**Chemistry 3720 – Introduction to Organic Chemistry 2**

MWF 11.00-11.50 Cushwa B031

**Professor:** Dr. Peter Norris  
**Office:** 6014 Ward Beecher or 2120 Moser  
**Office Hours:** MTWTh 12.00-1.00 or by appointment  
**Telephone:** (330) 941-1553  
**Email:** pnorris@ysu.edu or dr.peter.norris@gmail.com  
**Website:** http://www.as.ysu.edu/~pnorris/public_html

**Textbook:** “Organic Chemistry” 7th Ed. By F.A. Carey (6th edition is also suitable); the accompanying study guide is recommended, as are a set of molecular models (e.g. those available at www.darlingmodels.com). Having access to the ChemBioOffice suite would also be useful.

**General**

Organic Chemistry is the study of the compounds formed by carbon, of which many millions have been identified so far. The subject forms the basis of biochemistry and genetics, and is the backbone of industries like pharmaceuticals, oil, dyes and cosmetics. Whether you intend to study chemistry, biology, pharmacy, medicine, engineering, or any other chemically-based subject, a sound understanding of the fundamentals of Organic Chemistry is essential. Of course the material is also relevant to the various standardized tests used for entry to professional schools in the United States (e.g. PCAT, DAT, MCAT, GRE, etc.).

In two semesters we can only hope to cover the basics; however this still amounts to a very large amount of material. Everything that was covered in 3719 is relevant to 3720, and you will be expected to remember it all, so it is very easy to get swamped in this class by not studying from the beginning in a consistent manner. Since we will not have time in class to cover every detail contained within the text, it is essential that you get into the habit of studying your notes and the text at night, and then working the suggested problems to see if you understand the material.

The lecture and laboratory portions of the Organic Chemistry sequence coincide as much as possible since everything discussed in lecture is the result of past experimental work. You will certainly find yourself using the lecture text to work out problems from the lab, and hopefully this will help you see that lab and lecture are closely interconnected.

*If you feel you might struggle with Organic Chemistry, or if you just want to see more of it, you are advised to sign up for the recitation class, Chemistry 3720R, in which a TA will answer questions and work problems related to the lecture material. SI help is also available at the Center for Student Progress.*

**Grading**

Four 50 minute term exams (see the schedule below for dates) worth 100 points each and a 200 point comprehensive final will be given. If you take all four of the 100 point exams then the lowest of the four scores will be dropped. Chemistry 3720L is worth 100 points, for a total of 600 points for 3720/3720L; you must receive at least 60/100 in lab in order to pass Chemistry 3720 overall. The following grading scale will be used for with adjustments made as needed depending upon overall class performance:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>600-540 pts</td>
</tr>
<tr>
<td>B</td>
<td>539-480 pts</td>
</tr>
<tr>
<td>C</td>
<td>479-360 pts</td>
</tr>
<tr>
<td>D</td>
<td>359-300 pts</td>
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<tr>
<td>F</td>
<td>&lt;300 pts</td>
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</tbody>
</table>

**Exam Schedule**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Exam Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri 2/12</td>
<td>100 pts</td>
<td></td>
</tr>
<tr>
<td>Fri 3/5</td>
<td>100 pts</td>
<td></td>
</tr>
<tr>
<td>Mon 3/22</td>
<td>100 pts</td>
<td></td>
</tr>
<tr>
<td>Fri 4/16</td>
<td>100 pts</td>
<td></td>
</tr>
<tr>
<td>Final 5/3</td>
<td>200 pts</td>
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</tr>
</tbody>
</table>

**Academic Misconduct**

Please refer to the YSU Student Code of Conduct (http://www.ysu.edu/thecode.pdf) for an account of the typical consequences associated with academic misconduct. Any attempts at cheating in Chemistry 3720/3720R/3720L will be dealt with severely. If you are caught cheating, for example for copying a lab report, for looking at someone else’s paper during an exam, or for using a cellular phone during an exam or quiz, you will at least be given an F grade for the 3720/3720L course. During exams, please bring with you a means of photographic identification; this will be checked at the end of the exam. Since the professor grades all of the exam papers any examples of copying will be discovered and dealt with; random pages of completed tests will be photocopied. Do not jeopardize your future by cheating.
Chemistry 3720R – Introduction to Organic Chemistry 2 - Recitation

