

COURSE NAME: (PHS1380) QUALITATIVE ANALYSIS

2.0 Semester hours

INSTRUCTOR: Dr. Margaret Williams

OFFICE: Office #29

OFFICE HOURS: M, W, F 8:00 – 8:50 a.m., 10:00 – 10.50 a.m., or by appointment

PHONE/VOICE MAIL: 573-518-2150

If I am not in my office, please check the lab, AS218/220

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MAC e-mail is to be used for all correspondence

COURSE DESCRIPTION:

The study of the general theories for the qualitative separation and identification of metals. Students perform investigations in the laboratory which are pertinent to and coordinated with the lecture topics. The course consists of 1 hour lecture and 3 hours of laboratory per week. The laboratory emphasizes qualitative procedures. Students are expected to have a good background in algebra and a fundamental knowledge of chemical terminology. Completion of General Chemistry I with a grade of a C or better is a prerequisite for this course.

I. Textbooks and Materials: The following textbook and materials are REQUIRED:---Lagowski, J. J., Sorum, C. H., Introduction to Semimicro Qualitative Analysis, 8th ed.; Prentice Hall: Englewood Cliffs, N. J., 2005

---scientific calculator, notebook paper, pen, pencil. TI-Nspire calculators are NOT allowed.

---safety goggles which will protect against splashes and impacts, gloves, and lab apron

---dish soap, paper towels

II. Course Objectives: At the completion of the course, the student will have encountered situations where the following were experienced:

A. Instruction in the relationship and laws which govern chemical reactions through the study of kinetics and equilibria.

B. Instruction in the laws of thermodynamics and the correlation between free energy and chemical equilibrium.

C. Development and expansion of scientific curiosity and innovation through laboratory investigations.

D. Development and expansion of fundamental laboratory skills and techniques of analysis.

E. Investigation of the descriptive chemistry of the more common elements and their compounds.

F. Individual investigations related to the fundamental question in chemistry: "Why and how do chemical reactions occur?"

G. The building of an intellectual and cognitive framework on which to hang ideas, principles, and related information obtained through further study in the field of chemistry and allied areas.

III. Learning Experiences:

A. Students will take part in lecture-discussions coordinated with reading assignments in the text. In order to do so, students are expected to have read the assignment prior to class time.

B. Students will view various visual materials such as videos, slides, and transparencies, during lectures and laboratories to stimulate interest, clarify concepts, and enrich course content.

C. Students will perform various investigations in the laboratory which are pertinent to and coordinated with lecture topics.

V. Course Content:

<u>Week</u>	<u>Lecture Topic</u>	<u>Assignment DUE</u>	<u>Laboratory</u>
1	Chapters 1 and 8		Check In, Chapter 8
2	Chapters 2 and 14		Anions, Chapter 14
3	Chapters 2, 9, 14	<u>ANION UNKNOWN, Chapter 14</u>	Anions, Chapter 14
4	Chapters 2 and 9	<u>Chapters 2 and 9</u>	Group I, Chapter 9
5	Chapters 3 and 10	<u>GROUP I</u>	EXAM 1
6	Chapters 3 and 10		Group II, Chapter 10
7	Chapters 3 and 10		Group II, Chapter 10
8	Chapters 3 and 11	<u>Group II, Chapters 3 and 10</u>	Group II, Chapter 10
9	Chapters 4 and 11		Group III, Chapter 11
10	Chapter 4	<u>Group III, Chapter 11</u>	Group III, Chapter 11
11	Chapters 4 and 12		EXAM 2
12	Chapters 4 and 12	<u>Chapter 4</u>	Group IV, Chapter 12
13	Chapters 5 and 13	<u>Group IV, Chapter 12</u>	Group IV, Chapter 12
14	Chapters 5 and 13		Alloy, General Unknown
15	Chapter 6	<u>Chapters 5 and 13</u>	Alloy, General Unknown
16	Finish Up	<u>Chapter 6, Alloy, Gen Unknown</u>	Exam 3

Homework Assignments: THESE ARE COLLECTED. SHOW YOUR WORK, NEATLY, AND METHODICALLY.

