CHEM 2412 – Organic Chemistry II Laboratory
Course Syllabus – Summer 2016

Instructor Information:

Dr. Michael Kirberger
Office phone: 678-466-4873
Office: LDS M235
Email: MichaelKirberger@mail.clayton.edu
Internet: http://faculty.clayton.edu/mkirberger/home

Office Hours:

Wednesday 9:00 am – 12:00 pm

Textbook Information:

MAKING THE CONNECTIONS: A HOW TO GUIDE FOR ORGANIC CHEM LAB
TECHNIQUES (Required)
by PADIAS
Copyright 2009 or newer edition
ISBN 1-4292-3865-8

STUDENT CHEMISTRY LAB NOTEBOOK (Required)
by HAYDEN

Supplies:

Safety Goggles
List of Safety Rules (From the course web site)
Scientific Calculator
Access to a computer

You are required to supply your own safety goggles for the laboratory. These are
available in the campus bookstore but may be purchased elsewhere. Safety goggles
MUST be worn in the laboratory at all time.

If necessary, the instructor will deduct points from lab reports for not wearing
safety glasses while in the laboratory.
Credit Hours:
This is a 1.0 credit laboratory course accompanying CHEM 2412.

Course Description:
A study of the common laboratory techniques used in synthesizing, purifying and analyzing organic compounds.

Course Co-requisite:
CHEM 2412

Note: Due to the co-requisite nature of CHEM 2412 and CHEM 2412L, students dropping one of the two courses must also drop the other.

Disability Services:

*Individuals with disabilities who need to request accommodations should contact the Disability Services Coordinator, Student Center Room 255, 678-466-5445, disabilityservices@clayton.edu.*

Notebook Computer Requirement:

Each CSU student is required to have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. Students will sign a statement attesting to such access. For further information on CSU's Official Notebook Computer Policy, please go to [http://itpchoice.clayton.edu/policy.htm](http://itpchoice.clayton.edu/policy.htm).

Computer Skill Prerequisites:

1. Able to use the computer's operation system (Windows®)
2. Able to access and send e-mail (Outlook® or Outlook Express®)
3. Be able to attach and retrieve attached files via e-mail.
4. Able to use a Web browser (Internet Explorer®) and search engine
5. Able to download files from a web site to your computer
6. Able to use a word processor system (Word®)
7. Able to use a spread sheet system (Excel®). Your instructor may have access to more font sets than your computer currently holds. Therefore, there may be some differences in the appearance of symbols when viewing sample exams and exercise sheets. If this is a problem, consult the instructor.
In-class Use of Student Notebook Computers:

Student notebook computers will NOT be used in the lab room for this course. Computers will also be used to access course materials and to communicate with the instructor.

Student Learning Outcomes:

General education outcomes:

- **Communication**: knowledge base. CHEM 2412L will provide knowledge base information necessary for communication of information concerning principles of organic chemistry.
- **Critical Thinking**: Question/Issue, Method, Evidence, Conclusion. CHEM 2412L will provide problem solving skills needed in an organic chemistry laboratory. Students will be required to assess information obtain during laboratory experimentation and form a conclusion based on that information. In this process, students will be required to determine which given information is pertinent and if their conclusion is reasonable.

Biology Outcomes:

- **Outcome 3**: Knowledge of physical science, mathematics, and statistics required to support an understanding of biology.
- **Outcome 4**: Ability to communicate orally and in writing in a clear, concise manner.
- **Outcome 5**: Ability to collect, evaluate and interpret scientific data, and employ critical thinking to solve problems in biological science and supporting fields.

Chemistry Outcomes:

The successful student will be able to:

- demonstrate knowledge of the basic principles of major fields of chemistry.
- demonstrate a broad range of basic laboratory skills applicable to chemistry, and improved chemical research skills.
- demonstrate knowledge of technology related to chemistry, including laboratory instrumentation.
- communicate scientific information in a clear and concise manner both orally and in writing.
- collect, evaluate and interpret scientific data, and employ critical thinking to solve problems in chemistry and supporting fields.
- collaborate effectively on team-oriented projects.
Class Meetings:

<table>
<thead>
<tr>
<th>CRN</th>
<th>Section</th>
<th>Days</th>
<th>Time</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>50127</td>
<td>01</td>
<td>TR</td>
<td>1030-1320</td>
<td>LDS 222</td>
</tr>
</tbody>
</table>

Evaluation:

Your grade in CHEM 2412L will be based upon the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Reports (7 x 50)</td>
<td>350</td>
</tr>
<tr>
<td>Lab Notebooks (6 x 8)</td>
<td>48</td>
</tr>
<tr>
<td>Exam</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
</tr>
</tbody>
</table>

Grading:

The grade you receive in Chemistry 2412L will be based upon the following distribution:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% or greater</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89%</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79%</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60%</td>
</tr>
</tbody>
</table>

Classwork:

The lab meets in the designated room at the designated time. You are to complete the assigned laboratory exercise at that time. The instructor cannot guarantee the possibility of a make-up lab. Your laboratory experiments should be prepared. This includes pre-lab reading and preparation, performing the experiment, collection and proper recording of data and observations, conclusions, answers to all questions and clean-up as well as experimental write-up.

