Ohio Articulation Number (OAN)
Course Submission Form
2005-2006

College/University The University of Akron

Course(s) Submitted(Title & Course #) 3150:154 for
Ohio Articulation Number OSC009

Date 1-25-06 Course 2 of a 2 Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

Name Dr. Michael J. Taschner Title Interim Dept. Chair, Chemistry

Address College of Arts & Sciences

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Phone 330-972-7365

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Credit Hours 2 qtr sem X
Lecture Hours
Laboratory Hours 2 (if applicable)
Pre-Requisites(s) Course work (if applicable)
Corequisite is 3150:153

Placement Score (if applicable)
(Name of test)
(Domain) (Score)

Catalog/Course Description (Includes Course Title and Course #)

Laboratory course applying principles of chemical equilibrium to inorganic qualitative analysis.

Texts/Outside Readings/Ancillary Materials

Slowinski and Masterton, ***Qualitative Analysis and the Properties of Ions in Solution***, 2nd ed, 1990;
Dept. of Chem., ***Semi-Quantitative Experiments for General Chemistry***, 2005

Course Objectives and/or Plan of Work

NOTEBOOKS. All pre-lab exercises, experimental observations, identifications, and

conclusions must be entered in the notebook in a legible manner. EXPERIMENTS WILL BE GRADED SOLELY ON THE BASIS OF THE INFORMATION IN THE LABORATORY NOTEBOOK. A STUDENT'S LABORATORY NOTEBOOK WILL BE THE ONLY REFERENCE PERMITTED DURING THE GENERAL ANION AND GENERAL CATION EXPERIMENTS.

SCHEDULING. The actual order of experiments may vary. Material may be added, deleted, or rescheduled as class need requires or time permits. If the University closes on the day a class is scheduled, the experiment and/or quiz may be rescheduled for the next regular class period. Failure to complete an experiment or take a quiz will result in a zero (0) grade. NO PROVISION CAN BE MADE FOR MAKE-UP SESSIONS.

Description of Assessment and/or Evaluation of Student Learning

QUIZZES. Nine 10-point quizzes, covering material in the most recently completed experiments, will consist of 4-5 free response questions.

EXPERIMENTS. Ion analyses: Three 20-point group analyses and one 30-point general ion analysis of multi-component unknowns will be carried out. **THE GENERAL ION ANALYSIS IS A CLOSED-TEXT, OPEN-NOTEBOOK EXERCISE**. Principles (quantitative analysis) experiments: Nine 20-point experiments and three 40-point experiments will be carried out. **ALL EXPERIMENTS MUST BE COMPLETED WITHOUT EXCEPTION.**

REPORT FORMATS AND GRADING. The formats for qualitative ion analysis and quantitative analysis reports are specified in the ***Qualitative Analysis Supplement***.

ION GROUP ANALYSES (20 pt each). Applies to the experiments on Group I Cations, Group II Cations, Group III Cations.

Section	Criteria	Points
Pre-lab	accuracy, completeness	5
Observations	neatness, organization, completeness	5
Conclusions	accuracy	10

Points for Conclusions are awarded for correct identifications based on the following formula:

$$POINTS = \frac{N_{correct} \times 10}{N_{present} + N_{incorrect}}$$

Master Syllabi and Working Syllabi (if both are used)

Included below

Additional Documentation

QUALITATIVE ANALYSIS

Dr. Richter (001, 002, 003)
KNCL–203 (330) 972–6062
richter@uakron.edu

3150:154
Spring, 2006

KNCL–308/310

DESCRIPTION. Corequisite: 3150:153. Application of chemical equilibrium principles to inorganic analysis.

TEXTS: Slowinski and Masterton, ***Qualitative Analysis and the Properties of Ions in Solution***, 2nd ed, 1990; Dept. of Chem., ***Semi-Quantitative Experiments for General Chemistry***, 2005

DOWNLOADS: From http://GoZips.uakron.edu/~wwschlo/QUAL/list.htm download the following: Schloman, ***Qualitative Analysis Supplement*** (Supplement.pdf)

NOTEBOOK: Laboratory notebook with carbon copy pages (required)

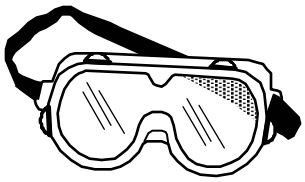
SCHEDULE:

DATE(S)	EXPERIMENT	QUIZ	Point Value(s)
01/16, 01/17	**NO LAB**		
01/18, 01/19	Check-in		
01/23, 01/24	Experiment 2 (Spectroscopy I)		40
01/25, 01/26	Experiment 2 (Spectroscopy I, conclusion)		
01/30, 01/31	Experiment 3 (Spectroscopy II)		20
02/01, 02/02	Group I Cations	4	20 +10
02/06, 02/07	Group II Cations	1	20 + 10
02/08, 02/09	Group II Cations		
02/13, 02/14	Group III Cations	2	20 + 10
02/15, 02/16	Group III Cations		
02/20, 02/21	**NO LAB**		
02/22, 02/23	General Cation	3	30 + 10
02/27, 02/28	General Cation		
03/01, 03/02	Expt. 14 (P-T Relationship in Gases)		20

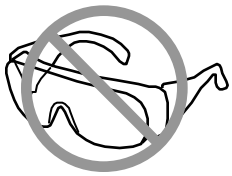
SCHEDULE (cont):

DATE(S)	EXPERIMENT	QUIZ	Point Value(s)
03/06, 03/07	Expt. 13 (Physical Properties of Water)		20
03/08, 03/09	Expt. 4 (Chemical Kinetics)	5	40 + 10
03/13, 03/14	Expt. 5 (Determination of K_{eq})		
03/15, 03/16	Expt. 6 (Acid-Base Titration: [HA] and pKa)	6	20 + 10
03/20, 03/21	Expt. 8 (Equilibrium & Thermodynamics)		20
03/22, 03/23	Expt. 7 (Electrical Conductivities of Aqueous Solutions)	7	20 + 10
03/27-03/31	**NO LAB**		
04/03, 04/04	Expt. 11 (Voltaic Cells)		20
04/05, 04/06	Expt. 9 (Preparation of Aspirin)	8	20 + 10
04/10, 04/11	Expt. 12 (Prep/Analysis of Co Coord Compound)		40
04/12, 04/13	Expt. 12 (Prep/Analysis of Co Coord Compound, concl.)		
04/17, 04/18	Check-out	9	10
04/19, 04/20	Final report due date (penalties may apply)		
04/24, 04/25			

SAFETY. Eyes, legs, and feet **must** have protective clothing. Consistent with the provisions of *Freshman Laboratory Policies, Procedures and Rules*, any clothing that exposes the legs and feet are unacceptable attire for this course. REGULATION SAFETY GOGGLES MUST BE WORN IN THE LABORATORY:



REQUIRED:
Safety Goggles



NOT ACCEPTABLE:
Safety Glasses

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$$POINTS = \frac{N_{correct} \times 10}{N_{present} + N_{incorrect}}$$

Example: An unknown contained Ca^{2+}, K^+, and Hg_2^{2+}. The student reported ions Ba^{2+}, K^+, and Hg_2^{2+} (two ions correct, one ion incorrect).

$$POINTS = \frac{2 \times 10}{3 + 1} = 5$$

GENERAL ION ANALYSES (30 pt each). Applies to the General Cation experiment.

Section	Criteria	Points
Observations	neatness, organization, completeness	10
Conclusions	accuracy	20

$$POINTS = \frac{N_{correct} \times 20}{N_{present} + N_{incorrect}}$$

GRADING. Grades are based on point scores calculated as follows:

Experiments 1, 3-5, 6, 8-11 (9@20)	180
Experiments 2, 4, 12 (3@40)	120
Quantitative expt. quizzes (6 @ 10)	60
Ion group analyses (3 @ 20):	60
Group analysis quizzes (3 @ 10):	30
General cation analysis	30
Maximum point total:	480

Letter grades reflect total point scores as percents of the maximum point total:

A:	91-100	C:	72-74
A–:	88-90	C–:	69-71
B+:	85-87	D+:	63-68
B:	81-84	D:	56-62
B–:	78-80	D–:	50-55
C+:	75-77	F:	below 50

BREAKAGE FEES. A FINAL GRADE WILL NOT BE ISSUED UNLESS MISSING OR DAMAGED EQUIPMENT HAS BEEN REPLACED AND CHECK-OUT IS COMPLETE.

STUDENT PARTICIPATION. Each student is expected to attend all scheduled laboratory sessions. A student may add/drop this course in accordance with the

procedures described in the current Academic Catalog. NON-ATTENDANCE DOES NOT CONSTITUTE OFFICIAL WITHDRAWAL.

Any student involved in academic dishonesty such as plagiarism or similar misconduct will automatically receive a grade of F. In such instances, further penalties, including probation and dismissal, will be administered in accordance with the provisions of the ***Student Disciplinary Procedures***.

OFFICE HOURS. Students should schedule consultation with their instructor on an as-needed basis.

OBR Use	Action
Approved	
Additional Information Requested	
Rejected	
Date	