Professors:  Ned B. Bowden

Class Times:  Lectures are at 9:30-10:45 in SHAM LIB and again at 11:00-12:15 in W290 CB. Tests are on Wednesday nights from 8:45-10:15 PM in W268 CB, W290 CB, and C20 PC. Room assignments will be announced in class and posted on ICON. The date of the final exam will be announced during the semester. Note: I do not have a make-up final. If you miss the final, you have to either take a zero or take the final at the end of the Summer or Fall 2020 semesters.

Contact Info:  Ned Bowden
W425 Chemistry Building
335-1198
Ned-bowden@uiowa.edu

Course Website:  ICON, http://icon.uiowa.edu

IMPORTANT:  To reach me or set an appointment please send an email and I will try to respond quickly.

Office Hours
Ned's office hours are on Tuesdays from 2:00-3:30 PM and Wednesdays from 9:30-11:00 AM in my office at W425 or in a conference room (E427) in the chemistry building. These rooms are separated by 20 meters, so if I am not in one, I am in the other.

I reserved these times for you and am happy to meet and discuss problems you are having. If these times do not work for you, we will set an appointment by email to meet another time.
**Discussion Sections**
The course TA's will lead these discussions. This time is reserved for problem solving, discussion of lecture material, and explanations of exam answers. I strongly encourage you to attend these sections as the TAs are excellent and can help you learn the material. Their email addresses and office hours are given below. All TA office hours are held in the TA center on the second floor of the chemistry building.

<table>
<thead>
<tr>
<th>TA</th>
<th>email</th>
<th>office hours</th>
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<tbody>
<tr>
<td>James Grace</td>
<td><a href="mailto:james-grace@uiowa.edu">james-grace@uiowa.edu</a></td>
<td>M 130-230</td>
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<td>T 130-230</td>
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<tr>
<td>Arjun Paudel</td>
<td><a href="mailto:arjun-paudel@uiowa.edu">arjun-paudel@uiowa.edu</a></td>
<td>T 930-1030</td>
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<tr>
<td>Grant Shivers</td>
<td><a href="mailto:grant-shivers@uiowa.edu">grant-shivers@uiowa.edu</a></td>
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**Why Are You in This Class?**
Organic chemistry is a beautiful subject! I have taught this class before and know that most of you are “pre” students. By this statement I mean that you are premed, prenursing, prepharmacy, prelaw, or another variant. This class is required for entrance into a professional school or is needed to prepare you for a nationwide test. These are all fine reasons for taking this class and I am glad you are here. My goal is to teach you some of the most beautiful parts of organic chemistry in hopes that it can help you learn the material in other, closely related courses.

In this class you are going to learn how to think critically. Organic chemistry is more than the memorization of a bunch of facts and it is certainly more than applying a few simple rules to get the right answer. Organic chemistry is 90% science and 10% art; I can teach you the right rules and how to think about problems in organic chemistry, but you must learn how to apply these rules. This class is considered tough because it is unlike others that you have taken before. You will not have a series of equations from which you may derive answers. You will have a bunch of facts and you must learn how to think critically to solve problems. Therefore, you must learn to think like a detective and piece answers together with everything that you know. I will help you as much as I can to learn these skills.

**How to Study for This Class**
This class is not one where you can look over the material right before the exam and expect to do well. This class requires constant and diligent effort in order to do well. We compiled a list of suggestions to help you succeed. These are only suggestions; some of you may be naturals at organic chemistry and can get by with less work, but for the other 99% of the class this list will help you get the grade that you want.

1. Study for this class at least one hour a day. Organic chemistry is hard to learn but with consistent effort you can do it. Some of you will spend more time; others will spend less time depending on your abilities, motivation, and expectations for a grade.

2. Do all of the homework and suggested problems. You will learn from doing the homework, you will learn by struggling with the homework! Learning occurs when you are forming questions in your mind and seeking the answers; learning does not happen when you are copying someone else’s work. Your grade in this class depends on your test taking skills so use the homeworks to learn the material.

3. Form study groups.
4. Skim the text before coming to class.

5. Go to the discussion sections and ask questions.

6. Rewrite your lecture notes. You will be surprised as to how much this will help you learn the material.

7. Study with a pencil and paper nearby! You will learn the material best by writing it down in your notebook as you are studying. Most people don’t learn well by sight alone, you must use your hands when you study.

