

MWF 10-10:50 am in Hartline Science Center 79
Compressed Schedule: MWF 11:40 am-12:20 pm

3 Laboratory Sections in Hartline 263:

232-01 Tu 8-11:50 am (Dr. Morgan) Compressed Schedule: 10 am-12:10 pm

232-02 Tu 1:00-4:50 pm (Dr. Philip Osburn) Compressed Schedule: 2-4:50 pm

232-03 Th 1:00-4:50 pm (Dr. Philip Osburn) Compressed Schedule: 2-4:50 pm

Instructor: Dr. John P. Morgan, Office: Hartline 204, 389-5316
jmorgan@bloomu.edu (**email is the most reliable way to contact me**)

Office Hours: Tues, W 12-1 pm; F 12-2 pm. **Optional review session 4:15-5:15 pm
Weds. in HSC 21 (Hartline basement, red floor).**

You are encouraged to stop by my office if you have problems or questions! If my door is open, chances are good that I'll help you immediately, even without an appointment.

Required Texts: 1) Solomons, T. W. G.; Fryhle, C. B. *Organic Chemistry, 9th Edition*. Wiley, New York, 2008. ISBN 978-0-471-68496-1. *Earlier editions of this text are unacceptable* – problem sets may change from earlier editions.
2) *Prentice-Hall Molecular Model Set, 2nd Edition*, Prentice Hall: New Jersey, 1983. **Any molecular model set made for organic chemistry** is sufficient.
3) Morgan, J. P. *Chemistry 232 Lab Manual, Spring 2009 (revised)*. Bloomsburg University, 2009.

Highly Recommended Texts: 1) Klein, D. R. *Organic Chemistry as a Second Language, Second Semester Topics*. Wiley: New Jersey, 2006.
2) Zubrick, J. W. *The Organic Chem Lab Survival Manual, 7th Edition*, Wiley: New York, 2007. (The 5th (2000) and 6th (2003) editions are also acceptable).

You will also need a composition notebook for lab (no spiral-bound notebooks), safety goggles or glasses with side shields, and an inexpensive scientific calculator (calculators that are capable of storing alphabetic characters or transmit information are forbidden for use on exams). PLEASE put your name in permanent marker on your calculator, your safety goggles, and your notebooks.

The following dates (with the exception of the final exam) are TENTATIVE and subject to change at the instructor's discretion.

Grading: Three exams: 35% (M Feb 9th, M Mar 16th, M Apr 13th. Your highest exam will count as 15% and the two others as 10% each)

Comprehensive Final Exam: 20% (M April 27th, 8-10 am in Hartline 79)

Laboratory: 25% (a separate grading scheme will be used)
Quizzes: 10% (offered biweekly on Fridays; your lowest quiz will not be counted).
Homework: 10% (collected **approximately** two weeks after it is assigned)
Extra credit may be offered ONLY to the entire class (as deemed appropriate by instructor). No individual extra credit will be offered.

The homework problems will be more heavily graded on their completion rather than their correctness (if a serious effort is made). Organic chemistry is only learned by writing and doing, not by passively absorbing in lecture!

Tentative Grade Scale: 90-100 = A 88-90 = A-
 86-87 = B+ 80-85 = B 78-79 = B-
 74-77 = C+ 67-73 = C 65-66 = C-
 63-64 = D+ 55-62 = D 0-54 = E

I reserve the right to lower the limits for the grade scale based on student performance. **This grading policy is not a curve!** However, your latter performance may influence your final grade, especially for borderline cases – improvement over the course of a semester will often be rewarded!

Last day to withdraw from the course: Friday March 27th, 5:00 pm

****Please see me and the Office of Accommodative Services (Ext. 4491) by the end of the first week of class if you have special needs for this class****

Exam Make-Up Policy: **Exams/Quizzes** can only be made up if you have a **documented** valid excuse. Valid excuses include: 1) personal illness, as verified by a valid medical excuse, 2) death or critical illness in the immediate family 3) participation in a university-sponsored activity 4) Military/government duty or obligation. Exam dates are announced in this syllabus so you can plan to be present. I must be notified of your absence **at least 24 hours prior** to the exam for a non-emergency situation. **For emergencies**, I will accept notification **up to 24 hours after the exam**. I can be contacted by phone or email. If I am not available, leave a message with the department secretary. In this regard, there is no excuse for not contacting me. It is your responsibility to verify that your message reached me! Excuses presented to me after the missed exam **will not be accepted for any reason**.

NOTE: If you must leave campus for a family emergency, notify your dorm RA, dorm director, or the Office of Student Life (x4062). They will officially notify all of your professors that you had to leave school temporarily.

Code of Conduct:

- **Be on time for class.** Lateness is never professional and disrupts the class.
- **Turn off and put away all devices that may make a disturbing noise,** including all communications devices (cell phone, PDA, MP3 player, etc.).
- **Be respectful of your fellow classmates: be quiet and remain in your seat during class.** Chances are that your peers are here to learn, not to listen to your dramatic recap of last night's sports game.

- **Be honest, both with regard to your own work and to others' as well.** We all have an idea of what is “academically honest”, but if you have any questions please ask the instructor before engaging in the act. Any act of dishonesty committed by a student will result in an immediate “E” grade assignment for the term.
- **Realize that your classmate’s life may depend on you!** This fact applies primarily to the laboratory. We are all responsible for safety.

You will receive only one warning for violations of the code of conduct. Further problems will be “rewarded” by dismissal from that particular lecture/laboratory period. Repeat offenders may be removed from the course at instructor’s discretion.

