

Fayetteville State University
College/of Arts & Sciences
Department of Natural Sciences
CHEM 222 Organic Chemistry II
Fall 2009

I. Locator Information:

Instructor: Dr. Booker Juma
Course # and Name: CHEM 222 Organic Chemistry II Office Location: LS 327
Semester Credit Hours: 5 Office hours: 1100:- 12:00 MTWRF
Day and Time Class Meets: Lecture: MWF 2:00 -3:15 Lab: F 11:00 -1:50 Office Phone: (910) 672-1685
Total Contact Hours for Class: _____
Email address: bjuma@uncfsu.edu Email correspondence encouraged for faster response

The following statement should appear on the first page of each course syllabus:

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@broncos.uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail.

Rules and regulations governing the use of FSU email may be found at
<http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf>

II. Course Description: A course investigating the nomenclature, synthesis, reactions and reaction mechanisms, and methods for analysis of functionally substituted organic compounds, with laboratory activities extending the topics started in CHEM 221 and emphasizing syntheses and technical writing. *Prerequisites: CHEM 221 with a grade of "C" or higher in the course.*

III. Disabled Student Services: In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook: 1.Organic Chemistry, 7th edition, by John McMurry , - with OWL Online Web-Based Learning) subscription, Cengage publishers. Please purchase OWL subscription if not accompanied by your textbook using information provided below. All Homework and Quizzes will be assigned in OWL.

See information below on how to log in OWL.

2. Lab manual customized for the course and is available at the FSU Bookstore.
3. Molecular Model Kit (From Darling Models ISBN 0-9648837-1-6), purchase commercially.

.How to log in Owl

Go to <http://www.cengage.com/owl/index.html> and click the ""organic Chemistry". You will be able to a) buy an access code (if it did not come with your class text) b) register c) login and d) see a demo.

A one semester with e-book also comes with Solutions manual.

1. Click the **Log In** box.
2. Click your textbook name.
3. Click your school name.
4. Click the blue arrow under **Student Registration**.
5. Carefully select your course name and section.
6. Enter the information on the **Self-Registration Form**. Be sure to enter the user name, login, and password that matched your previous OWL registration. Type your new access code into the **Access Code** space.

V. Student Learning Outcomes – Learning Outcomes:

Upon successful completion of this course, students will be able to:

- 1) Identify and predict reagents and products for the synthesis and reactions of alcohols, aldehydes, ketones, carboxylic acids and their derivatives and aromatic compounds, including regiochemistry and stereochemistry as appropriate.
- 2) Draw detailed mechanisms for representative examples of addition or addition/elimination reactions of carbonyl compounds and of electrophilic aromatic substitution.
- 3) Integrate their knowledge of reactions to propose new or modified reactions and multi-step syntheses and to relate these reactions to pharmaceutical and medicinal chemistry applications.
- 4) Elucidate structures of organic compounds through spectroscopic analysis of organic compounds. Interpret NMR spectra, UV, Mass spectra of organic molecules.
- 5) Identify functional groups and predict reaction products of alcohols, thiols, carbonyl compounds, ethers, amines, carboxylic acids, aromatic compounds, enols and enolate ions
- 6) Explain the important role of organic chemistry in as included in carbohydrates, fats, amino acids, proteins and lipids
- 7) Discuss the bonding properties of carbon which cause it to be present in such a large number and variety of important compounds
- 8) Appreciate the use of theories (models) of varying complexity to rationalize chemical structure and reactivity.
- 9) Explain the relationship between structure and physical and chemical properties and to make predictions concerning these properties.
- 10) Explain several ways in which the vast amount of information in the field of organic chemistry may be organized
- 11) Think creatively about synthesis (of ideas as well as compounds).
- 12) Attack problems in a systematic, logical manner.

Assessment: On the cumulative and comprehensive ACS final examination, questions will be identified that evaluate students' knowledge of each learning outcome. Scores on the specified questions will be tabulated to determine how well the class mastered each learning outcome. The following measures will be used to assess the success of the Chemical Sciences program in achieving the above objectives.

