Instructor: Elamin (Amin) Ibrahim, Professor of Analytical Chemistry and Spectroscopy  
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Office Hours: TR 2:00-3:00 pm (will be modified later)

Class Time: TR 3:05-4:20 pm, Room SCNE 2.102


Lab: Instrumental Analysis lab (CHEM4104) is recommended along with this course.

Course Description: A study of principles of instrumental analysis measurements and techniques. Components and operation of basic and modern instrumentation will be covered. Prerequisites: CHEM 2301 and CHEM 2101.

Program/Major Student Learning Outcomes:
1. Graduates will have both broad knowledge and skills of critical thinking in the chemical sciences.
2. Graduates are prepared to conduct or participate in advanced research.
3. Graduates will demonstrate the ability to communicate chemical knowledge.
4. Graduates are prepared to search for employment (including graduate or professional school).

Course Student Learning Outcomes:
1. Provides students with basic principles of instrumental analysis methods.
2. Introduces different instrumental designs, techniques, and applications of modern instrumental analysis.
3. Prepares students for “real-life” experience and problem solving skills in chemical analysis.
4. Prepares students for graduate school and job market.

Attendance: Class attendance is mandatory and attendance will usually be recorded each lecture. Attendance is required throughout the entire class and late arrival or early exit will be count as an absence. If you are late or missed more than three classes in which attendance is taken, you will not have the option of dropping any exam grade or have your grade scaled if applied.

Examinations:
1. Three (3) tests, given on specified dates, 100 points each.
2. Five (5) Quizzes, 100 points
3. Comprehensive final exam, 150 points.
4. Term paper, 100 points

The final average percent for student with less than three absences or late is obtained by dropping the lowest score of the 3 tests, then scores of the other 2 tests, quizzes, term paper, and the final exam will be added and calculated as final average percent for final semester grade.

The final average percent for student with more than three absences or late arrivals is obtained without dropping any exam grade or applying scaling factor.

Make-up Exams: There is no make-up for missing tests or exams. Any missed test with a valid, written excuse can be made up by a comprehensive make-up exam will be conducted outside of normal class hours near the end of the semester. There is no make-up for the final exam.

Grading: The grade assigned will be based on the calculated average percent as follow:  
90-100, A. 80-89, B. 70-79, C. 60-69, D. Less than 60, F.

Problem Sets: Homework problems are assigned to support your understanding of the material and to help you with your grade. You are encouraged to work out all problems at the end of each chapter.

Your Comments: Remember that the goal is to learn the course material. If you have any suggestions on improving the
presentation of the material, please feel free to do so. Suggestions are best made during the instructor’s office hours or through e-mail.

**Tips for Good Grades:**

- **a)** You must stay current with the course material. It will be very difficult to succeed if you let course material accumulate.
- **b)** Take good notes and spend at least one hour daily reading the text and reviewing your notes.
- **c)** Do the assigned problem and other similar problems and examples.
- **d)** Ask questions and participate in discussions.
- **e)** Do not try cramming the night before the exam as a substitute for regular study.

**CONTENTS OVERVIEW:**

- **Chapter 08** Sampling
- **Chapter 24** Introduction to Spectrochemical Methods
- **Chapter 25** Instruments for Optical Spectrometry
- **Chapter 26** Molecular Absorption Spectrometry
- **Chapter 27** Molecular Fluorescence Spectroscopy
- **Chapter 28** Atomic Spectroscopy
- **Chapter 30** Introduction to Analytical Separations
- **Chapter 31** Gas Chromatography
- **Chapter 32** High-Performance Liquid Chromatography

**UTRGV’s POLICIES**

**UTRGV Policy Statements:** The UTRGV disability accommodation, mandatory course evaluation statement and sexual harassment statement are required on all syllabi. Additional policy statements are optional, such as those covering attendance, academic integrity, and course drop policies.

**STUDENTS WITH DISABILITIES:** If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

**MANDATORY COURSE EVALUATION PERIOD:** Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions.

**ATTENDANCE:** Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

**SCHOLASTIC INTEGRITY:** As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.
SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE: In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS: According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.