Chapter 2 Problems # 1 - 3, 6 - 8, 11 - 14	DUE	February 3
Chapter 3 Problems # 1, 3 - 7, 11, 17, 19, 20	DUE	March 3
Chapter 4 Problems # 1, 2, 6, 7, 9, 10, 11, 13, 16, 17	DUE	April 7
Chapter 5 Problems # 1, 3, 4, 5	DUE	April 28
Chapter 6 Problems # 1, 2, 3, 4, 6, 7	DUE	May 5
Chapter 9 Problems # 2, 4 - 7, 10 - 14	DUE	February 3
Chapter 10 Problems # 2 - 4, 6, 8, 12, 13, 15, 18, 22	DUE	March 3
Chapter 11 Problems # 2, 3, 4, 7, 8, 10, 13 - 17, 20	DUE	March 24
Chapter 12 Problems # 3, 5, 6, 8, 12, 13	DUE	April 14
Chapter 13 Problems # 1b, 4, 5, 7, 8	DUE	April 28
Chapter 14 Problems # 1 - 5, 8, 12, 15, 21, 22, 24 - 26, 28, 29, 39(a-f, i, j), 43	DUE	January 27

Exams are to be taken during lab time, however, they might need to be taken sometime during that week in the Library – outside of class time.**V. Student Evaluation:**

Exams 100 points each	300 points	Tentative Grading Scale	Tentative Exam 1	Feb. 10	Chapters 1, 2, 8, 9, 14
Comprehensive Final Exam	200 points	A 100-90%	Exam	Exam 2	March 31
Homework/Quizzes	about 200 points	B 89-80%	Schedule	Exam 3	May 5
Labs 100 pts each	about 700 points	C 79-70%			Chapters 4, 5, 6, 12, 13
Attendance	100 points	D 69-60%			
		F 59%-below			

VI. Special Policies: **HONORS:** This class does not have an Honors Option.

SPECIAL NEEDS: If you have special needs as addressed by the Americans with Disabilities Act and need any test or course materials provided in an alternative format, notify your instructor immediately. Reasonable efforts will be made to accommodate your special needs. The Access Office is located in AS103 under the direction of Lisa Leftridge, extension 2152. **Refer to MAC's Services offered by MAC's Access Office on pages 3 and 4 in your Student Handbook and Planner.**

ABSENCES: In accordance with College policy, students will be dropped from class for nonattendance after **two weeks of consecutive** unexcused absences. After THREE unexcused absences or tardies, each time you are absent or tardy, whether to class or lab, you will lose FIVE points which will be deducted at the end of the semester from your 100 possible attendance points. **Refer to MAC's Attendance Policy on page 13 in your Student Handbook and Planner.**

QUIZZES AND EXAMS: **QUIZZES missed because of an unexcused absence ARE NOT MADE-UP.** QUIZZES missed because of an excused absence are either to be taken early or are to be made up the day the student returns to class. Exams are to be taken early or at the scheduled time. **EXAMS missed because of an unexcused absence** are subject to a 25 point per day penalty. Missed exams will be taken to the Learning Center by noon the next day. Students missing an exam because of an excused absence are to make arrangements to **take the exam EARLY**. Exams are scheduled to be taken during lab time, however, there might be times when exams would be taken in the Learning Center, outside of regular class time. **At the end of the semester, the average of all hour exams will replace the lowest hour exam score.**

LATE WORK: For each day your homework or lab is late, you will lose 5 points.