- Student Work: quality of exams and reports in formal courses.
- Course Evaluations: The objectives of each course will be stated clearly in the course syllabus.
- Student Perception Survey: to determine whether students believe that they have achieved the objectives of the Chemical Sciences major. This survey will be developed in the Fall of 2009, and administered to students at the end of their sophomore year and upon graduation.
- Performance in Independent Research. All emphasis tracks within Chemistry require at least two units of CHEM 390, CHEM 491, CHEM 492 (Research I, Research II, Research III). Because research requires that the student make use of concepts and techniques acquired across the curriculum to solve real problems, success at research is an excellent yardstick for the achievement of programmatic goals. Success in independent research will be assessed by the following measures:
 - Standard rubric to be used by all faculty supervising independent research projects. The rubric will map directly to the program outcomes and will be developed in the Fall of 2007;
 - Quality of written research reports;
 - Presentation of results at scientific meetings; and
 - Co-authorship on publications.
- Student success after graduation: acceptance to graduate or professional school, or employment in a field that makes use of the student's education. Efforts will be made to track all graduates annually for at least several years after graduation.

Course Requirements and Evaluation Criteria - The final letter grade will be assigned according to University Catalog.:

a) Grading Scale –

Percentile Points	Letter Grade	Accomplishment Level
90 - 100%	A	Excellent
80 - 89.9%	B	Proficient
70 - 79.9%	C	Acceptable

60 - 69.9%
below 59.9%

D
F

Poor
Unacceptable

Interim Grades:

Interim grades will be assigned from the first week of the semester until the deadline for class withdrawals. Interim grades are used for informational and warning purposes only; they are not part of your permanent transcript and have no effect on your grade-point average (GPA). In accordance with university policy, the following changes have been implemented:

Incomplete Grade I-Incomplete grade will only be issued to those students who have been passing, and for extenuating circumstances due to illness or military duty are unable to complete the course.

Please note: there are no longer WN grades!

WN (withdrawal due to non-attendance) grades have been discontinued. This means that it is the student's responsibility to withdrawal from classes prior to the published deadline.

Final grade FN (failure due to non-attendance). This final grade is assigned to students who are on a class roster, but who never attend the class. An FN grade is equivalent to an F grade and adversely affects your GPA.

Interim Grade X (No-show). This grade is assigned to students who are on a class roster, but who never attend class. If you have an X grade, either begin attending class or withdraw from it. If you do not take action in response to an X grade, you will receive a final grade of FN.

Interim Grade EA (Excessive Absences). This grade is assigned to students whose class absences exceed 10% of the total contact hours. If you have an EA grade, you are in jeopardy of failure if you do not take immediate actions. Either resume attending the class or withdraw from it..

Attendance Requirements – Students are expected to arrive to class on time, remain in class until dismissed by the instructor, and refrain from preparing to leave class until it is dismissed. Attend all lectures, except in cases of illness and other unforeseen emergencies including “military related functions”. It is the student's responsibility to make up any and all missed work. The university policy concerning absences from class will be strictly enforced. Active attendance is expected of every student at all classes and exams. More than FOUR unexcused absences will result in the loss of one letter grade in the final semester grade. **Laboratory attendance is required. There are no provisions for making up a missed laboratory experiment. I will drop one lowest laboratory score (and if you miss a lab, this will count for the score to be dropped). The experiments must be performed during the scheduled time period.**

Graded Assignments –Three tests, homework, experiments will be used to determine student's final grade..

Value of Each Assignment -three one-hour exams 60%, Laboratory 10%, Homework 10%, A Comprehensive Final Exam 20 %. The final exam date will be posted on University registrar's website and announced in class.

Policy on Missed or Late Assignments - - It is the student's responsibility to make up any and all missed work. In cases of medical demands or :military related” functions. Students are expected to take examinations on the scheduled dates. Missing an exam will require a written medical or supervisor excuse. Keep in mind that all homework and written lab reports must be submitted within a specified time frame (for labs, one week at the latest after lab exercise) in order to be accepted and graded. Late submission will NOT be graded. There will be no make-up for any optional tests administered.

