Textbook: Organic Structure Analysis – 2nd Edition (Crews, Rodriguez, and Jaspars). In addition, you are expected to engage in reading outside of the required text to further your understanding of the topics discussed in lecture. Extensive reading of journal articles relevant to topics discussed in class is expected and required for success in this class.

Course Overview and format: This class is designed to provide in-depth coverage of the techniques and data interpretation used in modern organic structure analysis. The class will include lectures, problem solving sessions, student presentations, and assessments. Your grade will be determined based upon individual performance on quizzes/exams and presentations/projects as outlined below. Any homework other than presentations/projects will not be graded, but your effort on them will contribute to the participation component of your grade.

Topics that will be covered (not an exhaustive list):
- Introduction and overview of organic structure analysis
- Infrared and Raman spectroscopy
- Standard $^1$H NMR and $^{13}$C NMR
- Specialized isotope NMR
- 2D NMR techniques
- MS methods and instrumentation
- MS fragmentation patterns
- Ultraviolet spectroscopy
- Absolute configuration analysis (CD, VCD, X-ray)
- Integrated problem solving
- Special topics and current events in spectroscopy
- Data communication and scientific reporting

Performance and expectations: In addition to understanding the theory behind techniques covered in class, students are expected to develop critical skills necessary to acquire and interpret spectra of organic compounds. Success in learning and applying organic spectroscopy to problem solving is directly related to the time invested in practicing these methods. Numerous practice problems can be found in textbooks and students are encouraged to use these resources fully. It is up to the student to apply themselves to the study of the topics covered in class as needed.

Grading: Four quizzes (25 pts each), three tests (100 pts each) and one final exam (200 pts) will be given. All exams and quizzes will be comprehensive of material previously covered in class. Three projects (50 pts each) will be assigned based on topics covered in class. A final “capstone” project (100 pts) will be due at the end of the semester. Problems will be periodically assigned in class and students will be selected at random to solve them in front of the group. Point breakdown is as follows:

- 4 – quizzes x 25 pts = 100
- 3 – tests x 100 pts = 300
- 3 – projects x 50 = 150
- participation = 50
- final project = 100
- final exam = 200

No make-up tests will be given except under extraordinary circumstances that are documented and accepted by the instructor and The University of Oklahoma. Examples of excused absences include emergency military duty, medical trauma, and death of an immediate family member. In these cases, the student must contact the instructor by email, which must be time stamped and received prior to the start of the missed exam. Excuses falling outside the realm of acceptability will not be considered. All decisions regarding the acceptability of an absence will be made by the instructor and will be final. Once an assignment/exam has been graded and returned, the student will have 5 days to petition for a grade change. No exceptions will be made.
All points earned will be expressed as a percentage of the total points possible in the course and a grade assigned according to the preceding table. All grades will be rounded appropriately (for example 86.5% = 87% while 86.4% = 86%). There are no exceptions. At the end of the course the instructor reserves the right to adjust student grades as a whole (i.e. apply a “curve”).

**Personal spectroscopy notebooks:** Students will be allowed to prepare a notebook for use during instructor specified portions of the quizzes/exams. The notebook must consist of a three-ring binder in which the notes are securely bound. No electronic media or unbound materials are allowed. Notes may be prepared in any format (text, tables, graphs, illustrations, etc…) desired by the student and can consist of handwritten notes or photocopied pages from textbooks. Notebooks are subject to examination by the instructor and violations of these rules will result in the notebook being confiscated and a grade of “0” points assigned for the exam. Notebooks may not be shared during the exam.

**Attendance:** Attendance will not be recorded for lectures. However, you are strongly advised to attend all lectures since items will be discussed and announcements made regarding quizzes and exams that could influence your likelihood of success in the course.

**Email communication:** In order to aid in communication, the university has established email as an acceptable means of official communication. All university students are assigned an official university email account. Your instructor will be communicating with you through this account periodically. It is expected that you will read email sent to this account in a timely fashion. Failure to receive or read, in timely manner, the communications sent to you via your official email account does not absolve you from knowing the information sent to you.