Group Work:

We will normally work in small groups in the laboratory. It is each individual’s responsibility to insure that everyone in the group participates in all aspects of the
experiment. You are responsible for cleaning all equipment used and keeping the lab neat and clean. Points may be deducted for failure to wear safety glasses while physically in the laboratory, for messy labs, late reports, horseplay in lab, etc., at the discretion of the instructor.

Even though we may perform the experiment in groups, and even though we encourage an exchange of ideas for comprehension of the laboratory exercise, all reports must be of an individual nature. Written work must be original and must be the individual's expression of the results and understanding of the laboratory concepts.

**Work that has been copied from another individual will result in the lowering of both scores.**

**Lab Notebooks:**

There will be 8 laboratory reports worth 50 points each. The lowest of these lab grades will be dropped. Laboratory reports are to be typed using the forms supplied to you at the course website. Notebook entries, worth 8 points each, must be submitted according to the schedule. Reports are to be typed and structures are to be drawn using a computer chemical drawing program. Laboratory reports are due at the start of class (unless otherwise stated) on the assigned due dates. Reports turned in after the start of class will be treated as a day late (i.e. grade – 10%). Late reports will have 10% deducted for each school day it is past due. Reports over nine days late will not be accepted.

**Reports will not be accepted via e-mail!**

**Make-up labs / Late work:**

Due to the difficulty in lab schedules and availability of lab supplies in reagents, it may not be possible to make up missed labs, resulting in a grade of zero for the lab.

**Mid-term Progress Report:**

The mid-term grade in this course will not be issued due to limited grades in the course. Students may choose to withdraw from the course and receive a grade of "W". Students pursuing this option must fill out an official withdrawal form, available in the Office of the Registrar.
Tentative Course Schedule:

The instructor reserves the right to change the schedule as necessary and will communicate any changes clearly to the class.

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>05/24</td>
<td>Introduction, Lab Equipment and Safety.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>05/26</td>
<td>NMR Spectroscopy and structure determination</td>
<td>pp. 75-93</td>
<td>Prelab 01</td>
</tr>
<tr>
<td></td>
<td>05/31</td>
<td>NMR Spectroscopy and structure determination</td>
<td>pp. 75-93</td>
<td>Prelab 01</td>
</tr>
<tr>
<td>2</td>
<td>06/02</td>
<td>Properties of Hydrocarbons</td>
<td></td>
<td>Prelab 02 Lab 01</td>
</tr>
<tr>
<td>3</td>
<td>06/07</td>
<td>Grignard Reaction – Part 1</td>
<td></td>
<td>Prelab 03 Notebook 01 Lab 02</td>
</tr>
<tr>
<td></td>
<td>06/09</td>
<td>Grignard Reaction (MP and FTIR) – Part 2</td>
<td></td>
<td>Prelab 04 Notebook 02 Lab 03</td>
</tr>
<tr>
<td>4</td>
<td>06/14</td>
<td>Properties of Alcohols</td>
<td></td>
<td>Prelab 05 Notebook 03 Lab 04</td>
</tr>
<tr>
<td>5</td>
<td>06/16</td>
<td>Aldehydes and Ketones</td>
<td></td>
<td>Prelab 06 Notebook 04 Lab 05</td>
</tr>
<tr>
<td>6</td>
<td>06/21</td>
<td>Qualitative Organic Analysis – Part 1</td>
<td></td>
<td>Prelab 07 Notebook 05 Lab 06</td>
</tr>
<tr>
<td></td>
<td>06/23</td>
<td>Qualitative Organic Analysis – Part 2</td>
<td></td>
<td>Prelab 08 Notebook 06 Lab 07</td>
</tr>
<tr>
<td>7</td>
<td>06/28</td>
<td>Esterification</td>
<td></td>
<td>Lab 08</td>
</tr>
<tr>
<td>7</td>
<td>06/30</td>
<td>Nitration of Toluene</td>
<td></td>
<td>Lab 08</td>
</tr>
<tr>
<td>8</td>
<td>07/05</td>
<td>NMR Lab Exam. Lab Clean-up.</td>
<td></td>
<td>Lab 08</td>
</tr>
</tbody>
</table>

Please carefully note the date and time of each lab, as they may appear in a different sequence than listed in the lab manual.

