

Chemistry 401

Advanced Analytical

Jon Russ, PhD
Office: Kennedy 410
Office: 843.3959
Cell: 870.210.8195
russj@rhodes.edu

Textbook: *Quantitative Chemical Analysis* 6th Edition, by Daniel C. Harris
Laboratory notebook (ALL data goes in notebook)

The primary objectives of this course and laboratory experience are to construct an understanding in the following areas of analytical chemistry:

- ❖ Statistical treatments of chemical data
- ❖ Calculations involving equilibrium chemical systems
- ❖ The basic instruments currently available, including
 - Types of probes
 - Information gleaned
 - Sensitivity
 - Sample types
- ❖ Operations in state-of-the-art instruments
- ❖ Ability to select primary and secondary analytical methods for particular problems
- ❖ Analytical method development
- ❖ Competency in using spreadsheet
- ❖ Minimum detection limits (MDL)

The **lecture component** will be discussion/lectures over the material indicated in the schedule. You must read ahead and be prepared to discuss and/or show competency in the subject material. Your evaluation (grade) for this component will be based on a total of 15 daily quizzes, 3 major exams, and a comprehensive final exam (see attached schedule).

The **laboratory component** will involve experiments designed to familiarize you with the state-of-the-art instruments currently available here at Rhodes, and provide experience in writing technical reports based on scientific experiments. Our grade will be derived from two major reports. The reports will describe completely the experimental methods, results, and discussion, and will be such that another student can use the report to replicate the experiment and results. More details about the nature of the reports and manuscripts will be given in class.

Grade Calculations:

Course:	15 quizzes	= 150 points
	3 exams	= 300 points
	Final Exam	= 150 points
Laboratory	<u>2 Lab Reports</u>	= 200 points
	Total	800 points

800-744	743-716	715-688	687-664	663-636	635-608	607-584	583-556	555-476	<476
A	A-	B+	B	B-	C+	C	C-	D	F