

COURSE IMPLEMENTATION DATE: September 2013
 COURSE REVISED IMPLEMENTATION DATE: _____
 COURSE TO BE REVIEWED: September 2018
(six years after UEC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

CHEM 325	Science / Chemistry	2
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS
	Inorganic Chemistry Laboratory	
	COURSE DESCRIPTIVE TITLE	

CALENDAR DESCRIPTION:

This course provides students with experience in practical inorganic chemistry, using a wide range of instrumental techniques. Experiments concentrate on the coordination chemistry of the transition metals, and of organo-transition metal compounds. This course closely correlates with and complements material covered in CHEM 320 (Intermediate Inorganic Chemistry) and CHEM 420 (Advanced Inorganic Chemistry).

Note: Students should take this course with either CHEM 320 or CHEM 420.

Note: Students with credit for CHEM 321 cannot take this course for further credit.

PREREQUISITES: None
 COREQUISITES:
 PRE or COREQUISITES: CHEM 320

SYNONYMOUS COURSE(S):

(a) Replaces: CHEM 321
 (b) Cross-listed with: _____
 (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 36

STRUCTURE OF HOURS:

Lectures: _____ Hrs
 Seminar: _____ Hrs
 Laboratory: 36 Hrs
 Field experience: _____ Hrs
 Student directed learning: _____ Hrs
 Other (specify): _____ Hrs

TRAINING DAY-BASED INSTRUCTION:

Length of course: _____
 Hours per day: _____

OTHER:

Maximum enrolment: 24
 Expected frequency of course offerings: Yearly
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No
 WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No
 TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

Course designer(s): <u>Nigel Dance</u>	Date approved: <u>April 27, 2012</u>
Department Head: <u>David Fenske</u>	Date of meeting: <u>June 15, 2012</u>
Supporting area consultation	Date approved: <u>June 22, 2012</u>
Curriculum Committee chair: <u>David Fenske</u>	Date approved: <u>September 7, 2012</u>
Dean/Associate VP: <u>Lucila Lee</u>	Date of meeting: <u>October 26, 2012</u>
Undergraduate Education Committee (UEC) approval	

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

1. Discuss the relationship between theory and experiment, and the practical basis for most theories.
2. Demonstrate improved lab skills, in order to improve employability in the chemistry workplace.
3. Use novel lab equipment, in order to improve employability in the chemistry workplace.
4. Use modern spectroscopic equipment, in order to improve employability in the chemistry workplace.
5. Demonstrate improved communication skills, gained by working in small groups within the lab and pooling results and findings.
6. Gather and organize data from lab experiments, and interpret data in formal lab reports.
7. Use the WHMIS system to ensure safe working conditions in the lab.
8. Interpret MSDS sheets on chemicals used in the laboratory, and use the information to ensure safe use and disposal of chemicals.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

The course consists of prepared lab experiments which are chosen to complement the material covered in CHEM 321 and CHEM 421. Lectures, using audio-visual aids where appropriate, will be given on theory relating to the lab experiments.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

- Examination(s) Portfolio assessment Interview(s)
- Other (specify): Assessment of lab reports from experiments carried out by the student.
- PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. Examples for this course might be:]*

UFV Laboratory Manual for CHEM 325.

SUPPLIES / MATERIALS:

All necessary laboratory supplies will be provided. Lab coats are provided, but students may wish to purchase their own lab coats.

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

Lab reports	60%
Laboratory exam	20%
Lab project	20%

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

1. Lab Check-In and Geometric Isomers of Cr(III)
2. Determination of the Composition of a Fe(III)/SCN complex
3. Determination of the Composition of Ni²⁺/en complexes
4. Determination of the Formula of the Cuprammonium ion
5. Preparation and Study of [Co(NH₃)₄CO₃]Cl and [Co(NH₃)₅Cl]Cl₂
6. Linkage Isomers of Co(III) Complexes
7. Kinetics of Hydrolysis of [Co(NH₃)₅Cl]Cl₂
8. Kinetics of Cis/trans Isomerization of [Co(NH₂CH₂CH₂NH₂)₂Cl₂]Cl
9. Magnetic Measurements.
10. Preparation, Characterisation and Reactions of Wilkinsons Catalyst, RhCl(PPh₃)₃
11. Preparation of mesitylenetricarbonylmolybdenum(0)
12. Preparation of Cyclopentadienylirondicarbonyl Dimer, [(C₅H₅)Fe(CO)₂]₂
13. Preparation of [CH₃C₅H₄Mn(CO)₂NO][PF₆]