

Course Syllabus
ORGANIC CHEMISTRY I
Chemistry 2310, Section 1

Dixie State College of Utah
Spring 2010

Course instructor: Sarah Morgan Black
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When class meets: Mon, Tues, Wed, Fri from 12:00 to 12:50 am (plan to attend every day!)

Course description and objectives

Chemistry 2310 is the first of two semesters of organic chemistry offered at Dixie State College. You should also be registered for the accompanying lab, Chem 2315, unless you have already taken it. You should have completed the general chemistry series – Chem 1210, 1220, 1215, and 1225.

The organic chemistry series will prepare you for upper division course work in pre-professional, science, and engineering programs. It will also help you to have a greater appreciation for the organic chemistry that happens all around (and inside) you every day.

When you are finished with this course, you should be able to:

- Classify organic compounds and represent them appropriately using line structures. This semester will focus on alkanes, alkyl halides, alkenes, and alkynes. The remaining functional groups will be covered in the second semester.
- Explain the structures (hybridization, geometry, and polarity) and compare physical properties (boiling point, melting point, solubility, conformations, and stability) of compounds containing these functional groups.
- Use the rules of nomenclature to give correct names for compounds containing these functional groups, draw correct structures which correspond to a name, and correctly use and recognizing common names.
- Use principles of stereochemistry to locate stereocenters and label stereoisomers, identify chiral compounds, give stereochemical relationships between molecules, use Fischer projections, solve optical activity problems, and identify stereochemical results of a reaction.
- Use IR and NMR spectroscopy to characterize and identify organic compounds.
- Give starting materials, reagents, and products for reactions of alkanes, alkyl halides, alkenes, and alkynes.
- Use mechanistic principles to recognize nucleophiles and electrophiles, acids, and bases, and correctly draw the mechanisms of selected reactions; also use mechanisms to predict the regio- and stereoselectivity of products.
- Create multi-step syntheses by combining reactions.

Required Materials

1) Organic Chemistry, sixth edition, by L. G. Wade (optional)

This course is based on a widely used textbook, Organic Chemistry, sixth edition, by L. G. Wade and you will have reading assignments from it. You are not required to purchase a copy, as it is quite expensive, but if you choose not to do so, you are responsible to locate a copy in order to do the reading assignments – two are on reserve the DSC library. You may also use a different textbook, but it will be your responsibility to locate the appropriate sections.

2) Learning Guides, Homework, and Reading Assignments by Sarah Morgan Black

The other materials that you will need for class are available online at the course web site:

<http://cactus.dixie.edu/smblack/chem2320>

For each chapter you will find Nuggets of Knowledge, a Learning Guide, Homework, and a Reading Assignment. You must print out the Learning Guide for each chapter before the lecture begins for that chapter. You must print out and do the Homework for each chapter before it is due. You must also use the Reading Assignment to complete the assignment, but you do not need to print it out and turn it in. You will also find Nuggets of Knowledge (an outline for each chapter), and a key to the Learning Guide which will be posted after lecture for each chapter is finished. At the beginning of the page, you will find summary sheets for important concepts which you will need to refer back to all year.

3) Molecular models

You will also need a set of molecular models which can be purchased at the bookstore; please bring your models to class each day, as you will not know in advance when they will be needed.

Grades

Your grade will be based on your performance on homework, reading assignments, chapter quizzes, exams, and the final exam. Each category is weighted as shown below. After each exam, I will provide you with a print-out showing how you are doing in the class; also, please feel free to check your current grade with me at any time. (However, my grading program cannot predict the effect of future scores on your grades - if you want to know what final exam score will keep your B, for example, you'll have to do a little math, using the percentages given below.)

Late homework and reading assignments, quizzes, and exams will be accepted, but you will lose 10% of the total possible points. The only exception is the final exam, which must be taken at the time given in the schedule. Late homework and reading assignments must be completed before the exam in which that chapter is covered. Under special circumstances, these penalties may be waived at my discretion.

