# Chemistry 12B Organic Chemistry

# Spring 2016

**Instructor:**


- Nada Khouderchah
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- Office hours and location: Tuesday from 5:00 - 5:50 pm and Thursday from 7:20 – 8:20 pm in the faculty space SC-1 on the second floor.

**Sections:**

If you are enrolled in this course, you have a lecture period and a laboratory period. There are two sections of lab:

**CHEM 12B Section 61 (CRN 42676)**

- Lecture: T-Th 6:00 – 7:15 pm S32
- Lab Lecture: T-Th 2:30 – 3:20 pm SC2210
- Lab: T-Th 3:30 – 5:20 pm SC2210

***Lab section 61 is taught by Professor Paria Parvizi***

**CHEM 12B Section 62 (CRN 42677)**

- Lecture: T-Th 6:00 – 7:15 pm S32
- Lab Lecture: T- Th 7:30 – 8:20 pm SC2210
- Lab: T-Th 8:30 – 10:20 pm SC2210

***Lab section 62 is taught by Dr. Kanny Wan***

**Course Content:**

In this second quarter section of a three quarter organic sequence, you'll learn about even more reactions allowing interconversion between functional groups. Chemistry involving alcohols, ethers, epoxides, thiols and carbonyl compounds will be studied. Also, you'll learn more about thermodynamics and kinetics equilibrium, multi-step synthesis and retrosynthesis.

**Lecture Materials:**

1. ***Organic Chemistry*, 2th edition** by David Klein (Wiley: 2015; ISBN: 978-1-118-45228-8).
2. ***Student study guide and Solutions Manual to accompany Organic Chemistry,* 2th edition** (Wiley: 2015; ISBN: 978-1-118-64795-0).

*Lab Materials:*

- Gilbert, John C. and Martin, Stephen F.; ***Experimental Organic Chemistry: A Miniscale and Microscale Approach, 5th edition*** (Thomson Brooks/Cole: 2011; ISBN 9781439049143)

- 8.5 x 11 or 6 x 9 permanently bound laboratory notebook.

- A scientific calculator that has at least log and exponential functions (will be used in lecture as well).

- Laboratory safety goggles purchased from the De Anza Book Store. Other types of goggles will not be permitted.

- Latex or Nitrile Gloves available from the bookstore (optional).

**Attendance and Conduct:**

Attendance during lecture, lab lecture, and all laboratory periods are mandatory. Tardiness and leaving before the lecture or laboratory period has ended will not be tolerated. If you miss lecture, laboratory lecture, or a laboratory period for any reason within the first week of class, you will be dropped from the course. Unexcused absences from lab two or more times will result in an automatic "F" grade for the entire course.

Cell phone use during lab or lecture is not allowed. If you need to answer the phone due to an emergency, please do so outside and un-disruptively. Students who don't comply with this rule will be asked to leave the classroom/lab. Students are responsible for reading and following the Academic Integrity policy outlined in the De Anza College catalog at all times. If a student is caught cheating or plagiarizing at any time on any assignment, exam, or quiz, they will be expelled from the course and will receive a grade of "F." If students are caught assisting in the act of cheating or plagiarizing, they too will receive the same punishment.

**Dropping the Course:**

If you wish to drop the course, this is YOUR responsibility. If you do choose to drop, you must officially check out of your lab locker. Failure to check out of lab by the scheduled check-out date will result in an administrative fee and a block will be placed on your future registration.

**Course Breakdown and Grading Scale:**

The class is worth 75% and the lab 25% of your grade:

- The lecture part of the class is worth 500 pts.

- There are three exams and one final exam. Each lecture exam is worth 100 pts.

- Lecture exams will test your knowledge on materials covered in lecture, textbook and the recommended found at the end of the chapter.

- The final exam is comprehensive and worth 150 pts.

- There will be at least three announced quizzes during the quarter.
- Final grades are based on the total points earned and not on the curve.
- There are no make-up exams.

| Lecture | |
|---|---|
| Exams | 3 x 100 = 300 pts |
| Final Exam | 1 x 150 = 150 pts |
| Quizzes | 50 pts |
| Total | 500 pts |

- Grading Scale

| Grading Scale | | | |
|---|---|---|---|
| Grade | Percentage % | Grade | Percentage % |
| A+ | 98 - 100 | C+ | 75 - 78 |
| A | 92 - 97 | C | 69 -74 |
| A- | 89 - 91 | D+ | 65 - 68 |
| B+ | 85 - 88 | D | 62 - 64 |
| B | 82 - 84 | D- | 59 - 61 |
| B- | 79 - 81 | F | 0 - 58 |