**What You Should Take Away From This Class**
1. The ability to draw mechanisms for simple organic reactions
2. Knowledge of common reactions
3. Understand functional groups and how to convert from one to another
4. Understand how to apply organic chemistry to a variety of fields including most things biological.
5. The ability to name molecules and recognize key functional groups
6. Understand some of the how and why of organic chemistry.

**Exams**
There will be three hourly exams on the following days from 8:45-10:15 PM.

Wednesday, February 19
Wednesday, March 25
Wednesday, April 29

Leave all textbooks, models, notes, etc. at home or you will be required to leave them in the front of the classroom during the exam. The exams will be closed book and the answers should be written in blue or black ink. Exams written in pencil will not eligible for a regrade. Exams will be returned following the exam grading and will be available at the chemistry center on the second floor of the chemistry building (E225 CB) immediately after that class. Your grades will be posted on ICON as soon as possible.

Each exam is comprehensive but will emphasize material since the previous exam. Organic chemistry builds on what was learned before, it is important to continually add to your fountain of knowledge. Exams must touch on material that was learned earlier in the semester, but in most instances we will use concepts that we covered since the previous exam. It is wise to review all of the material since Day 1 for each exam.

Anything that is covered through the end of class on the day before the exam is fair game for the exam. We more or less follow the book, so you will be able to determine where we stopped before the exam. If you have any doubt, study for the whole chapter that we are working on.

The final exam will be comprehensive.

**On-line Homework**

There is on-line homework on Aleks for a brief review of key concepts from Principles of Chemistry and the first three chapters of your organic chemistry textbook. Students who struggle in organic chemistry often start that struggle in the first three chapters where we discuss many of the key, fundamental concepts in organic chemistry. Failure to master these
concepts can lead to many challenges later and prevent a student from doing well. Poor performance in the first three chapters correlates strongly with a student getting a grade of D or F or having to withdraw from the course.

The Aleks homework is to set up to help you get off to a strong start this semester. The assignments are due on different days, but you should complete an assignment for a chapter as we cover that chapter.

You should check Aleks to ensure that you are completing the assignments on time.

**Suggest Problems**
The Aleks problems only cover the first three chapters, to excel in this course you need to work on problems in the book too. These problems are not collected or graded, but it is clear from how students do on the exams who did them and who did not do them. I list some suggested problems near the end of the syllabus.

I strongly encourage you to work the problems at the end of each chapter as we finish discussing the chapter in class. Students who do well, keep up with the suggested problems.

Book problems are critical to help you learn the material. A poor, but common way, to do the book problems to look at the problem and answer key. Many students will look at a problem in the book, write nothing down, and then look at the answer key. Is this how I will test you? Will I ask you a question, give you the answer, and then ask you if the answer is correct? The best way to do the book problems is to look at the problem, write down your best answer, and then look at the answer key. It is O.K. to struggle with the material, that is how you learn! You are expected to not know all of the answers immediately, you will learn quite a bit by determining the correct answer without the answer key.

**Grading**
This course will be graded on an absolute scale based on hourly exams, homework, and a final exam. At the end of the semester I will calculate your score out of 100% and assign grades as shown below. I will not raise these standards.

<table>
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<tr>
<th>Grade</th>
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<tr>
<td>A+</td>
<td>100-97</td>
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<tr>
<td>A</td>
<td>96.99-82</td>
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<tr>
<td>A-</td>
<td>81.99-78</td>
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<tr>
<td>B+</td>
<td>77.99-72</td>
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<tr>
<td>B</td>
<td>71.99-67</td>
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<tr>
<td>B-</td>
<td>66.99-61</td>
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<tr>
<td>C+</td>
<td>60.99-57</td>
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<td>C</td>
<td>56.99-51</td>
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<td>C-</td>
<td>50.99-47</td>
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<td>46.99-45</td>
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<td>D</td>
<td>44.99-42</td>
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<td>D-</td>
<td>41.99-40.01</td>
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<td>F</td>
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You will be graded on the three hourly exams, homework, and a final exam. Your final grade will be calculated as follows.

Three hourly exams: 65%
On-line homework: 5%
Final exam: 30%

Your test scores will be posted on ICON.

**Regrades**
If you feel that your test has been graded unfairly you can ask for a regrade. Write the reason for your regrade on the front of the test and submit it to the chemistry center after class within one week after the exam was available to be returned. The whole exam may be regraded. Regrades are not possible on tests written in pencil or erasable ink.

**Supplemental Instruction**
There will be supplemental instruction for this course. The SI leader is an undergraduate who took organic chemistry and did very well. She will hold weekly sessions to help you better learn organic chemistry. SI has worked well in the past and helped many students, if you are struggling they are an additional resource.