LABORATORY: Part of your lab grade will be based on your technique and lab behavior. By this it is meant: Do you need reminding to wear your goggles? Do you dress appropriately? Do you follow safety precautions and the rules? Are you prepared for lab? Do you know what you are doing? How is your technique? You are expected to come to lab prepared. This means that you have read the lab and are ready to begin. **If you are not dressed appropriately for lab, you will not be able to do or make-up the lab – you will lose the 15 points associated with that lab. Missed labs are NOT made-up. If you miss the lab because of an unexcused absence, you lose the 15 points associated with that lab. Usually the day's experiment will be due at the beginning of the next lab period. Show your work when doing calculations, watch your significant figures.**

BEHAVIOR: Your behavior affects others. You are to respect the learning environment of fellow students. Disruptive behavior, whether in the classroom or the lab, will result in the disciplinary action, ranging from the **loss of that day's attendance points to being dismissed from class**. Examples of disruptive behavior include: disruptive whispering/talking/chattering during class, coming to class late, getting up during the middle of class, leaving class before it is dismissed, or **using a cell phone during class**. Dishonesty, plagiarism, or cheating will also result in disciplinary action, ranging from a zero on the assignment to being suspended from MAC. **Please silence your cell phones and other electronic devices. The use of electronic devices – this includes answering your cell phone and texting, during class or lab, without prior approval of the instructor, could result in the ENTIRE CLASS LOSING THAT DAY'S ATTENDANCE POINTS. Refer to the following in your Student Handbook and Planner: MAC's Classroom Electronic Use Policy on pages 16 and 17, the list of electronic devices that should not be accessible without instructor approval on page 16, and MAC's Academic Integrity Policy on page 11.**

CoursEval: If the CoursEval Survey is required, a MAC e-mail will be sent indicating the available dates, the link to the site, and the necessary login and password. MAC e-mail reminders will be sent to remind students to complete the survey. If the Survey is required, it will counted as a homework assignment.

Food/Drink Policy: To decrease the risk of illness, **NO FOOD IN THE CLASSROOM**. You may have water/soda/coffee in the classroom unless/until it becomes a problem. **NO FOOD or DRINK in the LABORATORY.**

EXTRA CREDIT: Usually there are bonus points on each test. Generally there are extra credit assignments given during the semester. MAC Special Events Cards may be turned in for 2 points per event. Sports events are limited to one of each type per semester. The MAC Special Events Cards are available in the Student Services Office. **A maximum of 10 extra credit points can be earned using MAC Special Events Cards.**

VII. To be successful and gain the most out of this class:

--- COME TO CLASS and COME PREPARED

This is where the understanding and the comprehension of the material begins.
You can't get it if you are not here. **READ THE CHAPTER** to be covered **BEFORE** the lecture is given. Take notes while reading. Work through the example problems. Although this seems like quite a bit of work, and it is, coming to class prepared will decrease some of the initial confusion which occurs when new terms, language, or math are used. Concepts, problems, and even the mathematics become clearer if you have seen it before the lecture.

--- REVIEW AS SOON AS POSSIBLE

This is where the understanding of the material is reinforced.
Rewrite notes -- this really helps -- Use the book to fill in gaps. Repeat key points out loud. Practice writing down key points. **Rework example problems and problems done in class. Work the problems at the end of the chapter. Do the homework, work out the problems.** Practice problems until you can do them without help, then change some numbers, and do the problems again. **PRACTICE, PRACTICE, PRACTICE.**

--- WORK AT IT DAILY and GET HELP NOW

It really does take that much time to learn chemistry
Keep up. Don't expect to learn it all in one night, as in the night before the exam. It all takes time. Learning occurs in small steps. There is a great deal of repetition involved. Reread and rework. **Set aside two - three hours a night**, every night, to seriously study your chemistry. Don't wait until it is too late. Obtain help with a problem or concept **BEFORE** the next class. Use solutions manuals as guides, not as crutches. Form study groups. Make a new friend. **See the EXCEL Program, Room C3, for tutoring. See the MATH LAB, upstairs in the library, for help with math or calculator related questions. Stop by my office, #29, anytime for help.**

It is normal for students to get lost, especially when new material is presented. That is why it is so important to **read the book, rework problems, practice, practice, practice, obtain help.**

Be positive about your studies, understand the great commitment you have made, and you'll find that chemistry is a blast.