Course Policies:

General Policy:

Students must abide by policies in the Clayton State University Student Handbook.
University Attendance Policy:

Students are expected to attend and participate in every class meeting. Instructors establish specific policies relating to absences in their courses and communicate these policies to the students through the course syllabi. Individual instructors, based upon the nature of the course, determine what effect excused and unexcused absences have in determining grades and upon students’ ability to remain enrolled in their courses. The university reserves the right to determine that excessive absences, whether justified or not, are sufficient cause for institutional withdrawals or failing grades.

Course Attendance Policy:

Arriving to class on time is your responsibility. Coming in late is disturbing to the entire class and detracts from the learning experience. If tardiness becomes habitual, the instructor may institute measures to correct this problem. This could range from refusal to allow admittance to class on that day or a deduction of points from the grade.

Risk:

Participation in laboratory activities involves an inherent risk of injury. In the event of injury, the student should immediately inform the instructor who will contact the Campus Public Safety Officer. The officer will file an accident report and administer first aid or contact appropriate medical help.

Note: The instructor reserves the right to alter the laboratory schedule as necessary. Students must participate in the laboratory in order to successfully complete the course.

Academic Misconduct:

Any type of activity that is considered dishonest by reasonable standards may constitute academic misconduct. The most common forms of academic misconduct are cheating and plagiarism. All instances of academic dishonesty will result in a minimum punishment of a grade of zero for the work involved. All instances of academic dishonesty will be reported to the Office of Student Life/Judicial Affairs. Judicial procedures are described at http://adminservices.clayton.edu/studentlife/judicial_affairs.htm.

Other Information:

Students must abide by policies in the Clayton State University Student Handbook, and the Basic Undergraduate Student Responsibilities.
Class roll will be taken and students are expected to attend their assigned laboratory. The instructor will not extend the laboratory schedule near the end of the semester simply for students who have missed regular laboratory days.

Visitors are strictly prohibited from attending or visiting the laboratory without the permission of the instructor. Electronic calculators will be needed for laboratory calculations. The battery and working of your calculator will be your responsibility. You will find it useful to have your calculator in the laboratory.

As a courtesy to your classmates:
- Arrive to lab on time, and stay until the exercise is complete.
- No children or visitors are allowed in the laboratory.
- Cell phones and electrical devices have become a major distraction in the classroom. They are to be turned completely off during the class period (not just to vibrator mode).
- Turn off beepers, phones, radios and other electronic devices. Pacemakers are allowed.
- Replace all chemicals to the shelves with lids firmly attached.
- Clean all spills that occur on and around the balances.
- Be sure all glassware is cleaned with soap, rinsed and returned to the shelf. No glassware should be left in the sink.
- Be very careful with thermometers.--Expensive!!
- No smoking, eating or drinking is permitted at any time in the classroom.
- Be aware of all safety rules, policies and procedures. Abide by the safety rules while in the laboratory.
- Wear your safety glasses (This is a must) at all times in the laboratory. If necessary, the instructor will deduct points from lab reports for not wearing safety glasses while in the laboratory.

Behavior which disrupts the teaching–learning process during class activities will not tolerated. While a variety of behaviors can be disruptive in a classroom setting, more serious examples include belligerent, abusive, profane, and/or threatening behavior. A student who fails to respond to reasonable faculty direction regarding classroom behavior and/or behavior while participating in classroom activities may be dismissed from class. A student who is dismissed is entitled to due process and will be afforded such rights as soon as possible following dismissal. If found in violation, a student may be administratively withdrawn and may receive a grade of WF.

A more detailed description of examples of disruptive behavior and appeal procedures is provided at: [http://a-s.clayton.edu/DisruptiveClassroomBehavior.htm](http://a-s.clayton.edu/DisruptiveClassroomBehavior.htm)

**Student Survey Requirement:**

Students have the responsibility to complete the Student Survey and Course/Instructor Evaluation for each course and each instructor every semester. If this in not done during the allotted time period, the student will be restricted from seeing their final course grade for a period of approximately one week after final
exams have ended. Instructors are not allowed to give course grades to those who did not complete these evaluations. Also, no grades of any kind will be given out over the telephone or email due to federal privacy laws.