

# Chemistry 3332 - Fall 2009

## Textbook

“Quantitative Chemical Analysis” by Daniel C. Harris. Published by W.H. Freeman and Company, any Edition. The solutions manual for this book should also be in the bookstore.

## Lecture Material, and Essential Reading.

The material that is presented in both the lecture and laboratory parts of the course defines the details and direction of the course content. In general, you should consider that you should be studying the material covered in lecture. However, you will achieve at a higher level in the course, if you read, and learn, beyond the confines of the lecture material. In addition, excellence may be achieved if you read other textbooks and articles on quantitative analytical chemistry, and practice a large number of problems. It is important to note that for statistical and other calculations, there is useful material on the web, on the publisher’s web site, that accompanies the textbook.

## Lecture Sequence

Approximate number of lectures in parentheses – numbers of lectures may vary. Chapter numbers may vary as a function of the edition of the book that you use. It is up to you to figure out which chapter(s) is being covered in class. Part 5 may not be covered.

### **Part 1. Introduction to Quantitative Analytical Chemistry (2)**

Read Chapters 0, 1 and 3.

### **Part 2. Statistical Handling of Data and Methods of Calibration (6)**

Read Chapters 4 and 5

### **Part 3. Analysis by Titration (6)**

Acid Base Equilibria, and Titration Curves. Read Chapters 6, 7, 10, 11, 12

Complexometric Titrations. Read Chapter 13

Redox Titrations, and Electrode Potential. Read Chapters 14, 15, 16

### **Part 4. Spectrometry and Spectrophotometry (6)**

Molecular Spectrometry. Read Chapter 19-21

Atomic Spectrometry. Read Chapter 22

Sample Preparation, Read Chapter 28

### **Part 5. Chromatography (4)**

Chromatography. Read Chapters 23-26

## Examination Dates, and Times

You will not usually be tested on material covered in a previous examination, except for quantitative aspects of statistical analysis of data, concentration units, and concepts of calibration. All examinations will be in class. The midterm will last over two classes. The final examination may have a quiz-type cumulative section and a section that covers material presented after the third examination. In addition, these details may change depending on the progress of the class during the semester. The teaching assistants will provide help sessions immediately before examinations, upon request by the class. Please ask your TAs to arrange this. Quizzes and homework may be given at any time.

**First Examination**

Wednesday, September, 23, 2009. In class, in JONS 229

**Midterm Examination**

Monday, October 19, 2009, Part 1 during class, JONS 229

Wednesday, October 21, 2009, Part 2 during class, JONS 229

**Third Examination**

Monday, November 16, 2009, JONS 229

Note: Thanksgiving break November 23-28, 2009

**Final Examination**

December 14-19, 2009, JONS 229 (Exact time not yet available).

**Homework**

Homework will be assigned, approximately once every two weeks, and you will be asked to hand it in for grading. However, this homework does not represent the full extent of the studying that is expected of you. In addition, you should attempt to do **all** the *relevant* problems at the end of each assigned chapter in Harris, as we progress through the semester. The solutions to the problems are in the "Solutions Manual" for Harris. If you study the Harris problems competently you should have less difficulty with examinations.

Reliance on the biweekly homework assignments for practice of problems will not be enough to allow you to do well in the examinations. You must set your own goals for studying, or risk poor examination performance. Please be aware that, if class attendance is insufficient, random homework will be set with very short lead times for completion.

**Grading**

The course grade will be based 60% on the examinations, quizzes, and graded homework assignments, and 40% on the laboratory reports, and laboratory notebook. The 60% that constitutes the examinations and homework assignments will be structured such that the quizzes and graded homework assignments shall constitute about 12% of the course grade, while the four examinations will each constitute 12% of the course grade, each.

**Professor Robert G. Michel; Chemistry A319**

The routine method of communication for appointments, discussion of course work, etc. is by E-mail: [robert.g.michel@uconn.edu](mailto:robert.g.michel@uconn.edu), or IM text messages / video at "auchengrange".

If you want to find me in my office without making an appointment, office hours are Mondays, and Wednesdays after lecture for about half an hour or so, and on Wednesdays at 4 pm, for an hour together with Tuesdays and Thursdays at 10 am for 50 mins.

Otherwise, a calendar can be found at: [http://ical.mac.com/rgmichel/RGMichel\\_Calendar](http://ical.mac.com/rgmichel/RGMichel_Calendar)

White space in the calendar is time available when you can make an appointment. Find a half-hour white space slot and let me know your chosen time by email. You cannot alter the calendar on the web.