

# Minnesota State University Moorhead

## CHEM 425: Inorganic Chemistry II Lab

### A. COURSE DESCRIPTION

Credits: 1

Lecture Hours/Week: 0

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

CHEM 300 - Inorganic Chemistry I

Corequisites: CHEM 420

MnTC Goals: None

Synthesis and spectroscopic study of inorganic compounds. Techniques include: vacuum line synthesis, high temperature methods, inert gas techniques and organometallic synthesis.

**B. COURSE EFFECTIVE DATES:** 06/01/1995 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Research segment whose content varies from year to year. Most recently this involved the preparation of various Frustrated Lewis Acid-Base Pairs by groups of students and a spectroscopic and computational study of the dehydrogenation of ammonia borane and dimethylamine borane using the prepared Lewis Acid-Base pairs.
2. Synthesis of Tin(II)Iodide and Tin(IV) Iodide
3. Synthesis of Wilkinson's Catalyst and catalytic hydrogenation of an olefin
4. Synthesis of a Ni(II) phosphine complex and determination of geometry via several instrumental methods
5. Synthesis of Cr(III) Complexes and UV-Vis spectra for determination of crystal field splitting

### D. LEARNING OUTCOMES (General)

1. Become proficient in the standard methods used for the micro-scale synthesis of inorganic compounds.
2. Interpret experimental results and communicate those results in written reports.
3. Use common analytical instruments for the analysis of inorganic compounds including melting points, IR spectroscopy, UV-Vis spectroscopy, magnetic susceptibility, multi-nuclear NMR spectroscopy, and GC-MS analysis.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted