Chemistry 361, Spring 2018

**Principles of Organic Chemistry Laboratory**

**Tuesday and Thursday 2pm-5pm, 3 credits**

Instructor: Dr. Kenneth O’Connor, Associate Professor

Office hours: M, W, F from 10-11 AM, 1-2 PM; T, Th 1-1:45 PM and whenever I’m in my office; an appointment can also be made.

Office: 498 Science

Classroom: 465 Science Building (pre-lab lecture); 412, 414 (lab)

Telephone: 304-545-4370 (text or cell)

Email: [oconnor9@marshall.edu](mailto:oconnor9@marshall.edu)

The purpose of this course is to:

1. Introduce you to basic laboratory skills and provide you with experience in interpreting experimental data.
2. Provide laboratory experience that emphasizes and reinforces the principles and concepts of chemistry in CHM 355 and 356.

Safety Precautions

NO Sandles! You need to wear closed-toe shoes/sneakers! Keep your safety glasses in your drawer so you don’t forget them at home!

PASS THE SAFETY QUIZ ON MU ONLINE ASAP! It appears as a separate icon!

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 GOGGLES MUST BE WORN IN THE LAB 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.

6. All injuries, no matter how trivial, must be reported to the instructor immediately.

7. CELL PHONES: Please keep cell phones on silent during pre-lab lecture and during lab. If you need to answer a call or text someone, please leave the room/lab to do so. IT IS IMPORTANT THAT SOMEONE IS WATCHING YOUR HOOD WHILE YOU ARE OUT OF THE LAB…REGARDLESS OF WHY YOU LEFT THE LAB (bathroom, cell phone, fogged up goggles, etc.).

8. PLEASE DO NOT TEXT DURING PRELAB LECTURE. I realize that texting is so mainstream that it is difficult to not text. As your instructor I ask you not to text during pre-lab lecture; there are many reasons why I ask this of you. One reason is to demonstrate respect to your instructor.

**Materials Needed**

1. Custom Laboratory textbook by Pavia, D, Lampman, G, Kriz, G and Engel, R, 6th edition. Earlier editions can also be used, the lab experiment numbers will be different however. I will email you some additional lab handouts.

2. A bound laboratory notebook is required. All experimental data must be recorded directly in this notebook during your laboratory period. You can use either a composition notebook or the scientific notebook sold in the bookstore. Safety goggles are mandatory.

1. Bring a roll of paper towels to use in lab. MU does NOT provide paper towels (sorry) and you will definitely need some!
2. Latex gloves are often used to prevent your hands getting dry from acetone and other chemicals used in lab. They can be purchased inexpensively at many stores such as Walmart and Dollar General.

**Format of the Course**

1. Attendance is required in this course.
2. The first half-hour will be spent in a discussion by the instructor on the experiment to be done in that period. This is the pre-lab part of lab.

3. The bound notebook is for the immediate recording of all experimental operations and observations made during the laboratory period. Use only pen to write in the lab book and do not use white-out. If you make a mistake, just draw a line through the mistake and continue writing.

4. Product Evaluation Reports will be assigned for the labs. This is a condensed version of a lab report. They are due one week following the completion of the lab.

The Determination of Your Course Grade

Three Tests 70%

Lab Reports 30%

## An Overview of the Key Elements of Your Laboratory Course

**Lab Notebook**

All data must be recorded in your lab notebook. You should bring your lab notebook to the digital balances to record initial and final weights. Data should NOT be recorded on separate pieces of paper. A simple composition notebook is fine.

**Texting**

I understand the desire to respond to a text whenever you receive one. I would greatly appreciate it if you wait to respond to a text till when we go into lab. This demonstrates that you respect your instructor and are following his request.

**Tests**

Seventy percent of your grade is based on tests. Needless to say, if you do not perform well on these, obtaining a good grade in this class will be difficult. For this reason, you should review your pre-lab lecture notes and the product evaluation reports. I want to emphasize that you should study very hard for these tests. **If you are absent on a test day then you will need to make up the test within one week or you will receive a zero for the test.**

# Course Grades

Your grade will be calculated based on the “determination of course grade” listed above. Therefore, it is important to excel on tests as well as being a good synthetic chemist in lab. The goal of this course is to introduce you to organic lab techniques, as well as to provide you with an opportunity to understand how organic synthesis is performed. Please keep in mind that since microscale techniques are used, this lab does not in any way simulate organic synthesis on a preparative scale.

The grading scale used in this course will be:

A= 90-100, B=80-89.99%, C= 70-79.99%, D= 60-69.99%, F= less than 60%

My standards for this course are very reasonable and I expect you to dedicate sufficient time to this class to ensure that you understand the material. If you have to spend additional time reviewing information that you have not retained from Organic I, then please make the time to review the material. My desire is to have everyone succeed in this class.

Ideally, your attitude should be," I am here to learn how to conduct a variety of organic chemistry syntheses in this class and I am going to going to become the best synthetic organic chemist that I can be." If you have any questions, please do not hesitate to ask me or the teaching assistant(s). I will not embarrass or intimidate you. Remember that we all make mistakes, but mistakes can be minimized by adequately preparing before lab!

My goal is to minimize the stress that this lab may present to you. Remember, there is going to be a learning curve during the next month. You'll be surprised at how much you will learn, so free up some gray cells if you need to! Let's have a great semester together.

