COURSE: Organic Chemistry Laboratory II (CHEM 2021)
SEMESTER: Fall 2014, Spring 2015, Summer 2015
INSTRUCTOR: Dr. Matthew D. Smith, Office NCSI 119, Phone 585-6881
E-Mail – Matthew.Smith@ws.edu
Office Hours: Posted on instructors office door

Course Supervisor Dr. Jeff T. Horner, Dean of Natural Science, Office NSCI 125
Contact: Phone: 423-585-6954, E-Mail: Jeff.Horner@ws.edu
FAX: 423-318-2762
Division Secretary: 423-585-6865

REQUIRED TESTBOOK AND SUPPLEMENTARY MATERIALS:
Organic Chemistry Laboratory Experiments developed by professor; Posted to eLearn and mOrganic 180° Wraparound Safety Spectacles from Bookstore
Laboratory Notebook; details provided at first meeting

COURSE DESCRIPTION:
Chemistry 2021 is an introductory sequence course in organic chemistry which considers the occurrences, structure, properties and uses of the more important classes or organic compounds with laboratory experiments and exercises which correspond to lecture materials in CHEM 2020. (Pre-requisite: CHEM 2010; Corequisite: CHEM 2020)
3 hours laboratory 1 hour credit

COURSE OBJECTIVES and COMPETENCIES:
The course is designed around the same learning objectives listed for the lecture course, CHEM 2020. Interactive laboratory activities that relate to and reinforce these student learning outcomes will be performed and students will acquire the skills needed for advanced laboratory work in chemistry, related disciplines, or the chemical industry by demonstrating competencies in the following areas:

1. Laboratory Techniques
   Simple distillation, fractional distillation, flash distillation, vacuum distillation, steam distillation, recrystallization, vacuum filtration, liquid-liquid extraction, solvent drying, column chromatography, thin layer chromatography, gas chromatography, high performance liquid chromatography, infrared spectroscopy, basic synthetic skills and melting point determination.

2. Laboratory Instrumentation
   Milton-Roy, Model 1200, UV/VIS spectrophotometer interfaced with IBM PS/II computer; Hewlett-Packard, 5890 Series II gas chromatograph interfaced with a Hewlett-Packard HP-3396 Series II integrator; Buchi, Flash Evaporator with Gast, vacuum/pressure pump and Aldrich, dry-ice/acetone condenser; Rigah “Snowman” Dry-Ice Maker; Scientific System, HPLC system interfaced with Hewlett Packard, Model 3394A Integrator; Nicolet, Model Spectronic IR100, FT-IR, with ATR; Vernier MeltStation and Polarimeter

3. Paper-Work
   Maintaining a record of laboratory experiments and results, reading MSDS documents, familiarization with the WSCC Chemical Hygiene Plan, using
the common handbooks of organic chemicals

**COURSE TOPICS:**
Experiments that correlate with CHEM 2020 learning outcomes will be selected from the following list:

- Photochemical Reactions: Synthesis of Benzopinacol
- Electrophilic Aromatic Substitution: Synthesis of Methyl \( m \)-Nitrobenzoate
- Karl Fischer Titration
- Benzopinacol-Benzopinacolone Rearrangement
- The Diels-Alder Reaction: Synthesis of Endo-Norbornene-5,6-\( cis \)-Dicarboxylic Anhydride
- The Grignard Reaction: Start Benzoic Acid
- DEET
- Benzocaine
- TAS Project – This project will be presented at the TAS meeting at WSCC in the spring
- Aldol Condensation: Synthesis of Tetraphenylcyclopentadienone
- Modern Synthetic Strategies

Please remember that this list may be added to or altered so that the laboratories coincide with lecture as best as possible.

**METHODS OF INSTRUCTION:**
1. Introductory lecture and demonstration
2. Student Experimentation/Reporting
3. Quizzes/Assignments

**EVALUATION:**
1. Quizzes/Assignments 20%
2. Experiments 60%
3. Comprehensive Final Exam 20%

Grades will be determined by the students' percentile rank as follows:

- A = 90-100
- B = 80-89
- C = 70-79
- D = 60-69
- F = 0-59

Attendance is essential to your success. You are required to attend each laboratory session in its entirety; failure to do so without an acceptable excuse will result in a zero for that laboratory. If you cannot attend your normal laboratory section you may avoid a penalty by arranging in advance to attend a different section that week; however, this requires the advance consent of both lab instructors. It is your responsibility to make sure your regular lab instructor is aware that you attended a different section.

