CHEM 3980: Research

A. COURSE DESCRIPTION
   Credits: 1,2
   Lecture Hours/Week: 0
   Lab Hours/Week: 0
   OJT Hours/Week: *.*
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None
   This research experience will develop essential skills needed to be a chemist. Student researchers will participate in scholarly projects based on appropriate methodology and scholarship. Work will culminate in a presentation or paper. Course may be repeated for 6 credits.

B. COURSE EFFECTIVE DATES: 07/31/2023 - Present

C. OUTLINE OF MAJOR CONTENT AREAS
   1. Engage in semi-independent research under the guidance of a faculty member
   2. Collaboration: Work in a team, contribute special skills, interact with classmates and faculty, and communicate
   3. Discovery: Obtain new knowledge and insights and perform studies with unknown results
   4. Iteration: Repeat and revise previous experiments
   5. Relevant and important work: Contribute to current science knowledge, impact extends beyond class, and present and/or publish work
   6. Use of scientific practices: Ask questions, propose hypotheses, design studies, select methods, analyze data, develop and critique arguments, and communicate findings

D. LEARNING OUTCOMES (General)
   1. practice standard operating procedures, including lab safety.
   2. record experimental methods and results in a laboratory notebook.
   3. use primary literature to guide research.
   4. collect data and interpret results.
   5. explain experimental results in written and oral reports.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted