

[in points: 10 pts for prelab during lab, 20 pts for prelab during grading, 20 pts data, 30 pts conclusion, 10 pts question, 10 pts product grade (If a particular lab has no product, you automatically get these product points.) = 100 total points ]

**Late Lab Reports:** After the deadline for either the worksheet based lab reports or the lab notebook based lab reports, the lab report will lose points at the rate of 20% per business day late so that after 5 business days (or a week) the lab report is worth zero points.

**Deadlines:** (a) The worksheet based report is **due at the end of the lab period** when the lab is done (at either 12 noon or 5 pm).  (b) **Lab notebook** based lab report is **due one week** after the completion of the lab report when the students meet the TA **at the start** of the lab of the experimental lab class.

Each TA has a mailbox in Neckers 224, please note that this office typically closes at 4pm. When turning in late lab reports into the TA’s mail box, please ask one of the office assistants to sign and date the late lab report so that you have proof of when it was submitted. Otherwise if your TA doesn’t immediately check his mailbox, you may lose points unnecessarily.
Safety Points: During each lab, if the student does anything which violates lab safety rules, the TA may deduct up to 30% from the student’s lab report grade. The deduction will be noted near the signature and date on the prelab and in the TA’s gradebook (with a notation such as: safety glasses, fire hazard, spill hazard, etc). Student will lose 10% each time the TA catches the student without safety glasses over the eyes. If the student ignores a direct request by the TA in violation of some safety rule, the TA may deduct 30% of the student’s lab report points on the spot but the TA must document what the safety violation was by writing it in the student’s lab notebook near his dated signature and also must note the point deduction in his gradebook. General spillage and uncleanliness in handling equipment, chemicals and glassware could also be grounds for loss of safety points.

Also because chemical residue left on glassware checked out and returned to the stockroom can cause problems for the next person checking out the glassware and could be a safety hazard for the next person, unclean glassware returned to the stockroom will result in a loss of 10% safety points each occurrence.

Product Evaluations will be based on the quantity and quality of the recovered product. Products should be shown to the TA before the student cleans up his glassware. You do not need to turn in the product in a product vial. The Product Evaluation counts as 10% of the Lab Report Grade (either worksheet or lab notebook). If a lab has no product to be graded, the student automatically earns these points if he was in class and completed the experiment.

In general if a student has so much difficulty that he is unable to complete the experiment to the point of obtaining a product, he may ask his TA to deduct 10% of his report grade and let him continue the experiment by joining the experiment of one of his neighboring colleagues. [The “I cry Uncle” (I accept defeat) Exception: Please note that if you “cry Uncle”, that the maximum grade possible is 90% (not 100%) so if you make a decent grade on the rest of the lab write up (let’s say 80%), your lab grade will probably be a C or D (If you earn 80% on the rest of the lab report, 80% of 90% is only 72%) on the lab for which you “cry Uncle”].

Quizzes will be given during the weekly Prelab Lecture with Dr. Hahn (3 to 3:50 pm Monday for Organic II) as clicker questions. The clicker question quiz will be open book, open notebook with 50% for participation and 50% for correctly answering the question. The clicker Quiz question must however be answered independently by the student. (If the class does not answer independently, Dr. Hahn will change the clicker quiz into hard copy quizzes this semester.)

Absentee Policy: For the quizzes and lab reports everyone will be able to drop one lowest grade. One lowest grade may be for a zero which you earned as a result of an unexcused absence.

Excused Absence: If you have a valid documented excused absence, an averaged grade will be calculated to substitute for the missed class. Students must provide a documented excuse or they will receive a zero. The documented excuse must be submitted so that the TA has hardcopy documentation for his files. (acceptable excuses include: doctor’s note, death in the immediate family, documented weather related problems, working on behalf of the university in an official capacity) (unacceptable excuses include: personal problems, going away for the weekend, intramural sports)

Laboratory Safety: Organic chemistry is inherently dangerous since we work with glassware and flammable solvents. Explosions and spills do happen and people do get hurt; however, these incidents are very rare when proper precautions are taken. Therefore, it is extremely important that all students and TA’s follow well-defined safety protocols. Such protocols are outlined in the Gilbert & Martin textbook (p. 15 - 23). Goggles or safety glasses must be worn at all times when experiments are in progress. Furthermore, the instructors and TA's will remind students of important safety precautions before each laboratory. However, there is no substitute for preparation and common sense!

