

CH 324. QUANTITATIVE ANALYSIS (4 credits). Gbad 309, T R 9-3:50.

**Description.** A basic course in modern chemical analysis. The lab is open two days a week, and students work at their own pace with some intermediate deadlines. There are twelve laboratory experiments, which students pass by determining an unknown composition within a specified tolerance; eight homework sets, the answers to which are submitted online; and two in-class quizzes.

**Prerequisite:** CH 123 or CH 223 or CH 226H (Enforced). CH 130 does not meet the prerequisite for this course. Other prerequisite: one year of college chemistry or instructor approval.

**Schedule:** Lab is open 9-3:50, Tuesdays and Thursdays. Students are asked to reserve 8 hours per week, in large blocks, for in-class laboratory work, 1:1 instruction, and written tests.

*First day of class*, Tuesday, April 3, 2007: Check in at 0900, 1100 or 1400 in GBAD 309 for orientation lecture.

**Texts:** Daniel C. Harris. Quantitative Chemical Analysis, 7th Edition. W. H. Freeman and Co., New York. 2007. (Available at OSU Bookstore.)

*Laboratory Manual for CH 324.* Department of Chemistry, Oregon State University, Corvallis, Oregon. 2007. (Available at the lab.)

**Course Objectives:** By the completion of this course, students are expected to...

1. Describe the principles by which the signal is related to the concentration in instruments for UV-visible spectrophotometry, atomic absorption spectrophotometry, fluorometry, ion-selective electrode potentiometry, gas chromatography, high performance liquid chromatography, and refractometry, and use the instruments to determine concentrations within a specified tolerance.
2. Convert quantities from one set of units to another, and use volumetric labware appropriately to prepare accurately and precisely solutions of known concentrations and dilutions.
3. Describe the principles of sample preparation, including digestion, extraction, fusion, ashing, drying.
4. Maintain a record of laboratory work in a notebook that is complete enough and well enough organized that the student can explain and defend the work one year after it is completed.
5. Be able to work through elementary trouble-shooting exercises to determine the problems and solve them in the quantitative analytical chemistry laboratory.

**Expectation for Student Conduct** - <http://oregonstate.edu/admin/stucon/achon.htm>

**Accommodations for Students with Disabilities.** Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through SSD should contact SSD immediately at 737-4098.