Laboratory: **In order to pass, you are responsible for *completing* all work in the laboratory section of the course, including all written assignments.** I repeat: It is not possible to pass the course without completing all lab work! You may not “sacrifice” part of the lab grade if you are doing sufficiently well in the other coursework.

If you miss your assigned laboratory section for any reason, please talk to your laboratory instructor. Please note that there is a maximum of 18 students per lab section; additional students “just dropping by” cannot be accommodated for safety reasons.

LATE POLICY: ALL assignments are due at the specified time on the due date. If no time is specified, then the assignment is due at class time, at lab time, or by 5:00 pm, whichever is EARLIEST. Assignments may be turned in up to 1 hour after the specified time (in case the assignment was simply “forgotten” at home.) After this 1 hour period, any handed-in assignment is considered late (a 10% penalty). Late assignments will be accepted up to one week after the due date, with a 10% total penalty (that is, assignments up to a week late will still get only a 10% penalty). If an assignment is turned in after the one week late period, NO CREDIT will be given for that assignment. This late policy is designed to foster understanding rather than punishment, realizing that a little more time might be all that’s needed to fully comprehend and do well on the material.

Nuggets of Wisdom:

- **Work all problems and do all reading assignments!** Practice makes perfect, and organic chemistry is all about applying what you learn to new and interesting situations. The only way to do this is to follow the Boy Scout Motto: **Be Prepared!**
- **Mechanism is of paramount importance. Remember this!**
- **Ask questions.** It is never appropriate to leave a question unasked. Whenever. Wherever. Whatever. For whatever reason.
- **Build models.** It is a tragedy that the vast majority of organic students I've tutored in the past have never cracked the shrink wrap on their model set. Never assume you can "picture" a new concept in your mind. Build the model! Sometimes things only become clear when you see and feel them in 3D.
- **Work on organic chemistry every day.** I do it, so can you. Why? Any organic chemist will tell you that organic chemistry has a high "vapor pressure." In other words, you need to constantly reinforce it to learn it well!
- **Have fun** with it. If you feel overwhelmed, stressed, or burnt out, you've been spending too much time with your chemistry. Take a break and get back to it later on. Organic chemistry is actually fun, especially when you consider that the majority of materials you encounter on a daily basis are organic.

Tentative Topics Schedule:

Week Beginning	Topic	Week Beginning	Topic
January 12th	Alkenes I	March 16th	Ketones/Aldehydes II
January 19th	Alkenes II	March 23rd	Conjugate Additions
January 26th	Alkenes Summary/Intro to Aromatics	March 30th	Organometallics II: Cuprates/Lithiates
February 2nd	Aromatic Substitution Reactions: EAS	April 6th	Carboxylic Acid Derivatives
February 9th	Aromatic Substitution: Nucleophilic/Diazonium	April 13th	Claisen Condensation
February 16th	Oxidation/Reduction	April 20th	Diels-Alder Reaction
February 23rd	Organometallics I		
March 9th	Ketones/Aldehydes I		

Essential Tools for the Organic II Student Gleaned from Organic I

Organic Chemistry II is a reactions-based course, and it assumes a basic knowledge of physical organic chemistry and organic chemistry terminology (including basic organic nomenclature).

A student entering Organic II should be familiar with the following concepts, covered in almost every Organic I course:

Basic functional groups should be recognizable by sight: alcohols, ethers, amines, alkyl halides, thiols (mercaptans), thioethers (dialkyl sulfides), nitriles (alkyl cyanides), alkenes, alkynes, aldehydes, ketones, esters, carboxylic acids, amides

Representations of organic molecules: skeletal, constitutional, wedge-dash, Newman projections, Fischer projections

General Concepts and Stereochemistry:

Geometry of atoms based on hybridization: sp^3 , sp^2 , sp hybrids

The concept of resonance

Primary, Secondary, Tertiary and Quaternary

Constitution, Conformation, Configuration

Chirality: What makes a compound chiral or achiral?

Stereocenters

CIP System (*R,S* Nomenclature)

Enantiomers, Diastereomers, Meso Compounds

IUPAC nomenclature of alkyl halides, alcohols, and alkenes

E/Z system for alkenes; cis/trans nomenclature

Acids and Bases:

Brønsted-Lowry and Lewis definitions

Ability to recognize acidic protons

pKa table should be memorized (see next page)

Be able to predict which base or acid is stronger and to predict which side of an acid/base equilibrium is favored

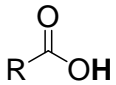
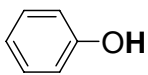
Nucleophilic Substitution and Elimination:

Nucleophile/electrophile/leaving group

S_N2 , S_N1 , E1, E2 Reactions of alkyl halides and alcohols: their products, their MECHANISMS, and their stereochemical outcomes

Carbocations: what they are; what determines their stability; and their geometries

A total mastery of these concepts is NOT essential, but the student should be conversant in the usage of these terms and their meaning. It is your responsibility to familiarize yourself with the above topics as they WILL resurface again and again in Organic II!

Conjugate Acid (acidic proton in bold)	Identity	pK _a (pK _a values above H ₂ O are estimated in DMSO)
H ₂ SO ₄	Sulfuric Acid	-5 (or lower)
H X	Hydrohalic Acids (like HCl)	-7 to -10
H ₃ O ⁺	Acidic water	-1.3
	Carboxylic Acids	4 to 6
H CN	Hydrogen Cyanide	9.2
NH ₄ ⁺	Ammonium ion	9.2
	Phenol	10
H ₂ O	Water	15.7
R- O H	Alcohols	16-18
R- C ≡ H	Terminal Alkynes (including acetylene)	~25
NH ₃	Ammonia	~32
CH ₄	Alkanes	>40