

# Tenantive Syllabus for Chem 212, Quantitative Analysis Summer Semester 2011

**Quantitative Analysis**, 3 credit hours;

Prerequisite: Chem 106 or 102 and 112 and Chem 222 or Chem 224 and Chem 226 or permission of the instructor.

**Instructor:** Dr. Conrad Naleway,  
Flanner Hall 103, Phone 508-3115  
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Office hours: Immediately after Lecture and TWTh 1-2:30 PM, or by appointment.

**Textbook:** "Exploring Chemical Analysis" (4th edition), by Daniel C. Harris,  
ISBN 1-4292-1004-4

**Other Materials:** You will need an inexpensive calculator having logarithmic (base 10 and base e), exponential, and trigonometric functions. Be sure you are familiar with your calculator and that it is in user-ready condition for quizzes and exams. Calculators cannot be shared during exams

## Objectives

- 1) To teach fundamental aspects of acid/base chemistry, redox, chemistry, electrochemistry, and ionic equilibria.
- 2) To acquaint the student with some of the fundamental techniques and state-of-the-art applications of chemical quantitative analysis used in biomedical, forensic, and environmental chemistry.

## Grading:

There will be **3 Hourly exams** at the beginning of alternate Friday class period (3 x 25%) = **75%**

There will be **3 Quizzes** at the end of the other Friday class periods (3x 5%) = **15%**

**Class Participation** during Lecture (2%) and Discussion (3%+ 5%) {at end of each class} (**Total=10%**)

## Final Grading Scale:

A 100-93;  
A- 92-89;  
B+ 88-85;  
B 84-81;

B- 80-77;  
C+ 76-73;  
C 72-69;  
C- 68-65;

D 64-55;  
F <55.

**Homework:** Supplemental homework problems will be identified throughout term, which will assist student in mastering class materials. There will be no specific credit but **STRONGLY** encouraged to help prepare for quizzes and exams. *That is, often homework problems will show on exams and quizzes!*

**14 discussions:** class will be divided into 6 Groups of 5-6 students each. (**Each Student MUST present at least twice**) (5 pts) I will assign 6 Problems per Discussion Period; One Per Group.

**NOTE:** Quiz and Exam Problems and Questions to come from variants of these! **There also will be a few conceptual questions on Exams/Quizzes**

Class Schedule		General Order of Topics	Chapter(s)	
1	Monday, May 23, 2011		Stoichiometry Review, Math Tools	1,2
2	Wednesday, May 25, 2011		Sampling Error & Statistics(A)	3,4
3	<b>Friday, May 27, 2011</b>	<b>Quiz 1</b>	Statistics(B) & Quality Assurance	4 & 5
	Monday, May 30, 2011	<b>Memorial Holiday</b>		
4	Wednesday, June 01, 2011		Titrations & Acid/Base	6,8
5	<b>Friday, June 03, 2011</b>	<b>Exam 1</b>	Buffers	9
6	Monday, June 06, 2011		Acid Base Titrations	10
7	Wednesday, June 08, 2011		PolyProtonic Acid/Bases	11
8	<b>Friday, June 10, 2011</b>	<b>Quiz 2</b>	Gravimetric	7
9	Monday, June 13, 2011		Complexation (EDTA)	13
10	Wednesday, June 15, 2011		Redox Titrations	16
11	<b>Friday, June 17, 2011</b>	<b>Exam 2</b>	Ionic Strength & Activity	12
12	Monday, June 20, 2011		Electrode Potential	14
13	Wednesday, June 22, 2011		Spéctroscopy	18,19
14	<b>Friday, June 24, 2011</b>	<b>Quiz 3</b>	Atomic Absorption	20
15	Monday, June 27, 2011		Chromatography	21,22
16	Wednesday, June 29, 2011		GC/MS	Notes
17	<b>Friday, July 01, 2011</b>	<b>Exam 3</b>		