Learning guides and group learning activities (0%) - It is absolutely necessary that you attend class every day. You might be able to miss a day here or there for an emergency, but more than that and you will get in trouble. However, I will not take attendance, and you will not be specifically penalized for not attending. If you miss class, it is your job to obtain the information that you missed. At the end of each chapter we will have a group learning activity day, where you can practice learning in groups.

Homework (20%) – Working problems is time consuming, but it is the only way to master organic chemistry. You are encouraged to work with other class members on homework, but do not copy their answers, and do not use past years' homework assignments or keys. This constitutes cheating!

To receive credit, you must print out and complete the homework problems for each chapter. Homework assignments are due during the first 10 minutes of class on the day after the learning activity for each chapter, and are worth 20 points. Ten points will be awarded for completing all of the problems, and the other ten points will come from problems which I will select to grade. Your lowest homework score will be dropped.

I will grade your homework on the day it is turned in and make it available with the key so that you can catch your mistakes before you take the quiz. This is a significant learning opportunity, so make sure to take advantage of it!

Reading (10%) – You are not required to read all of the textbook that accompanies this course. However, you should take responsibility to use the textbook as a resource to clear up questions, get more details about something you are confused about, and find out interesting facts which we weren't able to cover in lecture.

To receive credit, you must read 5 pages from each chapter, chosen from the reading list for that chapter, take notes as you read, and write a response paragraph. See the course website for further instructions. You may substitute 5 pages from other organic chemistry books in the library, given in a list on the course website. Reading assignments will be due during the first 10 minutes of class on same day as the homework, and are worth 10 points. Your lowest reading score will be dropped.

Chapter quizzes (25%) – A 30 minute quiz worth 30 points will be given in the testing center starting at 9 am on the day after the homework and reading assignments are due, and ending when the testing center closes on the following school day (if that day is a Fri, the quiz will also be available on Sat, but not Sun). If you are unable to take the quiz on time, you must see me to take it late. Your lowest quiz score will be dropped.

After the quizzes are graded and returned, you may discuss what you missed with me for half credit back within a week of when the quiz was given. You should be prepared not only to supply the correct answer but to answer questions about the concept being tested.

Exams (35%) – Four exams worth 100 points each will be given in the testing center for two school days following the completion of the quiz for the last chapter being covered (if the last day is a Fri, the exam will also be available on Sat, but not Sun). Each exam covers three chapters, and contains some multiple choice and some written answers. There is no time limit for the exam. If you are unable to take the exam on time, you must see me to take it late. No exams will be dropped.

Final exam (10%) – The final will be held in the classroom on the date given in the schedule. It will contain only multiple choice questions, so that it can be graded immediately following completion of the exam. The final exam will be comprehensive; it will NOT be combined with the last exam, so don't ask!

Summary of points for the course:

Category	Points possible	Number dropped	Percentage of final grade
Homework	20 pts per chapter	1	20%
Reading assignments	10 pts per chapter	1	10%
Quizzes	30 pts per chapter	1	25%
Exams	100 pts per exam	0	35%
Final Exam	100 points	0	10%

Letter grades will be assigned based on % of points earned on the scale shown below, which will reflect the weighted sum of the percentages you earn in different categories.

Grade	% of points
A	93.0 -100
A-	90.0 - 92.9
B+	87.0 - 89.9
B	83.0 - 86.9
B-	80.0 - 82.9
C+	77.0 - 79.9
C	73.0 - 76.9
C-	70.0 – 72.9
D	50.0 - 69.9
F	0 - 49.9

How to Succeed in this Course

This may be the most difficult course you will take at Dixie State College. This is not because I am the hardest teacher or give the hardest tests. It is because organic chemistry has a huge body of material that you will be expected to master, nearly all of which will be totally new to you and unlike anything else you have learned before.