There is one additional point concerning grades. Please understand that in order to obtain an A, a 90.0% average is needed. If you have an average between 80% and 89.99%, you will be given a B. This is not negotiable. If you need to obtain an A or B to keep your scholarship, please let me know this at the beginning of the semester rather than at the end of the semester.

**Support Services**Marshall University offers a variety of support services to students:

* [Tutoring Center Online](http://www.marshall.edu/muonline/tutoringcenter/default.asp)
* [Writing Center Online](http://www.marshall.edu/muonline/writingcenter/default.asp)
* [Libraries](http://www.marshall.edu/muonline/campusresources.asp)
* [Textbook Service](http://www.marshall.edu/muonline/tools/textbooks.asp)
* [Disabled Student Services](http://www.marshall.edu/disabled/)
* [Campus Resources](http://www.marshall.edu/muonline/campusresources.asp)
* [Technical Help](http://www.marshall.edu/muonline/help.asp)
* [VISTA Help](http://www.marshall.edu/muonline/vista101guide.asp)

**“Policy for Students with Disabilities:** Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities.  University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability.  Following this, the DSS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading.  The instructor and student will meet to discuss how the accommodation(s) requested will be provided.  For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

**Lab Report Due Dates**:

Lab reports are due one week after completing a lab. IF A LAB IS TURNED IN LATE, THERE is a **10PT DEDUCTION**. PLEASE NOTE: LAB REPORTS MORE THAN ONE WEEK LATE WILL NOT BE ACCEPTED. You will receive a grade of zero for the lab report if you turn it in after the one week grace period. If you are not able to turn in lab reports on-time, you should ask yourself if taking CHM 361 this semester is a good idea. Some students have health issues, some students are taking too many credits and sometimes your personal life becomes stressful and it prevents you from turning in lab reports on-time. I have had students who have been in those situations and taking a lab course that meets twice per week is simply not a good idea when the situation prevents you from turning in your lab reports on time. You can also mail your lab report to me if you can’t turn it in personally, thereby turning your lab report in on time. Or convert it to a PDF file and email it to me: (oconnor9@marshall.edu).

Dr. Ken O’Connor

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If you are sick and can’t make it to lab, please obtain a university excuse which you obtain thru academic affairs by showing them a doctor’s note. If you were not able to see a doctor, then please let me know why you missed lab either by email or by text.

**Absences**:

When you are absent, it is a stressful situation for both of us because making up a lab is not easy. After the experiment, the chemicals are put back in the prep room. When will you make it up; doing two labs at once is not possible? To reduce the stress, you will be able to miss one lab without it affecting your grade. If you miss two labs, then you will need to make up a lab. If you miss three lab reports, you have to make up two labs from the course. It is very important to let me know either by email or cell phone (304-545-4370) when you cannot come to lab. I am willing to work with you when missing a lab but there comes a time when missing labs creates stress for me and you and taking an incomplete may be the best option.

**The Bottom Line**

Most people within a very short time will have no problem obtaining 90-100% on lab reports. Remember that 70% of your grade is based on tests so it is important to do well on them. Trust me on this one! So if you want to worry about something, worry about making sure you spend enough time studying for tests.

In the final analysis, what I want to know is that you comprehend what you are doing in lab. Are you just following a recipe or do you understand the chemistry that you are doing? That is why I emphasize the tests so much. Every instructor of CHM 361 feels the same way, so I am not unique in this respect. Therefore, make sure you understand the pre-lab lecture, the calculations involved and the reason you are doing the experiment.

**Overview:**

Avoid absences; understand the labs including the mechanisms of the reactions. Most of the answers to the questions on tests are given during the pre-lab lecture so pay attention during pre-lab.

\*\*\*The following schedule of labs will most likely change slightly.

If you have any questions, please ask me.

**Spring CHM 361 TENTATIVE**

**Schedule of Lab Experiments**

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Day | Exp # |  |
| Jan 9 | T |  | Check-in |
| Jan 11 | Th | 3C | Sulfanilimide |
| Jan 16 | T | T-20 | Thin Layer Chromatography |
| Jan 18 | Th | handout | Caffeine from Coca Cola |
| Jan 23 | T | 23C | t-pentyl chloride |
| Jan 25 | Th | handout | Triphenylbromomethane |
| Jan 30 | T | PowerPoint | IR/NMR Review (tentative) |
| Feb 1 | Th | handout | Hydrogenation (1/2 class) |
| Feb 6 | T | handout | Hydrogenation (1/2 class) |
| Feb 8 | Th | Review | Test Review |
| Feb 13 | T |  | Test 1 |
| Feb 15 | Th |  |  |
| Feb 20 | T |  |  |
| Feb 22 | Th |  |  |
| Feb 27 | T |  |  |
| Mar 1 | Th |  |  |
| Mar 6 | T |  |  |
| Mar 8 | Th |  |  |
| Mar 13 | T |  |  |
| Mar 15 | Th |  |  |
| Mar 20 | T |  | Spring break |
| Mar 22 | Th |  | Spring break |
| Mar 27 | T |  |  |
| Mar 29 | Th |  |  |
| Apr 3 | T |  |  |
| Apr 5 | Th |  |  |
| Apr 10 | T |  |  |
| Apr 12 | Th |  |  |
| Apr 17 | W/T |  |  |
| Apr 19 | T |  |  |
| Apr 24 | Th |  |  |
| Apr 26 | T |  |  |
|  |  |  |  |