Other - A student who fails to pass laboratory portion of the course with 75% or higher will NOT obtain a final grade higher than C

Please note: If these evaluation criteria must be revised because of extraordinary circumstances, the instructor will distribute a written amendment to the syllabus.

FSU Policy on Disruptive Behavior in the Classroom (Optional)

The *Code of the University of North Carolina* (of which FSU is a constituent institution) and the *FSU Code of Student Conduct* affirm that all students have the right to receive instruction without interference from other students who disrupt classes.

FSU Core Curriculum Learning Outcome under Ethics and Civic Engagement (6.03): All students will “prepare themselves for responsible citizenship by fulfilling roles and responsibilities associated with membership in various organizations.” Each classroom is a mini-community. Students learn and demonstrate responsible citizenship by abiding by the rules of classroom behavior and respecting the rights all members of the class.

The FSU Policy on Disruptive Behavior (see FSU website for complete policy) identifies the following behaviors as disruptive:

1. Failure to respect the rights of other students to express their viewpoints by behaviors such as repeatedly interrupting others while they speak, using profanity and/or disrespectful names or labels for others, ridiculing others for their viewpoints, and other similar behaviors;
2. Excessive talking to other students while the faculty member or other students are presenting information or expressing their viewpoints.
3. Use of cell phones and other electronic devices
4. Overt inattentiveness (sleeping, reading newspapers)
5. Eating in class (except as permitted by the faculty member)
6. Threats or statements that jeopardize the safety of the student and others
7. Failure to follow reasonable requests of faculty members
8. Entering class late or leaving class early on regular basis
9. Students will not pass notes or carry on private conversations while class is being conducted.
10. Students are not permitted to sleep in class, or be in laboratory without proper attire and safety goggles.

A student found cheating during exams will be dismissed from exam room and assigned an overall grade of an F in the course.

The instructor may take the following actions in response to disruptive behavior. Students should recognize that refusing to comply with reasonable requests from the faculty member is another incidence of disruptive behavior.

1. Direct student to cease disruptive behavior.
2. Direct student to change seating locations.
3. Require student to have individual conference with faculty member. At his meeting the faculty member will explain the consequences of continued disruptive behavior.
4. Dismiss class for the remainder of the period. (Must be reported to department chair.)
5. Lower the student’s final exam by a maximum of one-letter grade.
6. File a complaint with the Dean of Students for more severe disciplinary action.

Students who believe the faculty member has unfairly applied the policy to them may make an appeal with the faculty member’s department chair.

- VI. Academic Support Resources** – Academic support resources available in this class include Center for Promoting STEM Education & Research (CPSER) in Lyons Science Annex –(For registration please contact Dr. Allen via email: svallen@uncfsu.edu) , Smarthinking, University College Learning Center, The Learning Center in the H.T. Chick Building is available to assist students with writing, mathematics, and reading. Additional textbooks related to the course are available in the FSU Library

Course Outline and Assignment Schedule: We will study 16 chapters in this course starting from Chapter 13. For your convenience, we'll cover them in the order in which they are found in the text. Students are responsible to keep abreast of any and all changes to the schedule.

Week Starting	Topic	Chapter
Aug 24	NMR/UV Spectrometry	13/14
Aug 31.	Benzene & Aromaticity; Chemistry of benzene	15/16
Sep 7.	Alcohols and Phenol	17
Sep 14	Ethers, Epoxides, Thiols	18
Sept 21	Aldehydes & Ketones	19
Sept 28	Carboxylic Acids, Nitriles & Carboxylic Acid derivatives	20/21
October 11	Carbonyl Alpha Substitution Reactions & Condensation	22/23
October 26	Amines & Heterocycles	24
November 9	Biomolecules: Carbohydrates	25
Nov23	Biomolecules: , Amino Acids, Lipids	26/27

Exam Dates:

Test # 1 Friday September 25 , 2009
Test # 2 October 31, 209
Test # 3 November 20, 2009
Final Exams December 7, 2009 (tentative)