There is also an extraordinary amount of interlinking in the material – each chapter builds on the next, and you won't be able to learn each chapter separately and then move on. It will look that way at the beginning of the class – the first eight chapters cover the fundamental concepts that we will need, and they overlap some but not too much. However, the remainder of the course will cover applications of the concepts in chapters 1-8 to many groups of compounds, each with a new and challenging twist.

Up to this point in your education, you have probably been trained (though we didn't mean it to happen) to get by with a strategy of passively taking notes during class, looking through notes or textbooks for the answers to homework without actually learning the material, then memorizing everything the night before a test or quiz and forgetting most of it as soon as the test is done. I'm here to let you know that this strategy will get you into deep trouble in this class.

For the first month or so, it will work fine. You'll struggle with the material, but you'll make it through the homework, then cram enough of it into your head to get A's or B's on the quizzes and exams. And then will come chapter 9, where you will have to put all of the preceding chapters into practice, and it will hit you like a brick wall. And then chapter 10 will be more of the same, and 11, and 12, all the way to chapter 24 at the end of next semester. If you were doing the usual memorizing

and forgetting at the beginning, you'll now find yourself getting deeper and deeper into trouble, and start getting C's and D's and F's on exams, and then you'll be crying in my office about how you need a good grade to get into dental school, and this class is what's holding you back from your dreams. I really hate to have students crying in my office because at that point, there is very little I can do to help. So, what can we do to prevent this from happening? For nearly all students, it will require a fundamental shift in how you learn. No more last minute memorizing, no more cramming, no more passive studying. You'll have to learn in a deeper way so that it will come back to you months later, and you'll be able to use it to make sense of more complicated things. The only way to do this is to have repeated, meaningful exposure to the material. That means you need to:

1. Come to class prepared every day, having spent 10 minutes previewing the material.
2. Use class time to learn, filling in the learning guide, doing the practice problems, and asking intelligent questions, not just taking notes of things you plan to understand later.
3. Review the learning guide as soon as possible after class, filling in things you missed and going over things you didn't quite get the first time.
4. Work homework problems as soon as we have covered them in class, using them to test and improve your understanding, not just find the right answers. Check your answers with other students, but don't change your answer until you understand why you went wrong.
5. Use the reading assignments to improve your understanding, fill in gaps, and answer questions that you may still have.
6. Ask questions about problems you don't understand, and check your answers with other students.
7. Check all of the homework problems against the key (not just the graded ones) to find out if there's something you've misunderstood.
8. Use active study techniques to solidify your knowledge before taking quizzes and exams (not just looking over the material).
9. Go through your graded quizzes and exams carefully to figure out what you missed.

The key to learning: spend enough time every day to master the material from one class before you go to the next class.

Students often struggle with how much work this class requires because they aren't able to make a connection to their future careers. Why should you spend so much time and energy on details of organic chemistry when you don't have to know about the stereochemistry of hydroboration-oxidation of alkenes to be a good dentist? My best answer is that dental school, or whatever else, will require just this kind of studying and learning. Medical schools and dental schools want to know if you can master a large body of interrelated information just like this. What kind of dentist would you be if you had crammed the material from all your dental school classes and then forgot them all as soon as the class was done? I certainly wouldn't want you working on my mouth. So take advantage of this opportunity to stretch and change your strategy, and you'll be in good shape when the time comes to learn the stuff you'll really need to know.

Good luck!

Other Useful Stuff

Dmail: Important class and college information will be sent to your Dmail account. This information includes your DSC bill, financial aid/scholarship notices, notification of dropped classes, reminders of important dates and events, and other information critical to your success in this class and at DSC. All DSC students are automatically assigned a Dmail account. If you don't know your user name and password, go to www.dixie.edu and select "Dmail," for complete instructions. You will be held responsible for information sent to your Dmail email, so please check it often.