Spring 2010

W 12:00-12:50 WB 6030; or W 1:00-1:50 WB 6029; or W 2:00-2:50 WB 6029

TA: Antony A. Okumu
Office: 6018 Ward Beecher
Email: aaokumu@student.ysu.edu
Website: http://www.as.ysu.edu/~pnorris/public_html

The accompanying study guide is highly recommended, as are a set of molecular models.
(www.darlingmodels.com)

General

Organic Chemistry is the study of the compounds formed by carbon, of which many millions have been identified so far. The subject forms the basis of biochemistry and genetics, and is the backbone of industries like pharmaceuticals, oil, dyes and cosmetics. Whether you intend to study chemistry, biology, pharmacy, medicine or engineering, a sound understanding of the fundamentals of Organic Chemistry is essential, and of course the material is relevant for the various standardized tests used for entry to professional schools (e.g. PCAT, DAT, MCAT, GRE, etc.).

In two semesters we can only hope to cover the basics; however this still amounts to a very large amount of material. Indeed, everything that was covered in 3719 is relevant in 3720 so it is very easy to get swamped in this class by not studying from the beginning in a consistent manner. Since we will not have time in class to cover every detail contained within the text, it is essential that you get into the habit of studying your notes and the text at night, and then working the suggested problems to see if you understand the material. KEEP UP!

The lecture and laboratory portions of the Organic Chemistry sequence coincide as much as possible since everything discussed in lecture is the result of past experimental work. You will certainly find yourself using the lecture text to work out problems from the lab, and this will help you see that lab and lecture are closely interconnected.

Quizzes and Grading

There will be twelve (12) quizzes, beginning in the second week of the semester, each of which will be worth 10 points. At the end of the semester we will drop your two lowest scores and then calculate your grade based on the approximate scale given below. Adjustments will be made as needed based on overall class performance and difficulty of the quizzes given. The Professor (Norris) is responsible for setting the final 3720R grades.

- A 100-90 pts
- B 89-80 pts
- C 79-70 pts
- D 69-60 pts
- F <60 pts

Quiz Format

The quizzes will cover material seen in the previous 3720 lectures and will not cover material from the lecture that is given on the same day that you are taking the quiz. Since there are 15 weeks with Wednesday recitation meetings you will have a quiz each week except the first (1/13), the week after spring break (3/17), and the last week of classes (4/28).

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Chemistry 3720L Organic Chemistry Laboratory 5037 Ward Beecher Hall

Lab Instructors: Ashley DePizzo, andepizzo01@student.ysu.edu (sections 21332, 21333)
Tareq Kayyali, trkayyali@student.ysu.edu (sections 21328, 21331)
Tracy Vadjinia, tdvadjinia@student.ysu.edu (sections 21329, 21330)

Lab Coordinator: Dr. John Jackson - Office 5009 Ward Beecher, (330) 941-1551;
e-mail: jajackson@ysu.edu

Web Page http://www.as.ysu.edu/%7Ejjackson/CHEM3720L/index.html
http://www.as.ysu.edu/~jjackson/CHEM3720L/index.html

Course Objectives: To experience the techniques practiced by the modern organic research chemist.

Required Materials:
2. OSHA approved eye protection.
3. Hard-backed, bound notebook (no spiral or loose-leaf).
4. Paper towels. YSU will not provide paper towels, you will need them!
5. Lab coat or apron.
6. Rubber (dish washing) gloves.

Rules:
1. OSHA approved eye protection must be worn at all times. Never wear contact lenses.
2. No work is allowed outside of regularly scheduled hours.
3. Report any accidents immediately to your teaching assistant.
4. Each student must clean their work area at the end of each lab period.
5. Report broken or missing equipment immediately, your TA will replace it.
6. Always lock your drawer before you leave at the end of the period.
7. Be sure that you dispose of chemical waste in the prescribed manner.
8. Laboratory grades will not be given to students with course grades of W or AU. If you are withdrawing from the lecture class, you must withdraw and check out of the lab.