Hazardous Chemical Disposal: Most of the chemicals that we work with in the laboratory must be disposed of in properly labeled waste containers. We are legally required to make an accurate account of the contents of these waste containers, which are found in the laboratory hoods. Thus, it is very
important that you place your waste in the appropriate container; always double-check the waste container before you add waste.

**Health Problems:** It is important that you notify the instructor and TA of any health related issues at the beginning of the semester. Particularly if you are prone to serious allergies or Asthmatic attacks; you should withdraw from this course if you are pregnant.

**Drop Dates:** 1/31 - last day to withdraw to be eligible for a refund without penalty. 4/3 Sunday - last day to withdraw with W, no refund.

Note: There will be No permission to withdraw after the drop date, unless you qualify for an incomplete. To be eligible for an incomplete the student must be passing the course. Please research the policy for incomplete and late withdrawal.

**Grading:**
Lab Report (either Lab Notebook or Worksheet) 60%
Quizzes (done as clickers in the prelab lecture with Dr. Hahn) 10%
(MidTerm & Final Exam(15 % each x 2) 30%

Total 100%

In general if you miss anything without a documented valid excuse, you will earn a zero on whatever you missed or did not turn in. You get to drop one of the total number of lab report grades and quizzes. With a documented excuse, if you miss either the Midterm or Final Exam, you will receive your own average grade prorated for the difficulty of the missed Midterm or Final. If you miss either the MidTerm or Final Exam without a documented excuse, you will receive the averaged grade with a 10% grade deduction penalty for the missed lab.

THERE IS NO MAKEUP Lab Midterm, Lab Final Exam, Lab Quiz or Lab Experiment. If you miss a clicker Quiz, Midterm or Lab Final Exam, and you have a reasonable excuse, it is probably in your best interest to contact Dr. Hahn with the excuse. I am a reasonable person and I may accept your excuse. However please do not try to take advantage of my niceness – I am surprisingly no cream puff. [If you miss an experimental lab, you should contact your TA or me with your documented excuse.]

The grading scheme is the standard grading scheme: 90% and above is an A; 80% and above is a B; 70% and above is a C. The C cutoff may dip below 70% but I will not adjust the grade scale up so that for instance a 95% is a B.

To assist with reducing plagiarism, the completed and graded Worksheet Based Lab Reports and the Lab Notebook based Lab Reports must be turned in after the Midterm and Final. (After the Midterm, all Worksheet Based Lab Reports and Lab Notebook based Lab Reports which are covered on the Midterm must be turned in. The week of the Final Exam the remaining graded Worksheet Based Lab Reports and Lab Notebook based Lab Reports which are covered on the Final Exam must be turned in. If you do not turn in all graded lab reports, you will lose 5% of the already noted Worksheet Based Lab Report Grade or the already noted Lab Notebook Lab Report grade for each graded lab report not submitted. **Dr. Hahn will keep the graded Lab Reports for at least a semester before shredding them.**
Emergency Procedures: Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available BERT’s website at www.bert.siu.edu, Department of Safety’s website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.
Laboratory Schedule: Organic II Lab

Week 1 (1/20W to 1/22F) – No labs

Week 2 (1/25M to 1/29F) – Check-In Reading: Gilbert & Martin – p. 1-25

Week 3 (2/1M to 2/5F) The Grignard Reaction - Synthesis of Triphenylmethanol Reading: Gilbert & Martin - p. 639-655; p. 660-666; McMurry - p. 355-357, p. 634-638;

Week 4 (2/8M to 2/12F) – The Grignard Reaction - (cont.)


Week 6 (2/22M to 2/26F) – The Wittig & Wadsworth-Emmons Rxn - (cont.)