The SI instructor is Tori Goertz and her sessions will start on week two and be in the Academic Resource Center (ARC) located in the ground floor of the IMU across from the Java House. The sessions for SI will be as follows:

- Sundays: 3:00-3:50 PM
- Mondays: 4:30-5:20 PM
- Thursdays: 2:00-2:50 PM

**Cheating**
Our scientific environment is maintained through the actions of its members and the trust we place in one another. Scientists are expected to remain honest in their words and actions. When this trust is broken the results are often severe and career threatening. One should not cheat on the false assumptions that 1) no one is harmed if no one is aware of the cheating or 2) it is alright to cheat if you aren’t caught. A good scientist will hold themselves to a higher standard where cheating, even if it isn’t discovered, is wrong.

With this important responsibility comes the privilege of being a member of a community that values openness and truth. As you are all scientists in training we will expect you to act accordingly and with an upright manner. Anyone caught cheating will flunk and will be reported to the administration.

**Discussion Sections**
The TAs will run the discussion sections. These times are reserved for you to work problems with the TAs and to ask questions. The TAs are an excellent resource and can help you to understand the important points in each chapter. I urge you to attend the discussion sections and to work with the TAs to improve your understanding of the material.

If you cannot attend your discussion section, feel free to attend a different one.

**Make-up Exams**
Make-up exams will only be provided under exceptional circumstances. A valid, written excuse must be provided prior to a missed exam to the instructor. If you anticipate having a conflict with an exam, please see us ahead of time. If you miss an exam for unforeseen reasons and have not provided a valid, written excuse to the instructor prior to the exam, you have one week after the exam to provide me with a valid, written excuse.
The make-up exam will be held on Friday, May 8th in the evening. There is only one make-up exam for the three hourly exams, everyone will take the same make-up exam. If you miss two of the hourly exams, the make-up exam will count double. The make-up exam is comprehensive for the semester.

**Attendance at Lecture**
Attendance is not mandatory but encouraged. We may introduce material outside of the book, you are responsible for learning that material as it may appear on an exam.

**Course Objective**
Organic chemistry books are written such that someone can earn money from their sale, to sell a book it must cover more material than is reasonable for a one year course. We will try to cover as much of the book as possible without going too fast. We will cover the first 13 chapters of the textbook.

**Required Textbook**

**Suggested Textbook**
David R. Klein, Organic Chemistry 1 as a second language, 2nd edition, John Wiley and Sons. This book is an excellent vehicle to help you learn organic chemistry and would be wise to purchase.

**Suggested Model Kit**
The bookstore offers model kits and I strongly suggest purchasing one. It will greatly help you to “see” organic molecules in three-dimensions.

You can also order model kits from Duluth Labs ([https://duluthlabs.com/collections/molecular-sets](https://duluthlabs.com/collections/molecular-sets)). The model kits from Duluth Labs are also sold on Amazon ([https://amzn.to/2KMdcYQ](https://amzn.to/2KMdcYQ)). I like their model kits.

**Disabilities**
I would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements may be made. Please contact me during office hours.
**Administrative Home**
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at [http://clas.uiowa.edu/students/handbook](http://clas.uiowa.edu/students/handbook).

**Electronic Communication**
University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences ([Operations Manual, III.15.2, k.11](#)).

**Accommodations for Disabilities**
A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See [www.uiowa.edu/~sds/](http://www.uiowa.edu/~sds/) for more information.

**Academic Honesty**
All CLAS students have, in essence, agreed to the College's [Code of Academic Honesty](#): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

**Making a Suggestion or a Complaint**
Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident ([CLAS Academic Policies Handbook](#)).

**Understanding Sexual Harassment**
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI [Comprehensive Guide on Sexual Harassment](#) for assistance, definitions, and the full University policy.

