CHEM 265 - Quantitative Analysis
Spring 2025

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Lecture: M, W, F 8:00-8:50 am (Roddy 149)
Labs: A - Tue 1:10-4:00 pm (Caputo 223)
B - Wed 2:00-4:50 pm (Caputo 223)

Office Hours: Mon 9:00-10:30am, Wed 9:00-10:30am, Thu 1:00-2:00 pm, Fri 9:00-10:00 am
* Alternative times can be scheduled by appointment for an in-person or Zoom meeting.

Course Materials:

Lecture

1. Text: Quantitative Chemical Analysis by Daniel C. Harris 10th Edition (Publisher W. H. Freeman), ISBN: 978-1319164309 (Required)
2. Scientific Calculator: An inexpensive one is sufficient. It should be capable of squaring, taking roots, logarithms (log, ln), and exponentials (10^x, e^x).

Lab

3. Lab Manual - no purchase is required: CHEM 265 Quantitative Analysis Manual by Dr. T. Greco, J.K. Mbindyo - (experiments and other documents will be available on D2L)
4. Chemistry Laboratory notebook: Perfect Bound -

Course Policies:

Class Attendance Policy link: Class Attendance Policy | Millersville University

Students are expected to attend all classes. Students are responsible for all material covered. It is the responsibility of the student to obtain information on the material discussed during class If you need to be excused for a valid reason (college activities), please see me in -0.7 b.5 (itd8 (t)-5v. 2.3 (r.

Laboratory Schedule and Procedures

Mastering proper laboratory skills and safety procedures is an important part of this course. You are expected to review in detail the safety procedures described in the lab experiments and the course text and to strictly follow them in the lab. It is important for you to be systematic and thorough. These are traits that will be helpful in your career as a scientist. A good part of your lab grade will be based on the accuracy and reproducibility of your data. It is not easy to achieve this if work is done hastily.

conclusions/evaluation of your results with possible errors occurred including justification of those errors.

3) Following that, present your data in a table format.
4) Sample calculations should always be included (with correct units and significant figures for numerical values). Those can be typed, or they can be written by hand on a separate page and attached to the report.
5) Graphs, done in Excel, should be also attached to the report when applicable.

Lab Performance and Report Grading Criteria:

Criteria	Variables	pts
Pre-lab & During lab items	Pre-lab: title, names, date, lab purpose, a brief summary of the lab procedure During lab: demonstrate proper procedures, observe lab safety, record data, keep a tidy work area, exhibit team effort	10
Results	Data presentation, format, tables, units, significant figures, graphs	5
Data Interpretation	Calculations, units, significant figures, accuracy, reproducibility/precision, overall accomplishment	6 or 10
Post-lab questions (when applied)		4 or 0
Total per Lab Report		25
Total - 10 Lab Reports x 25		250 pts or 25 %

Note: All laboratories and lab reports must be completed in order to pass the course!!!

Tentative Laboratory Schedule:

Wk	Dates	Lab No.	Experiments and Background Readings will be posted on D2L
1	1/21, 1/22		Check-in lab drawers – Safety in the Lab!
2	1/28, 1/29	1	Calibration of Glassware/ Discussion of Statistics
3	2/4, 2/5	2	Experimental error and uncertainty/ Youden plots
4	2/11, 2/12	3	Spectrophotometric determination of iron in vitamin tablet
5	2/18, 2/19	4a	Analysis of Co(II)/Cr(III) mixture
6	2/25, 2/26	4b	Analysis of Co(II)/Cr(III) mixture
7	3/4, 3/5	5a	Potentiometric titrations – HCl
8	3/11, 3/12		Spring Recess/ No Labs
9	3/18, 3/19	5b	Potentiometric titrations – Soda Ash
Beginning of week 10, labs will be done in groups and rotation. See schedule in table below.			
10	3/25, 3/26	6	Determination of pKa of an indicator
11	4/1, 4/2	7	Vitamin C in commercial tablets
12	4/8, 4/9	8	Atomic Absorption Spectroscopy/ Metals
13	4/15, 4/16	9	Analysis of unknown in KHP by titrating against aqueous NaOH
14	4/22, 4/23	10	GC-MS analysis of alcohol mixture
15	4/29, 4/30		Make-up labs/Clean-up/Check-out
16	5/6, 5/7		

Note

To pass CHEM 2365, you must have a passing grade in the lecture component (at least a D)

Grade of C or better is required to enroll in CHEM 3341 for chemistry majors