

Syllabus Fall 2023

CHEM 3325, Instrumental Analysis Laboratory, 1 Credit Hour

Meeting Time, Meeting Pattern, Location

Lab meets in W407 Discovery Hall.

Section B: Wednesdays 2:30pm – 6:30 pm.

Instructor Name, Contact Information, Office Hours

Giuseppe Petrucci

E354 Innovation Hall

Tel: 656-0957

Email: Giuseppe.petrucci@uvm.edu

I will establish and announce office hours for the semester during the first week of classes. I will be available at other times as well (see me to make an appointment) and, of course, you are welcome to stop by my office at your convenience (but, if I am busy we will have to reschedule for another time). Also, I am *virtually* available via [email](#) for your questions; I check my email regularly every day, so you should be able to get an email reply to a question within 12 hours of your posting it to me (barring any unforeseen technical difficulties!).

Teaching Assistant Name(s), Contact Information, Office Hours

Robert Tracy (W323 Discovery)

Pre-requisites or co-requisites

CHEM 221, Instrumental Analysis

Course Description

This lab course gives a practical introduction to instrumental methods of analysis - that is, the measurement of chemical systems using instruments. Students will gain hands-on experience with state-of-the-art analytical instrumentation to analyze different samples.

Course Learning Objectives

This lab has been developed to provide students with hands-on experience with modern methods of instrumental analysis. As such, although not formally a pre-requisite for this lab, Chem 221 (Instrumental Analysis) should have been taken previously. Specifically, the objectives of this course are to initiate the students in the theory, operation and uses of

- Practical usage of instrumentation for spectroscopic, chromatographic, and mass spectrometric analysis
- Calibration/quantification procedures for analysis of a variety of materials
- Preparation of written reports of results with basic statistical analysis.

The students will also develop an understanding of the types of samples amenable to each instrument and the kind of information attainable. Specifically, we will discuss

- the chemical and/or physical principles exploited during the measurement
- how the instrument actually makes the measurement, and
- some of the techniques used to improve the analytical figures of merit, such as accuracy, precision and sensitivity..

Required Course Materials:

Your smiling face and adventurous spirit.

Required platforms and software:

All communication regarding the course this semester will be dissemination exclusively through the Brightspace course site.

Attendance Policy and Classroom Environment Expectations:

Attendance at lab is mandatory. If you have a conflict with a lab, please notify your TA before the lab so we can resolve the problem. If you have to miss a lab due to illness or other emergency, please let me know within 24 hours. Unfortunately, labs cannot be re-scheduled.

In this class, we will work together to develop a learning community that is inclusive and respectful. As a learning community we will seek to encourage and appreciate expressions of different ideas, opinions, and beliefs in the spirit of Our Common Ground. Meaningful and constructive dialogue is encouraged in this class. This requires mutual respect, willingness to listen, and open-mindedness to opposing points of view. Respect for individual differences and alternative viewpoints will be maintained at all times in this class. Conduct that substantially or repeatedly disrupts the ability of faculty and instructors to teach and the ability of students to engage may result in my asking a student to temporarily leave the classroom. [See Undergraduate Catalogue - Classroom Code of Conduct \(p. 443-444\).](#)

UVM expects students, faculty, and staff to remain compliant with all COVID-19 recommendations and measures in place for UVM, the State of Vermont, and the City of Burlington.

Attendance and illness:

If a student will not be able to attend in-person classes for qualifying health reasons, Student Health Services (SHS) will send a notification to the appropriate student services office or designated staff member informing them of this along with the dates the student is unable to attend. The SHS notification will specify whether the request for flexibility is only around in-person class attendance or includes additional flexibility for assignments and tests because the student is too ill to participate. Students are reminded that labs cannot be made up.

Grading Criteria/Policies:

The final score for the course will be distributed as follows: 30% attendance, preparation and participation and 70% written experiment summaries. Since these are NOT simple, well established labs with standard report sheets, the evaluation for each lab will be flexible. There will be no lab final, and I will not be collecting lab notebooks regularly to see what you have recorded in them, but I will collect notebooks from select students during the semester. As part of the writing component of this class, students will prepare and hand in 2-3 page summaries of the experiment, including a very brief presentation of the operating principles of the instrument used, details of sample preparation, presentation of results and a brief discussion of the results. I will give you the format for these reports the first day of labs. There is also the *likely* possibility that I may weekly assign one group to write a 'Lab manual' or 'Instrument Cookbook' for the use of the given instrument. Each lab will be worth 100 points.