## Lecture Tentative Schedule:

| Week | Day | Sections | Topics | Recommended problems |
|---|---|---|---|---|
| 1 | 04/05/16 | Ch.12 | Introduction, Retrosynthesis and Multistep Synthesis | 12.17-12.26 |
| | 04/07/16 | 13.1-13.3 | Alcohols: Nomenclature, properties and synthesis | 13.30-13.33, 13.35-13.50 |
| 2 | 04/12/16 | 13.4-13.7 | Alcohols: Synthesis, diols, Grignard reactions and protection of alcohols | |
| | 04/14/16 | 13.8-13.13 | Alcohols: Reactions, oxidation of phenols, synthesis | |
| 3 | 04/19/16 | | ***Exam I Chapters 12 and 13*** | |
| | 04/21/16 | 14.1-14.5 | Ethers: Nomenclature, preparation and reactions | 14.30-14.31, 14.37-14.39, 14.41-14.43, 14.47, 14.49-14.51 |
| 4 | 04/26/16 | 14.6-14.10 | Epoxides: Nomenclature, preparation and ring opening | |
| | 04/28/16 | 14.11-14.12 | Thiols, sulfides and synthesis | |
| 5 | 05/03/16 | 20.1-20.4 | Aldehydes and ketones: Nomenclature, synthesis and introduction to nucleophilic addition reactions | 20.44, 20.45, 20.50-20.53, 20.56, 20.60, 20.61, 20.63, 20.65, 20.66, 20.69, 20.71, 20.75-20.79 |
| | 05/05/16 | 20.5-20.7 | ***Quiz*** /Oxygen and nitrogen nucleophiles. Hydrolysis of acetals, imines and enamines | |
| 6 | 05/10/16 | 20.8-20.12 | Hydrogen and carbon nucleophiles, Baeyer-Villiger oxidation of aldehydes and ketones. Synthesis | |
| | 05/12/16 | | ***Exam II Chapters 14 and 20*** | |
| 7 | 05/17/16 | 17.1-17.4 | Classes of dienes, conjugated dienes, molecular orbital theory and electrophilic addition | 17.32-17.34, 17.40, 17.41, 17.43--17.46, 17.49, 17.55-17.59 |
| | 05/19/16 | 17.5-17.7 | Thermodynamic control vs. thermodynamic control, pericyclic reactions and Diels-alder reactions | |
| 8 | 05/24/16 | 17.8-17.10 | MO description of cycloadditions, electrocyclic reactions and sigmatropic rearrangement | |
| | 05/26/16 | 18.1-8.4 | ***Quiz*** /Aromatic compounds: Nomenclature of benzene derivatives. Structure and stability of benzene | 18.28, 18.29, 18.34-18.38, 18.40-18.44, 18.47, 18.52 |
| 9 | 05/31/16 | 18.5-18.6 | Aromatic compounds, reactions at the benzylic position | |
| | 06/02/16 | 18.7/19.2 | Reduction of the aromatic moiety/ Introduction to electrophilic aromatic substitution and halogenation | |
| 10 | 06/07/16 | | ***Exam III Chapters 17 and 18*** | |
| | 06/09/16 | 19.3-19.8 | Sulfonation, nitration, Friedel-Crafts alkylation and acylation. Activating and deactivating groups | 19.44-19.50, 19.53, 19.54, 19.56-19.59, 19.67-19.70, 19.72 |
| 11 | 06/14/16 | 19.9-19.11 | Halogens deactivating groups, the directing effect of a substituent and multiple substituents | |
| | 06/16/16 | 19.12-19.15 | Synthesis, nucleophilic aromatic substitution, elimination-addition | |
| 12 | 06/21/16 | | ***Final exam from 6:15-8:15 pm (Comprehensive)*** | |

- ***The instructor reserves the right to modify and adjust the schedule and the grading scale as needed.***

**Additional information:**

If there are any students that need assistance due to a disability, please feel free to discuss with me any needs in private. Also contact, Disability Support Program and Services located in S41 to assist with any needs if verification/documentation of needs is available.

In case of an emergency, we will all evacuate to the emergency assembly area for our classroom. Make sure to carry your belongings with you and stay with the class until I or an official give further directions. Call 911 in case of an emergency. The student health services are also available at 408-949-6109.

Contact the director of human resources at Foothill-De Anza college district, human resources department at 650-949-6109 if you want to make any complaints regarding unlawful discrimination or sexual harassment.