Week 7 (2/29M to 3/4F) – Electrophilic Aromatic Substitution - Nitration of Bromobenzene Reading: Gilbert & Martin - p. 491-492, p. 513-524; McMurry - p. 566-591;

Week 8 (3/7M to 3/11F) – Lab Midterm (3/7 Monday in Prelab lecture with Dr. Hahn) – Electrophilic Aromatic Subst (Cont.)

[Midterm covers Grignard to Electrophilic Aromatic Substitution]

Week 9 (3/14M to 4/18F) – Spring Break


[turn into your graded lab reports from Grignard to Electrophilic Aromatic Substitution – if you do not turn these in by this deadline, you will lose 5% from each lab report not turned in – Dr. Hahn will hold onto these for a semester and then shred them.]  (also turn in separately your lab report for Electrophilic Aromatic Subst., to be graded)

Week 11 (3/28M to 4/1F) Synthesis of Lidocaine – Cont.;


Week 13 (4/11M to 4/15F) – Enzymatic Reduction – Cont.;

Week 14 (4/18M to 4/22F) – Spectroscopy / Unknown Reading: Gilbert & Martin – 261-303, 850-857; McMurry - p. 434-447, 456-484, 517-523  (deadline for turning in documentation for excuses: If you have any documented excuses for missing anything, this is the very late week for you to turn in your excuses. After this deadline, no matter how airtight your excuse, you will not receive your documented excuse grade.)

Week 15 (4/25M to 4/29F) – Lab Final Exam (Given in Lab Prelab with Dr. Hahn), check out

[turn in your graded lab reports from Distillation & GC to Unknown Compound Structure – if you do not turn these in by this deadline, you will lose 5% from each lab report not turned in. Dr. Hahn will hold onto the graded lab reports for a semester and then shred them. ] (also turn in separately the Spectroscopy/Unknown last lab to be graded)

Last Week Classes (5/2 M to 5/6 F) -- no labs (TAs are grading last lab report, I am grading your Lab Final) (If you did not turn in your Spectroscopy lab during Week 15, this week your lab reports are now worth zero points because the lab report is 5 business days late.)
SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicare.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Build Emergency Response Team (BERT) programs. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu, Department of Safety’s website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website
Tutoring: http://tutoring.siu.edu/
Math Labs: http://math.siu.edu/courses/course-help.php

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit: http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office’s main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:
SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
ADVISEMENT: http://advisement.siu.edu/
PROVOST & VICE CHANCELLOR: http://pvec.siu.edu/
SIU ONLINE: http://online.siu.edu/
Syllabus Agreement Form, Information Sheet & PIN number selection

I have read and understand the policies stated in the syllabus for Dr. Hahn’s CHEM 443 Lab class for the Spring semester of 2016. All questions have been answered to my satisfaction. By signing this sheet I agree to abide by the policies stated therein.

Your signature _____________________________________ Dr. Hahn CHEM 443 Lab Spring 2016
Print your name: _________________________________ Date submitted: _________________

************************** Information Sheet

contact phone # ____________________________ contact email address ____________________________

major ____________________________ year (please circle one) fresh, sophomore, junior, senior, other
if other please explain ____________________________ last chemistry course ____________________________
when (year, semester) __________ where (here, other) ____________________ cumulative GPA ______
grade received on last chemistry course ______
other science courses taking currently (give course name)________________________________________

Are you doing research? (yes, no) If so with whom? ______________________________________

Why are you taking this class? _____________________________________________________________
hobbies: ________________________________________________________________________________
Feel free to tell me anything else you would like me to know about you: ____________________________

************************** PIN Selection

I _________________________________________________ (sign name) give Dr. Hahn permission to
post my grades by using the PIN # ___ ___ ___ ___ for the Spring 2016 semester for CHEM 443
(Organic Chemistry II Lab) I may opt out of having my grades posted (Do not use your SS#, or anything identifiable to ensure the security of your posted grades.) I also [(do) or (do not)] (circle one) give Dr. Hahn permission to return my actual exam in a self serve fashion in folders (returned inside your manila folder in the hanging file folder by first letter of last name)