Undergraduate students: 90-100 A; 80-89.9 B; 70-79.9 C; 60-69.9 D

Graduate students: 90-100 A; 80-89.9 B; 75-79.9 C

Lived Name and Pronoun Information

The UVM Directory includes fields for indicating your lived name and your pronouns. Lived names (preferred names, names in use) are names that an individual wants to be known by in the University community. Entering your pronouns is strongly encouraged to help create a more inclusive and respectful campus community. To update your information, login to the UVM Directory. A preview box will allow you to see how this information will appear in other systems used on campus such as Microsoft Teams.

More information about how to make changes to your lived name and pronouns is available in the [Knowledge Base](#).

Research and Citation Help

For help selecting research topics, finding information, citing sources, and more, ask a librarian. The UVM Libraries are eager to help. You may ask questions by phone, e-mail, chat, or text, or make an appointment for an individual consultation with a librarian.

Howe Library: <https://library.uvm.edu/askhowe>

Dana Medical Library: <https://dana.uvm.edu/help/ask>

Silver Special Collections Library: <https://specialcollections.uvm.edu/help/ask>

Course Evaluation:

At the end of the semester, you will be expected to complete an evaluation of the course. Evaluations will be anonymous and confidential, and that the information gained, including constructive criticisms, will be used to improve the course.

The Chemistry department is using Blue for this class. Please follow this link to the UVM Knowledge Base page with [student instructions on how to access Blue course evaluations](#).

General statement regarding potential changes during the semester:

<http://catalogue.uvm.edu/>

The University of Vermont reserves the right to make changes in the course offerings, mode of delivery, degree requirements, charges, regulations, and procedures contained herein as educational, financial, and health, safety, and welfare considerations require, or as necessary to be compliant with governmental, accreditation, or public health directives.

Intellectual Property Statement/Prohibition on Sharing Academic Materials:

Students are prohibited from publicly sharing or selling academic materials that they did not author (for example: class syllabus, outlines or class presentations authored by the professor, practice questions, text from the textbook or other copyrighted class materials, etc.); and students are prohibited from sharing assessments (for example homework or a take-home examination). Violations will be handled under UVM's Intellectual Property policy and Code of Academic Integrity.

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing ADA accommodations should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly recommended to discuss with their faculty the accommodations they plan to use in each course. Faculty who

receive Letters of Accommodation with Disability Related Flexible accommodations will need to fill out the Disability Related Flexibility Agreement. Any questions from faculty or students on the agreement should be directed to the SAS specialist who is indicated on the letter.

Contact SAS:

A170 Living/Learning Center;

802-656-7753

access@uvm.edu

www.uvm.edu/access

Important UVM Policies

Academic Integrity:

The [Academic Integrity policy](#) addresses plagiarism, fabrication, collusion, and cheating.

Code of Student Conduct:

[UVM's Code of Student Conduct](#) outlines conduct expectations as well as students' rights and responsibilities.

FERPA Rights Disclosure:

The purpose of UVM's [FERPA Rights Disclosure](#) is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.

Final Exam Policy:

The University [final exam policy](#) outlines expectations during final exams and explains timing and process of examination period.

Grade Appeals:

If you would like to contest a grade, please follow the procedures [outlined in this policy](#).

Grading:

[This link](#) offers information on grading and GPA calculation.

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time. The complete policy is [here](#).

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community:

[Center for Health and Wellbeing](#)

[Counseling & Psychiatry Services \(CAPS\)](#) Direct Phone Line: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by [visiting the C.A.R.E. Team website](#).

Statement on Alcohol and Cannabis in the Academic Environment

As a faculty member, I want you to get the most you can out of this course. You play a crucial role in your education and in your readiness to learn and fully engage with the course material. It is important to note that alcohol and cannabis have no place in an academic environment. They can seriously impair your ability to learn and retain information not only in the moment you may be using, but up to 48 hours or more afterwards. In addition, alcohol and cannabis can:

- Cause issues with attention, memory and concentration
- Negatively impact the quality of how information is processed and ultimately stored
- Affect sleep patterns, which interferes with long-term memory formation

It is my expectation that you will do everything you can to optimize your learning and to fully participate in this course.