

**ANALYTICAL CHEMISTRY COURSE SYLLABUS – Spring 2011**

**Course Description:** An introduction to the theory and practice of quantitative analysis.

Lecture, two hours; laboratory, three or four hours.

Prereq: CHE 107 and 115.

**Course Information:**

**Lectures:** Tuesday and Thursday, 9:30-10:20 a.m., CP-222

**Credits:** 3 cr (Secs. 1 & 2) or 4 cr (Secs. 3 & 4)

**Textbook:** D. A. Skoog, D. M. West, F. J. Holler, and S. R. Crouch: *Analytical Chemistry: An Introduction*, 7<sup>th</sup> Edition, Saunders College Publishing, 1999.

**Laboratory:** Monday and Wednesday, 1:00-5:00 pm, CP-208 and CP-236. Go to CP 208 first. The first lab meetings will be on Monday, January 24 or Wednesday, January 12 for the Monday (Secs. 1 & 3) or Wednesday (Secs. 2 & 4) Laboratories, respectively.

**Laboratory Experiments:** Complete copies of the laboratory handouts are available on the course Web site or on a CD (on request).

Go to <http://www.chem.uky.edu/courses/che226/welcome.html>

**Instructor:**

Dr. Yinan Wei

- **Office:** 305 Chemistry-Physics Building
- **Office Hours:** Tuesday & Thursday 10:30 am – 12:00 noon or by appointment  
(send an email to arrange meeting)
- **E-mail:** yinan.wei@uky.edu  
(All emails must have 226 in the Subject header line)
- **Phone:** 859-257-7085

**Teaching Assistants**

	<b>Pauline Stratman</b>	<b>Sanja Trajkovic</b>	<b>Brent Ferrell</b>
<b>Office</b>	Sander's Brown Rm 125	ACCTEC 065	CP-315
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<b>E-mail</b>	Pauline.Stratman@uky.edu	Sanja.trajkovic@uky.edu	Bferrell3@gmail.com
<b>Office Hours</b>	Tue, 1-2 pm, Thr. 2-3 pm, Fri. 2-3 pm	Thr./Fri. 10 am	Wed./Fri. 10 am

**Tentative Lecture Coverage:**

<b>Topics</b>	<b>Chapters</b>
Introduction	1
Units, Concentration and Stoichiometry	3
Experimental Error	5, 6
Statistical Analysis: Evaluating the Data	7
Gravimetric Analysis	8
Chemical Equilibrium Basics	4
Electrolyte Effects	9
Equilibria in Complex Systems	10
Acid-Base Titrations	11, 12, 13, 14
Complexation and Precipitation Titrations	15
Spectrochemical Analysis	21, 22, 23
Separation Methods	24, 25, 26
Electrochemistry Introduction	16
Electrode Potentials	17
Oxidation/Reduction Titrations	18
Potentiometry	19

**Examinations:**

	<b>Date</b>	<b>Time</b>
<b>Exam I</b>	Thursday	Feb. 10, 9:30 am
<b>Exam II</b>	Tuesday	Mar. 22, 9:30 am
<b>Exam III</b>	Thursday	Apr. 21, 9:30 am
<b>Final Exam</b>	Tuesday	May 03, 8:00 am

*The Final Exam is comprehensive.*

**Grading Procedure and Scale:**

<b>Component</b>	<b>3 Credits</b>	<b>4 Credits</b>
<b>Best 2 of 3 hour Exams</b>	35%	30%
<b>Final Exam</b>	27%	20%
<b>Laboratory</b>	33%	45%
<b>Excel Assignments</b>	5%	5%
<b>Total</b>	100%	100%

## Grade Final Average:

<b>A</b>	89.50 – 100.0
<b>B</b>	79.50 – 89.49
<b>C</b>	69.50 – 79.49
<b>D</b>	59.50 – 69.49
<b>E</b>	59.49 and Below

*A student who scores 90.00% or better on each of the three mid-term exams will be exempted from the Final Exam. The average of the three mid-term Exams will then be used for the total percentage for all examinations in the course.*

## Suggested Homework:

Suggested homework problems will be assigned as the material is covered. Homework will not be collected and graded, but the bulk of the Exams will reflect the material in the assigned problems.

## E-mail:

The instructor will send you important information, files, reminders, nags, etc., during the course of the semester. You should check your e-mail at least daily. We will send e-mails to the “preferred address” that you provided at the beginning of the semester. We will put the course number, 226, in the Subject header of all emails sent to you. This will help you filter our email into a separate mailbox, if your software has such a feature. In turn, you **must include 226 someplace in the Subject header of all email you send to the instructors**. I probably get 40 spam emails a day that get through my spam filter system. Putting 226 in the subject header will filter your important email to my course mailbox, so that I can tend to it as soon as possible.

## Previous 226 Exams:

Several semesters of past CHE 226 exams are available on the course Website for you to peruse and self-test. Answers are not provided on the old exams. There are many, many problems in the textbook that do have answers. Use these to “get up to speed”. If you have any questions or are confused about any of the problems on the old exams, feel free to ask one of the instructors.

## Make-up Exams:

No make-up examinations will be given regardless of the reason for missing an exam. Dropping the lowest examination grade is designed to compensate for this, among other reasons.

## Calculators:

Use of a calculator during examinations is permitted as long as they are not shared between students. The latter will be considered as cheating. Programmable calculators must have their memories cleared prior to use in an exam. In any event, test problems are usually designed so as to minimize arithmetic. Ordinary arithmetic errors will be penalized very little. Points will be deducted if an improper number of significant figures is used in the final arithmetic answer.