**CHEM 3210 QUANTITATIVE ANALYSIS SPRING, 2008**

**Time:** T, R, 9:25-10:40 PM Building 37, Rm 162

**Instructor:** Dr. Guangdi Wang
NCF Room 339 Tel: 520-5076

**Office hours: M: 9:00 ~ 11:00, T, Th: 11:00~12:00** or by appointment

**Course Description:** The principles, methodologies, and practical aspects of quantitative chemical analysis. This course will cover topics on data treatment, titrimetric methods, electrochemical analysis, spectrometry, and chromatography.
Prerequisite: Chem 1010/1010DR/1011LB, Chem 1020/1020DR/1020LB.

**Required Text:** *Analytical Chemistry* by Gary D. Christian, Wiley, 6th edition, 2003

**Course Objective:** Students will learn the theory and practice of classical as well as modern analytical techniques that are commonly used in quantitative analysis. The course seeks to widen the students' concept of chemistry and deepen their awareness of chemical problems by presenting each technique of quantitative analysis as associated with many areas of sciences. In addition, the students shall develop the ability to acquire and interpret reliable experimental data.

**Course Requirements:** Students are required to attend all lectures and to be present for all quizzes. Students are required to take three hour-exams and a comprehensive final exam. There will be no makeup exams for any reason.

**Course Evaluation:** The final course grade will be based on the total points earned.

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| Three hour exams (3x 100 pts) | 300 |
| Unannounced quizzes (7 to 8 total) | 70~80 |
| Comprehensive final exam | 100 |

If an exam is missed for an excused absence, the final exam will count as 200 pts.

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| 90-100 % | A |
| 80-89 % | B |
| 70-79 % | C |
| 60-69 % | D |
| < 60% | F |

**Policy for Cheating:** If a student's examination paper gives evidence of not being completely his/her own work, he/she may be given an F for the course. A student who communicates with anyone during an examination, unless with the permission of the instructor, may be immediately dismissed from the room and given an F. Attempts to read from other's paper, bringing study materials into the examination room without the instructor's permission will also result in an F.

**Tentative Lecture Schedule:**

| Thursday | Tuesday |
|---|---|
| **1/10** Introduction, Chapters 1&2 (Statistics) | **1/15** Chapter 2 Statistics |
| **1/17** Chapter 2 Statistics | **1/22** Chapter 2 Statistics |
| **1/24** Chapter 3 Stoichiometric Calculations | **1/29** Chapter 4 Equilibrium |
| **1/31** Chapter 4 Equilibrium | **2/5 Mardi Gras Holidays** |
| **2/7 EXAM ONE** | **2/12** Chapter 6 Acid-Base Equilibria |
| **2/14 Chapter 6** Acid-Base Equilibria | **2/19** Chapter 6 Acid-Base Titrations |
| **2/21** Chapter 6 Acid-Base Titrations | **2/26** Chapter 8 Complexometric Titrations |
| **2/28** Chapter 8 Complexometric Titrations | **3/4** Chapter 9 Precipitation Titrations |
| **3/6** Chapter 9 Precipitation Titrations | **3/11 EXAM TWO** |
| **3/13** Chapter 10 Electrochemical Cells | **3/18 Easter Holidays** |
| **3/20 Easter Holidays** | **3/25** Chapter 11 |
| **3/27** Chapter 11 Potentiometry | **4/1** 12 Potentiometric Titrations |
| **4/3** Chapter 13 Redox Titrations | **4/8** Chromatographic Methods |
| **4/10** Chapter 17 Chromatographic Methods | **4/15** Chapter 17 Chromatographic Methods |
| **4/17 EXAM THREE** | **4/22** Chapter 14 Spectrometry |
| **4/24** Chapter 14 Spectrometry | **4/29** Chapter 14 Spectrometry and Review |

**Final Exam: Tuesday, 8:00 - 10:00 AM, May 6, 2008**