

CHE 350-001: Instrumental Analysis Spring 2009

Instructor: Dr. Heather Bullen

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Text: Quantitative Chemical Analysis; Harris, 7th Edition

Suggested: Principles of Instrumental Analysis; Skoog, Holler, and Nieman, 5th Edition

Blackboard: Blackboard will be used in this course to post lecture materials, assignments and other information pertinent to the course.

Class Times: 1:00-1:50 pm MW, SC 402

Prerequisite: CHE 340-340L

Co requisite: CHE 350 L

Office Hours: I have an open door policy. Please stop by if you ever have questions, or contact me if you want to set up an appointment. My formal office hours are: M, W:10-11 am.

Objectives: Obtain a sound understanding of the fundamental principles of instrumental methods of chemical analysis.

Learning Outcomes: This course's student learning outcomes fulfill the following programmatic goals of the Department of Chemistry.

At the end of this course students will be able to:

- *Define components and operation of modern chemical instrumentation*
- *Interpret results acquired from various chemical instrumentation*
- *Assess the benefits and limitations of different instrumentation methods and instrumental components*
- *Identify appropriate instrumental methods for a chemical analysis*

Attendance: NKU policy states that class attendance is mandatory. Regular attendance is expected and tardiness is not tolerated. Material at times will not come directly from the text so it is important to come to class. CHE350 and 350L are to be taken simultaneously. Students with more than 4 absences from lecture (unless a valid excuse is given) will be dropped from both lecture and lab by the instructor.

Exams: There will be three in-class exams (Wednesday 2/11, Wednesday 3/18, Wednesday 4/22) and a Final Exam (Wednesday 5/6 1-3 pm) during the semester. The final exam will be cumulative. **No** make up exams will be given. A student missing an exam must notify the instructor in advance. On the instructor's discretion, the student may use the final exam score to count for one exam that was missed. This policy only applies to one exam.

Homework: Homework Assignments will be handed out during the course. These assignments are designed to help ensure your understanding of the material presented in the lecture and prepare you for the exams.

Quizzes: Short in-class quizzes will be given throughout the semester. These quizzes may be announced or unannounced to address preparedness for lecture and the understanding of the course material. Make up quizzes will not be given and the lowest quiz score will be dropped.

Seminars: During the semester students will have the opportunity to attend seminars related to the course. A short, one page, report on the topic presented must be turned in. Each report is worth up to 1 point on a quiz grade.

Grading Scheme:

Exam 1	= 16%
Exam 2	= 16%
Exam 3	= 16%
Final Exam	= 22%
Homework	= 20%
Quizzes	= 10%

Grading Scale: The letter grade for the course will be based on the final percentage scale

<u>Course Grade</u>	<u>Percentage</u>
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Honor Code: The NKU Honor Code is in effect for this course. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain and academic advantage over fellow students or avoid academic requirements. In accordance with the *Code of Student Rights and Responsibilities*, faculty members have the right to determine actions to be taken when a student is caught cheating. Penalties for cheating can range from but are not limited to scores of zero on individual assignments or exams to expulsion from the University and does include failure of the course. <http://www.nku.edu/~deanstudents/policies.htm>

Note: The syllabus is subject to change. Students are responsible for understanding all items on this syllabus. Any items not understood must be brought to the attention of the instructor within the first two weeks of class.

TENTATIVE COURSE OUTLINE

Topic	Chapters
Measurement Basics: Performance Characteristics, Figures of Merit Electrical Components and Circuits, Operational Amplifiers, Digital Electronics, S/N ratios	1-5 Skoog
Separation Methods: Gas Chromatography, HPLC, Capillary Electrophoresis	23-26 Harris
Spectroscopic Methods: Components of Optical Instruments, Atomic Spectroscopy, Molecular Spectroscopy (Infrared Spectroscopy, Luminescence Spectroscopy, Raman Spectroscopy), Mass Spectroscopy, X-ray Diffraction, Molecular and Spectroscopic Surface Characterization	18-21 Harris

Policies of the Department of Chemistry at Northern Kentucky University

- All items on syllabi are subject to change by the instructor.
- Students are responsible for reading and understanding all items on the syllabi. Any items not understood must be brought to the attention of the instructor within the first two weeks of class.
- The work you will do in any course is subject to the Student Honor Code. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.
- Cheating will not be tolerated. In accordance with the Code of Student Rights and Responsibilities, faculty members have the right to determine actions to be taken when a student is caught cheating.
- Faculty members reserve the right to dismiss or to have removed a disruptive student from their classrooms

Students with disabilities who require accommodations (academic adjustments, auxiliary aids or services) for this course must register with the Disability Services Office. Please contact the Disability Service Office immediately in the University Center, Suite 320 or call 859-572-6373 for more information. Verification of your disability is required in the Disability Services Office for you to receive reasonable academic accommodations. Visit the Disability Services website at www.nku.edu/~disability/.