VII. Teaching Strategies

Course will be by lecture, lab experiments, discussion, and occasionally by online assignments

VIII. Bibliography (will be provided in class.)

Risk can never be completely eliminated in the chemistry classroom. Students are required to follow the precautions provided. Before they start lab work students are required to read and sign safety information. Safety information is also included in each week's lab information. Avoid things that are dangerous or toxic. Students are required to learn the basic rules: no eating in the lab; don't store food or drink in the lab refrigerator; do not eat ice from the lab ice machines; always wear eye-safety goggles; if gloves get holes, take them off right away; do not wear sandals; clothing must cover the knees; wash hands before leaving the lab. Report all injuries however minor to the instructor.

IX. Plagiarism: Plagiarism is any use of another person's words or ideas without giving proper credit to the person from whom you borrowed the words or ideas. Plagiarism is the theft of intellectual property. Plagiarism includes the following:

- Failing to cite properly any direct or indirect quotation(s) from professionally written materials (books, journal articles, etc.) student papers, projects, presentations, etc.
- Submitting as your own work a paper, project, or presentation that you did not compose (that is, write, compile, draw, etc.)
- Allowing another person to write your paper or develop your presentation or assignment.

Students who plagiarize will be subject to failing the assignment and/or failing the course.

Turnitin.com: "Turnitin.com" is a web-based service that provides online reviews of written material to judge if it has been copied from another source. Turnitin.com is used to evaluate the possibility of a student plagiarizing or cheating on written material. The instructor may require students to submit written work in an electronic format for the purpose of utilizing the Turnitin.com service.

Additional Information: Disclaimer: To accommodate emergent circumstances, the professor reserves the right to make reasonable changes in the syllabus while the course is in progress.

Chem 222 Organic Chemistry Syllabus
Fall 2009

WEEK OF	Lab Number	Experiment Title
Classes Start Aug 20 th		No Labs
Aug 24 th	Tech 700	– Home assignment: Practicing Safety in the Organic Chemistry Laboratory. Check In/Safety Briefing.
Aug 31 st	ANAL 492	Separating and Identifying Food Dyes by Paper Chromatography.
Sept 7 th (Labor Day Holiday)	SYNT 745	Synthesizing Aspirin: The Acetylation of Salicylic Acid. -No Classes.
Sept 14 th	SYNT 717	The Diels-Alder Reaction of Anthracene with Maleic Anhydride, p. 89
Sept 21 st	SYNT 740	Synthesis of Ethanol
Sept 28 th	SYNT 740	Synthesis of Ethanol, cont.
Oct 5 th		Problem Solving Session -Midterm Exams Oct. 8th – 14th
Oct 12 th – 16 th	No Classes	Fall Break
Oct 19 th	SYNT 720	The Aldol Condensation: synthesis of Dibenzlacetone, p. 165
Oct 26 th	SYNT 470	Preparation and Identification of Esters, p. 101
Nov 2 nd	ANAL 728	Identifying and Unknown Aldehyde or Ketone, p. 13
Nov 9 th	REAC 446	Qualitative Testing for Carbohydrates, p. 61
Nov 16 th	REAC 447	Qualitative Testing for Lipids, p. 73
Nov 23 rd – Nov 27 th	No Labs	Thanksgiving Holiday Nov. 26th – 27th
Nov 30 th	No Labs	Problem Solving Session
Dec. 4 th		Last Day of Classes
Dec. 7 th – Dec 11 th		Final Exams

Laboratory Manager:
Ivy Rittenhouse
LS 305
Ext. 1054
irittenhouse@uncfsu.edu

Pre-lab questions are due at the beginning of the lab session. **Post-lab questions** are to be answered and to be included within your laboratory report.

Laboratory reports will be typed. For the first lab report, write out what you did in your own words (the Experimental section) and tabulate and comment on the results (Results and Discussion). Additional parts on subsequent reports will be explained later.

In the event that a particular laboratory session is cancelled due to inclement weather, etc., the schedule will resume starting with the laboratory experiment that was missed.