

Chemistry Research
CHE 492
Patrick M. Hare
harep1@nku.edu
859-572-1928
SC 351

All items on this syllabus are subject to change by the instructor

Office Hours: I have an open-door policy: if my door is open, you may feel free to knock and enter. If my door is closed, I am unavailable. For a guaranteed meeting time outside of office hours, please set up an appointment at least one day in advance.

Credit: up to 3.

Prerequisite: Consent of instructor

Text: Laboratory notebook. See the instructor for examples.

Lab Times: By arrangement with instructor (6 hours per week per enrolled credit hour spent on research). Research may take place outside the time span of the term with the consent of both the instructor and department chair.

Grading scale: Grades will be based on how well the objectives below are achieved, as well as any requirements outlined by the instructor's research policy.

Appropriate Department of Chemistry Student Learning Outcomes:

1. Explain the major concepts and experimental findings in the chemical sciences.
2. Demonstrate the ability to carry out experimental protocols using modern instrumentation and methods.
3. Utilize critical thinking skills to apply concept knowledge and adapt experimental techniques to: a) form and test hypotheses, and b) solve scientific problems.
4. Compile, critically evaluate, and interpret scientific information and data.
5. Effectively communicate scientific information through written and oral means.
6. Apply effective group strategies to solve scientific problems.
7. Evaluate the relationships between chemistry and mathematics, physics, biology, and other disciplines and between chemistry and society.
8. Apply computer technology and other technologies in the comprehension, interpretation, and presentation of the chemical sciences.

Specific Learning Objectives:

The overall goal of undergraduate research experience is to develop the skills necessary to become a professional research scientist in industry, professional schools, or graduate school, and to develop an understanding of the process of scientific research. The department of chemistry at NKU has determined that to achieve that goal, the following objectives are required:

- A. Have a mastery of the research project, including understanding what is being done, why it is being done, and the "bigger picture".
- B. Search the literature for publications related to the research as needed, and critically review (read) those papers.
- C. Keep accurate and detailed records of experiments and results in a laboratory notebook.

D. Be a good laboratory citizen, which means working with and watching out for others, following safety guidelines, taking care of lab responsibilities and keeping lab space and common areas clean.

E. Learn to work and think independently.

Safety Contract: Students are required to sign the departmental research safety contract and abide by its policies. Students are also required to view the laser safety video, take the safety test, and return it to the instructor. Failure to do any of these will result in dismissal from the lab.

Research Contract: Students are required to complete and sign a departmental research contract. This contract ensures that you and your instructor understand the goals of your research project and the times that you will conduct research during the term.

Research Reports: Students are required to update the instructor on their research progress on a weekly basis in writing. Email will be acceptable, and can be informal. A more formal report will be required at the end of the term.

Department of Chemistry Policies

Students are responsible for reading and understanding all items on this syllabus. Any items not understood must be brought to the attention of the instructor.

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. The Honor Code can be accessed at: <http://www.nku.edu/~deanstudents/policies.htm> .

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 <http://www.nku.edu/~disability/> .