

SYLLABUS

Chemistry 726 *Special Topics in Analytical Chemistry: Separations* Spring 2017

Instructor:

Dr. J. Aldstadt Chem 445 aldstadt@uwm.edu

Office Hours: MTWR 1:00-2:00 pm & by appointment.

Class Schedule: Tuesday & Thursday from 3:30-4:45 pm in CHM 195.

Course Objective: Theory and practice of modern chemical separation techniques with an emphasis on elution chromatography.

Pre-requisites: (a) Graduate standing or permission; (b) "B" or better in an undergraduate-level Instrumental Analysis course; (c) "B" or better in an undergraduate-level two-semester Physical Chemistry sequence.

Course Materials:

(a) An undergraduate-level *Instrumental Analysis* textbook, and (b) an undergraduate-level *Physical Chemistry* textbook. We will create our textbook. I will provide installments as the course unfolds.

Policies:

Department of Chemistry. You are expected to fully understand the current policies posted on the bulletin boards across from Room 195 and adjacent to Room 164.

Academic Dishonesty. Cheating will result in a grade of zero as a minimum consequence. Failure in the course and referral to the University Judiciaries may also occur. *In short, academic dishonesty in any form will not be tolerated.* These policies are discussed in detail in UWS Chapter 14 and Faculty Document No. 1686, which can be found at: www.uwm.edu/Dept/Acad_Aff/policy/academicmisconduct.html

As described in *Academic & Administrative Policies, Paragraph S52*, I do not permit my lectures to be electronically recorded.

Attendance. Attendance is taken at the beginning of the semester. The quizzes are primarily developed from the lecture notes and problem sets. It will be a significant advantage to attend every lecture. You are responsible for all of the material presented in lecture. If you miss a lecture, you are responsible for obtaining the lecture material.

Course Outline.

- I. Principles of Chemical Separations
- II. Theory of Chromatography
- III. Gas Chromatography (GSC, GLC)
- IV. Liquid Chromatography (LLC, LSC)
- V. Non-Chromatographic Separations
- VI. Sample Preparation
- VII. Experimental Design & Method Optimization

Graded Material. The course grade will be determined from the following elements:

Quizzes	400 pts.
Essays	200 pts.
Term Paper	100 pts.
Presentation	75 pts.
Participation	75 pts.

Problem Sets. Problem sets will be assigned on a weekly basis. I encourage you to form study groups to work on the problem sets. I do not grade problem sets. The problem sets will be provided on Thursday, the key will be distributed on the following Sunday, and the quiz on the assigned problems will be given on the following Thursday.

Essays. Informal “exploratory” writing will be done in class; more details forthcoming.

Term Paper. A Term Paper on a technique in separation science will be due on May 1st. Late Term Papers will not be accepted. The topic must be chosen and approved by March 16th from a list that will be provided.

Presentations. A presentation (~20-25 min) on the Term Paper will be given at the end of the semester (Saturday May 13th).

Make-Up Work. There are no “make-up” quizzes and there will not be a “make-up” date for the presentations. For a credible absence (e.g., conference attendance, job interview, etc.), contact me at least 48 hours prior to the absence. For medical absences, a written letter from a physician is required. If a quiz is missed for reasons not approved at least 48 hours ahead of time, a grade of zero will be given. For an excused absence from a quiz, the final quiz percentage will be calculated by using a correspondingly lower total number of points.