Any correspondence with the instructor must include the phrase CHEM 6680 in the subject line. Email not including this specific notation will likely result in its classification as “junk mail” and it will be triaged and not read. The instructor will make all possible efforts to respond to any email inquiry within 48 hours after it was received.

**Academic misconduct:** Students engaging in academic misconduct (including cheating, plagiarism, and any other action that may improperly affect evaluation) will be subject to sanctions in accordance with the Norman Campus Academic Misconduct Code. You should understand that your instructor takes these matters seriously.

**Use of cell phones and electronic devices:** No active cell phones are allowed in the classroom. Any active cell phone seen or heard in the classroom by the instructor during class can result in a penalty of 50 points deducted from your final score per incident. No electronic device can be used for the purposes of recording (audio or video) any class content without the prior consent of the instructor. Violations of the aforementioned policy will also result in a 50-point deduction per incident. No electronic devices are allowed during exams and infraction will result in a “0” grade.

**Extra credit, bonus points:** Sorry, none available!

**University policies and disability accommodation:** Students should acquaint themselves with campus wide codes, policies and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination. The instructor is obligated to inform the necessary university office upon infringement of any university policy/code.

The university is committed to providing reasonable accommodation for all students with disabilities and students with disabilities are requested to speak with the instructor as early as possible in the semester so accommodations can be implemented. The Office of Disability Services is located in Goddard Health Center, suite 166, phone (405) 325-3852 or TDD only (405) 325-4173. For more information please refer to: [www.ou.edu/drc/home.html](http://www.ou.edu/drc/home.html)

**As the course develops, it might be desirable/necessary to make appropriate changes in aspects of this syllabus. The instructor reserves the right to make changes if desirable or necessary.**
Tentative Class Schedule (subject to change)

Tuesday August 19th: Class Introduction & Spectroscopy Overview
Thursday August 21st: Spectroscopy Overview (Cont.)
Tuesday August 26th: Infrared Spectroscopy
Thursday August 28th: Infrared Spectroscopy
Tuesday September 2nd: Infrared Spectroscopy Problem Set/Lab Day
Thursday September 4th: Quiz #1 and begin $^1$H NMR discussion
Tuesday September 9th: $^1$H NMR
Thursday September 11th: $^1$H NMR
Tuesday September 16th: $^1$H NMR
Thursday September 18th: $^1$H NMR and Quiz #2
Tuesday September 23rd: $^1$H NMR Problem Set/Lab day
Thursday September 25th: Exam #1
Tuesday September 30th: $^{13}$C NMR
Thursday October 2nd: $^{13}$C NMR
Tuesday October 7th: $^{13}$C NMR
Thursday October 9th: $^{13}$C NMR and Quiz #3
Tuesday October 14th: 2D NMR and Special Pulse Sequences
Thursday October 16th: 2D NMR and Special Pulse Sequences
Tuesday October 21st: 2D NMR and Special Pulse Sequences
Thursday October 23rd: 2D NMR and Special Pulse Sequences Problem Set
Tuesday October 28th: Exam #2
Thursday October 30th: Mass Spectrometry
Tuesday November 4th: Mass Spectrometry
Thursday November 6th: Mass Spectrometry
Tuesday November 11th: Mass Spectrometry Problem Set/Lab Day
Thursday November 13th: Mass Spectrometry and Quiz #4
Tuesday November 18th: UV/Vis, ECD, VCD, and X-ray
Thursday November 20th: UV/Vis, ECD, VCD, and X-ray
Tuesday November 25th: Exam #3
Thursday November 27th: Thanksgiving (no class)
Tuesday December 2nd: Review Session #1
Thursday December 4th: Review Session #2
Friday December 12th: Final Exam 1:30 – 3:30 pm