



One University Ave
Lowell, Massachusetts 01854
tel 978-934-3665
fax 978-934-3569
email David_Ryan@uml.edu
website http://faculty.uml.edu/David_Ryan

- Course: CHEM.5140 Advanced Analytical Chemistry
- Instructor: Dr. David K. Ryan
Olney 520
(978) 934-3698 Voice
(978) 934-3569 Private Fax
David_Ryan@uml.edu
- Website: http://faculty.uml.edu/David_Ryan/84.514 is the URL for the course website. Every effort will be made to post current PowerPoint slides, class recordings and handouts on the Course Materials page. These are provided as a courtesy and for your enhanced learning experience and are not a guaranteed part of the course. Technical problems may occur at times and students should plan to take notes.
- Book: Principles of Instrumental Analysis, 7th Edition, 2018
(not required) by Skoog, Holler and Crouch (the 6th or 5th Editions are also good)
- Topics: Electrochemistry (Potentiometry, Voltammetry)
Molecular Spectroscopy (UV-vis, Fluorescence, Luminescence)
- Exams: Three exams to be given outside of class time, no cumulative final exam. Last hour exam will be given the week after last class at 8:00 AM in Olney 518. No excuse for missing exam. Cellphones cannot be used as calculators.
- Quizzes: Occasional unannounced quizzes at the end of class.
- Grading: Exams makeup 75% of total grade (25% each)
Quizzes 5% (discretionary)
Student Projects makeup the remaining 20%
- Projects: Each student must complete a project consisting of either a 10 minute class presentation or a research paper. Projects should build on fundamentals presented in class, but, should give additional information on advanced techniques or important applications. Project topics must be approved in advance. A minimum of 10 literature sources must be used (e.g. journals such as Analytical Chemistry, Applied Spectroscopy, Analytica Chimica Acta, and others; books and book chapters). A reference list must be submitted for either type of project. All projects must be completed by the last class (The earlier the better!)
Sample Topics: Cryogenic Fourier Transform Spectroscopy
(don't use these) Non-Dispersive Infrared Analyzers
Coherent Anti Stokes Raman Spectroscopy
Optical Multichannel Analyzers
Potentiometric Stripping Analysis

Additional Material: Handouts will be posted on the website occasionally for extra reading and to enhance the discussion of certain topics.

Disability

Accommodations: The University of Massachusetts Lowell is committed to serving all students including those with disabilities as defined by federal regulations. If you have a disability and are not yet being accommodated please contact the Office of Student Disability Services at disability@uml.edu to register for accommodations.