**Reacting Safely to Severe Weather**
In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the [Department of Public Safety website](#).
Suggested Problems

Chapter 1: 1-25, 26, 29, 31, 32, 33, 35, 39, 40, 41, 42, 43, 45, 46, 48, 50, 52, 53, 56, 57, 59
Chapter 3: 1-32, 34, 36, 40, 43, 44, 45, 46, 49, 50, 51
Chapter 4: 1-33, 34, 35, 37, 39, 41, 42, 44, 45, 46, 49, 51, 54, 55, 58
Chapter 5: 1-24, 26, 30, 33, 34, 35, 36, 39,
Chapter 6: 1-29, 31, 33, 34, 37, 40, 41, 42, 45, 47, 51, 53, 54, 56, 58
Chapter 7: 1-39, 41, 42, 46, 47, 49, 52, 54, 55, 58, 61, 62, 64, 66, 69, 72, 74, 75
Chapter 8: 1-45, 46, 47, 49, 52, 54, 56, 58, 60, 61, 63, 64, 67, 68, 71, 76, 78
Chapter 9: 1-25, 26 (a few of these), 30, 32, 33, 36, 37, 38, 41, 43
Chapter 10: 1-29, 32, 33, 35, 36, 38, 40, 42, 46, 48, 49, 50, 51, 54, 58, 60
Chapter 11: 1-38, 39, 42, 43, 45, 47, 49, 51, 52, 53, 55, 58, 60, 63, 65, 66
Chapter 12: 1-11, 12, 14, 15, 16, 18, 19, 20, 22, 23, 24, 25, 27, 30
Chapter 13: 1-32, 33, 34, 35, 38, 40, 42, 44, 45, 47, 48, 49, 53, 54
Dear all,

I know that organic chemistry is not an easy class and it will get harder as the semester progresses. Learning how to study is very important as this course may be very different from what you have taken before.

Two years ago I asked some of the top students in Organic Chemistry for Majors what they did to prepare for the exams. I hope their responses help provide motivation/insight/suggestions that you need for success too. Their unedited comments are below.

You can learn this material. It may not be easy for most of you, but you can do it. It requires time, effort, practice, and an engaged brain.

Best, Ned

Student 1

To study for the exams, I make sure I am prepared by watching every lecture AND taking notes on the print outs as I watch. Doing the homeworks is good preparation as well. I do most of it/all that I can individually, but then I meet and study with a group in order to get help and help others. Working in a group is really helpful. I also take the practice exams before each actual exam along with looking over my notes several times.

Student 2

The homework is the most helpful thing for me - it forces me to sit down and review the concepts each chapter covers. I try to start the homework about a week before it is due so I am not rushed through it. I also have a group that gets together to work through the problem sets about twice each week. Within the whole group, at least one of us usually has a good idea of the correct answer for challenging problems. We disagree frequently on how to approach a problem, but that's good because it forces us to analyze the material more closely. Working on homework in a group has been a major part of being able to learn these concepts.

I also make sure to watch each lecture online and take notes on the provided slides as well. Watching the lectures online before lecture makes working problems during lecture time more beneficial because I actually have an idea of what is going on.

Before the second exam I read chapter 7 of Jones/Fleming. I also skimmed through each practice problem in the book to get an idea of what I should be able to do for the test. I did not work out every single one, but I worked out the ones that dealt with concepts I found more difficult. Taking the practice exam was helpful as well - it gave me an idea of what I needed to spend more time on and helped to guide my studying.

The day before the exam I went through all of the notes from online lectures and from lectures in Van Allen and noted anything I was confused by. I then went over that material plus the material from exam 1 (briefly) to complete my preparation for exam 2.

Student 3

I always try to watch the online lectures before class so I know what's going on with the practice problems in class. For the Sn2, E2, etc chapter in particular, I made sure to start the homework early and do little chunks each night. The biggest thing I did that was helpful was to make charts
or study guides summarizing the general trends, and make notes about things I tended to mess up so I don't do it again. I also study in a group a lot.

**Student 4**

What works for organic chemistry is exactly what you recommended at the beginning of the semester: listen to the lectures before class, make sure to understand the problems from class, do the homework before the night before it is due to really understand it, go over the practice exam, go through the problems in the back of the book, and come into office hours with any questions. I try to make sure that I understand the concepts behind the problems, and not just look at the answer to the question. The "Organic Chemistry as a Second Language" book also really helped me understand the different kinds of reactions for this exam. Another thing that really helps me is going over my homework after it is graded so that I understand the types of mistakes that I make so I know what to watch out for on the exam.

**Student 5**

I usually read the chapters in the book before we discuss them in class, so I have a solid background with which to approach class problems. I pay special attention to the "worked problems" in the book and try to understand how the writers are approaching these problems and coming to the answers. When we have problems in class that I can't solve, I try to go back after class to figure out what I was doing wrong and how I should have approached the problem.

Practice problems. Lots and lots of practice problems. I also went back and listened to the online lectures for Chapter 7, since that was the most difficult chapter on this test for me.