Important DSC dates to remember

Mon, Jan 11	Classwork Starts
Wed, Jan 13	Last Day to Add Without a Signature
Mon, Jan 18	Martin Luther King Day
Tues, Jan 19	Drop fee begins (\$10 per class)
Tues, Jan 26	\$50 Late Registration/Payment Fee
Tues, Feb 2	Pell Grant Census
Tues, Feb 2	Last Day for Refund
Tues, Feb 2	Last Day to Drop without receiving a "W" grade
Wed, Feb 3	Courses dropped for non-payment
Fri, Feb 5	Last Day to Add Classes
Mon, Feb 15	President's Day
Mon, Feb 22	Mid-Term Grades Due
Fri, Mar 5	Last Day to Drop/Audit Classes
Mon-Fri Mar 8-12	Spring Break
Fri, Apr 2	Last Day for Complete Withdrawal
Thurs, Apr 29	Classwork Ends
Fri-Thurs, Apr 30-May 6	Final Exams
Fri, May 7	Commencement

College resources: Several college resources are available to help you succeed. Check out the links for each one to get more information.

If you need help understanding the content of your courses, go to the Tutoring Center located in the Browning Learning Center, Room 105. There is a schedule of what courses have tutors at what times outside the door. You can also visit them online at <http://dsc.dixie.edu/tutoring/>

If you need help writing papers, go to the Writing Center in the Browning Learning Center, Room 105. You can also visit them online at http://new.dixie.edu/english/dsc_writing_center.php

If you need to use a computer to do schoolwork on campus, go to the Computer Center in the Smith Computer Center or the Library basement.

If you are assigned to take a test in the Testing Center, go to the Browning Learning Center on the upper floor. You can get information on their website at <http://new.dixie.edu/testing/>

The Library has all kinds of information and resources. Visit the Val Browning Library or go to the library website at <http://library.dixie.edu/>

Classroom expectations: It is the responsibility of an instructor to manage the classroom environment to ensure a good learning climate for all students. This means not talking when the teacher is talking, following instructions, and speaking and acting respectfully to the professor and fellow students. If your behavior is disruptive, I will first let you know verbally that you are behaving inappropriately. If it continues, I will send you written notice that your behavior must change. As a last resort, I will drop you from the class. For more details, please see the disruptive behavior policy at: <http://www.dixie.edu/humanres/policy/sec3/334.html>

College approved absences: Dixie College Policy explains in detail what needs to happen if you anticipate being absent from class because of a college-sponsored activity (athletic events, club activities, field trips for other classes, etc. Please read this information and follow the instructions carefully! The policy can be found at: <http://www.dixie.edu/humanres/policy/sec5/523.html>

Academic honesty: I believe that most students are honest, and I don't want to punish everyone for the few that aren't. However, I will not tolerate cheating, and if I discover that it has occurred, a zero grade will be given for that assignment or exam. Repeated or aggravated offenses will result in failing the course.

Any time you take credit for work you did not do, you are cheating. This includes getting the answers to study questions from someone else, copying information from a library or internet source and presenting it as if it were your own words (plagiarism), looking at someone else's answers on an exam, and asking someone who has already taken a test about what questions it contains.

I have tried to design assignments and exams to minimize the temptation to cheat, but it is not my job to prevent you from cheating. If you are successful, it doesn't mean that you "beat the system." It means you violated the student code of conduct and forfeited your integrity, whether or not you are caught. You will pay the price, sooner or later. Having served on the committee that disciplines students for academic dishonesty, I can promise you that it is better to fail an assignment or even a class than to cheat and lose the chance to continue your education. (See DSC Policy 34.1.1-4).

Disability Accommodations: If you are a student with a medical, psychological or a learning difference and requesting reasonable academic accommodations due to this disability, you must provide an official request of accommodation to your professor(s) from the Disability Resource Center within the first two weeks of the beginning of classes. Students are to contact the center on the main campus to follow through with, and receive assistance in the documentation process to determine the appropriate accommodations related to their disability. You may call (435) 652-7516 for an appointment and further information regarding the Americans with Disabilities Act (ADA) of 1990 per Section 504 of the Rehabilitation Act of 1973. Our office is located in the Student Services Center, Room #201 of the Edith Whitehead Building.