Academic Honesty: Academic honesty and personal integrity are the foundation upon which a quality education is built. To maintain high scholastic standards and to ensure each student the right to obtain a quality education, the University cannot tolerate academic dishonesty, e.g. cheating or plagiarism. Any student who submits laboratory reports, pre lab write ups, laboratory results, or similar academic materials which were performed or prepared by someone else is committing plagiarism. The penalty for such an offense may include a failing grade for the experiment, a failing grade for the laboratory, disciplinary probation, suspension, or expulsion.

Lab Grades: Lab grades will be based upon the pre lab (20%), notebook (20%), results, technique, and safety (20%), and reports (40%). The laboratory grades will be normalized to an average of 85% to ensure equity amongst laboratory sections.
3720 LAB SCHEDULE – Spring 2010

<table>
<thead>
<tr>
<th>Lab</th>
<th>Experiment (unless otherwise noted, the experiment will be in the lab text Introduction to Organic Laboratory Techniques; A Small Scale Approach)</th>
<th>Page(s)</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Check In, Lab Rules, Safety, Notebook, Glassware, Balances, Heating Mantles, Hot Plates, Rotary Evaporator, Hot Water Baths.</td>
<td>558-591, 611-614, 643.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Exp. 43 Nitration of Methyl Benzoate.</td>
<td>352-357.</td>
<td>10</td>
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<tr>
<td>3</td>
<td>IR Spectroscopy.</td>
<td>Handout</td>
<td>10</td>
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<tr>
<td>4</td>
<td>NMR Spectroscopy. Note – Have students clean glassware for Grignard experiment during this lab period.</td>
<td>Handout</td>
<td>10</td>
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<tr>
<td>5</td>
<td>Exp. 36A Triphenylmethanol (part 1 – Preparation of Phenylmagnesium Bromide). Water Sensitive, must have dry glassware.</td>
<td>303-311</td>
<td>10</td>
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<tr>
<td>6</td>
<td>Exp. 36A (continued).</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>Exp. 33 Part B. Reduction of Camphor. (note: use 2 g camphor)</td>
<td>272-287</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Exp. 33 Part A. Oxidation of Borneol.</td>
<td>272-287</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>Completion of Previous Experiments.</td>
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<tr>
<td>10</td>
<td>Exp. 12 Isopentyl Acetate.</td>
<td>93-96</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Exp. 35 Tetraphenylcyclopentadienone.</td>
<td>300-302</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>Exp. 7 Acetylsalicylic Acid.</td>
<td>57-61</td>
<td>10</td>
</tr>
<tr>
<td>13</td>
<td>Completion of Previous Experiments. Note – Monday lab will checkout after 14th meeting (only 14 Mondays this semester).</td>
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<tr>
<td>14</td>
<td>Check Out. All Lab reports due. No late reports accepted after checkout period.</td>
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Pre Lab. *Written in the laboratory notebook* The pre lab should include the following:
1. Title.
2. Balanced equations for all reactions, data on reactants, catalysts, and solvents (*molecular weight, grams, moles, solvent volume, useful physical constants such as boiling point, melting point, density, etc.*).
3. Product data (*molecular weight, theoretical yield, literature value of melting point or boiling point*).

Laboratory Notebook. The laboratory notebook should include the following:
1. An accurate account of all experimental procedures performed.
2. The exact weight or volume of reagent or solution used.
3. The exact time each task is performed.

Synthesis Laboratory Reports. *Due 1 week after completion of the experiment*
1. There will be a Synthesis Laboratory Report Form on the Lab Web Page for each of the synthesis experiments.

Laboratory Technique. The laboratory technique grade will be decided on the following basis:
1. Preparedness for lab.
2. Cleanliness of work area, lab safety.
4. You may have up to 1 point per lab deducted for poor safety. Wear your Safety Glasses!!!!!!!!!