Your instructor will discuss his/her specific laboratory make-up policy for an absence on the first day of class. In most cases the policy is only ONE make-up laboratory for an unexcused absence for the term. Other missed laboratory periods that are not accompanied with a documented excuse will result in a “0” for those laboratories. For unexcused absences the following will result:

a. one missing lab/quiz/assignment – maximum grade of “B” is possible for the course.

b. two missing lab/quizzes/assignments – maximum grade of “C” is possible for the course.

c. three or more missing labs/quizzes/assignments – fail the course.

d. failure to take the lab final will result in a failure of the course.
Course Ground Rules:

WSCC Catalog Notification Statement:
All students attending Walters State Community College, regardless of the time and location of the class, must abide by the rules and regulations outlined in the current Walters State Catalog/Student Handbook and the current Walters State Timetable of Classes. A copy of the Catalog/Handbook and the Timetable of Classes may be obtained from the admissions office on the main campus or at any of our off-campus sites. You may also access the Catalog/Handbook on-line at the following web address: [http://www.ws.edu/catalog](http://www.ws.edu/catalog)

Students should attend the first day of class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited.

Students with disabilities must register with Student Support Services in the Student Services Building, Room U134 (phone 423-585-6892) if they need any special facilities, services, or consideration.

Students in need of tutoring assistance are encouraged to contact the Office of Student Tutoring located in the Student Services Building, Room L107 at phone number 423-585-6920 or 423-798-7982 for the Greeneville Campus, 865-286-2787 for the Sevierville Campus, 423-851-4762 for the Claiborne Campus.

Students receiving any type of financial aid or scholarship should contact the Financial Aid Office before making any changes to their schedule. Schedule changes without prior approval may result in loss of award for the current term and future terms.

Students who have not paid fees on time and/or are not correctly registered for this class and whose names do not appear on official class rolls generated by the Admissions and Records Office will not be allowed to remain in class or receive credit for this course.

Electronic devices must not disrupt the instructional process or college-sponsored academic activity. Use of electronic devices is prohibited unless use of the device is relevant to the activity and use is sanctioned by the faculty member in charge. Electronic devices that are not relevant to the activity or sanctioned by the faculty member in charge should be set so that they will not produce an audible sound during classroom instruction or other college-sponsored academic activity.

For information related to the cancellation of classes due to inclement weather, please check the college’s Web site at [www.ws.edu](http://www.ws.edu) or call the college’s student information line, 1-800-225-4770, option 1; InfoConnect, (423) 581-1233, option 1045; the Sevier County Campus, (865) 774-5800, option 7; or the Greeneville/Greene County Center for Higher Education, (423) 798-7940, option 4. Also, please monitor local TV and radio stations for weather-related announcements. For additional information on this policy see the college catalog.

In the event of a pandemic or other college declared critical event that impacts the college’s ability to proceed with academic course activities as planned, the college reserves the right to alter this course plan. In the event of a pandemic or other event, please refer to the college’s home web page, [www.ws.edu](http://www.ws.edu) or call InfoConnect, (423) 581-1233 for further information.

Regular class attendance is a student’s obligation. (See the Walters State Catalog/Student Handbook) If for some reason a student misses class, it is his or her responsibility to see the instructor regarding missed assignments and/or activities and to be prepared for the next class. Excessive absences may substantially lower the semester grade. The college requires the instructor to keep accurate records and to report when students are not attending class.

**STAY AWAKE IN CLASS.** Your mere presence in class is not sufficient—you must be able to actively process the information presented! Sleeping in class is disruptive in two ways: the student who is snoozing is not interested and not participating in the classroom discussion; secondly, sleeping in class is considered to be disrespectful to the teacher and other students. The penalty for sleeping in class may range from the student being requested to leave the class with a following conference with the instructor, to notification of the Vice-President of Academic Affairs (in the cases of habitual sleepers). If you have a medical condition that prevents
you from staying awake in class, please discuss this with the instructor.

CLASSROOM COURTESY. Being in a college environment it is expected that classroom courtesy will be given to your instructor and classmates in limiting unnecessary talking and communication during class lecture or student presentation. An academic misconduct form will be completed and filed for those who have difficulty following this policy and disrupt class.

Safety:
1. There will be NO food, drink or tobacco products in the laboratory.
2. NO opened-toe shoes can be worn during lab. You will not be allowed to stay in the laboratory if the lab exercise uses any sort of glassware or chemicals.
3. NO purses, bags or coats on top of the student tables.
4. NO visitors in the laboratory without prior approval of the instructor.

Your Right to Know:
Tennessee Law requires that you are provided notice that some of the laboratory exercises involve contact with chemicals which have been identified with potential health hazards. These chemicals include, but are not limited to: acetone, chloroform, formalin, acids and bases. While every effort has been made to make the materials as safe as possible these chemicals are toxic and you must be responsible for their safe handling. If you feel you may be at a higher risk than normal, if pregnant for example, we recommend you consult your physician.

ATTENTION: The Natural Science faculty members are concerned with proper academic advising of students in ALL Pre-Professional programs. It is our explicit desire to help you with any advising problems you may encounter.

The last day to drop a course or withdraw from the college-full term for Fall 2014 term is November 5, 2014.

The last day to drop a course or withdraw from the college-full term for Spring 2015 term is April 2, 2015.