

Instructor: Dr. Brian J. Bellott “Dr. B” Phone: (309)–298–1760
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Lecture Meeting Times: Currens 202

Monday 02:00 pm – 02:50 pm
Wednesday 02:00 pm – 02:50 pm

Course Credits:

2 semester hours (Two 50 min lectures per week.)

Office Hours:

Monday 08:00 am – 09:00 am
Thursday 09:00 am – 11:00 am
Friday 08:00 am – 09:00 am

Additional office hours can be made by contacting the instructor. I keep an open door policy.

Course Description from WIU Course Catalog:

“**241 Chemical Calculations. (2)** Designed primarily for Chemistry majors and minors. Emphasis is given to methods of presenting data and performing detailed chemical calculations typically required in biochemical and pharmaceutical analysis. 2 hrs. lect.”

Course Objectives:

- Relate the chemical concepts and calculations to specific analytical applications.
- Recognize methods of reporting accuracy in scientific calculations.
- Perform in-depth aqueous solution and buffer calculations often used in chemical analysis.
- Apply isotopic calculations and radioactivity to biochemical analysis.
- Utilize calculations and concepts of spectrophotometry and other optical methods of biochemical and pharmaceutical analysis.

Classroom Policies:

- Data storage devices other than the required calculator are not allowed to be used in the classroom, unless you are told to do so. Any interruptions caused by an electronic device could result in the removal from the lecture or lab. If the distraction occurs during an

exam the student will be asked to leave and their exam will be collected and graded “as is.”

- All hats, caps, and hoods that cover your ear(s) are not allowed to be worn during a quiz or exam.
- When needed electronic devices may be used to assist in lecture. Outside of these times all electronic devices must be stored.
- A student will be given one verbal warning per semester about inappropriate electronic device usage. After the warning five homework points will be removed for each violation from the student’s course grade.
- No audio recording or video recording, may be made without the express written consent of the instructor. If caught the student will be removed from the course. Also photography is strictly prohibited.
- The instructor reserves the right to assign seating for the students during exams and/or any other time necessary.

Attendance Policy:

You are expected to attend class regularly and punctually. All students are responsible for all information and materials given in class whether you are present or not. No make-up quizzes or homework will be given or accepted.

Any student arriving more than ten minutes late for any exam may not be allowed to take or complete the assigned work at the instructor’s discretion.

If an exam is missed that exam will count as one of the students dropped exams. Examples of excused absences are documented illnesses, documented family medical emergencies, military commitments, WIU required athletic trips. Any other absence must be excused by the instructor whom holds sole discretion over what is and what is not an excused absence. All absences excused or otherwise must be submitted via OARS report at least 12 hours prior to class time.

Outside work requirements:

Students are expected to read, review, study, and learn all material discussed in lecture. The expectation is that for every hour spent in lecture at least two hours should be spent outside of lecture reviewing the material. Online homework assignments must be completed on time and students are expected to work alone on the work they submit. Computers are located in various campus buildings with access to the internet. Not having access to the internet is not an acceptable excuse for not completing a homework assignment.

Required Materials: Costs for these materials are the responsibility of the student.

Lecture Text:

“Chemistry Structure and Properties”, 2nd edition, by Nivaldo J. Tro. Pearson publisher.
“Pearson’s Mastering Chemistry” CourseCode MCBELLOTT9972215

Other Materials:

- Scientific Calculator (All storage in the calculator will be cleared by the instructor prior to each exam)

Course Outline:

Exam 1:

1. Reliability of Results
 - a. Deviations from the mean
 - b. Standard deviation
 - c. Variance
 - d. Analysis of variance
 - e. Significant Figures
2. Calculations from Chemical Formulas/Equations
 - a. Percent composition
 - b. Empirical formula
 - c. Combustion analysis
 - d. Ideal gas law calculations
 - e. Stoichiometry
 - f. Gravimetric analysis

Exam 2:

1. Solution Calculations
 - a. Molarity
 - b. Molality
 - c. Percent by mass/volume
 - d. ppm/ppb
 - e. Serial dilutions
 - f. Converting between concentration units
 - g. Molecular weight determinations
2. Equilibria
 - a. Equilibria of gas phase reactions
 - b. Solubility equilibria
 - c. Equilibria of weak acids
 - d. pH of strong/weak acids

Final Exam:

1. Buffer and Titration Calculations

- a. Buffer Calculations
 - b. Neutralization reactions
 - c. Acid-base titrations
2. Oxidation-Reduction Reactions
- a. Oxidation numbers
 - b. Oxidation-reduction reactions
 - c. Electrochemical cell potentials
 - d. Spectrophotometers
 - e. Beer-Lambert law
3. Nuclear Chemistry and Half-Life Calculations
- a. Isotopes
 - b. Nuclear particles
 - c. Transmutation reactions
 - d. First order kinetics
 - e. Half-life reactions

Course Breakdown:

Lecture: 500 points

Exam 1 expected date	September 23 rd , 2019	100 points
Exam 2 expected date	November 4 th , 2019	100 points
Final Exam	December 9 th 3:00 pm	100 points
Homework		100 points
<u>Quizzes top 5 worth 20 points each</u>		<u>100 points</u>
Lecture Total		500 points

Final grades are based on the Plus/Minus grading system and are based on a percentage of the total points earned per the following scheme for undergraduates.

500 points	100%	A+
499–460 points	99 - 92 %	A
559 – 440 points	91 - 88 %	A-
439 – 420 points	87 - 84 %	B+
419 – 400 points	83 - 80%	B
399 – 380 points	79 - 76 %	B-
379 – 360 points	75 - 72 %	C+
359 – 340 points	71 - 68 %	C
339 – 320 points	67 - 64 %	C-
319 – 300 points	63 - 60 %	D+
299 – 280 points	59 - 56%	D
279 – 260 points	55 - 52%	D-
Less than 259 points	Less than 51.8 %	F

Breakdown of course points:

Exercise	Total Points	Percentage of Total Grade
Lecture Homework	100 points	20 %
Lecture Quizzes Five at 20 points/quiz	100 points	20 %
Lecture Exams Three at 100 points/exam	300 points	60 %
Totals	500 points	100 %

University Policies:

Student rights and responsibilities <http://www.wiu.edu/provost/students.php>

Academic Integrity Policy <http://www.wiu.edu/policies/acintegrity.php>

Emergency Preparedness:

The WIU Office of Risk Management and Emergency Preparedness provides resources on how to respond to emergency situations. Please view www.wiu.edu/rmep/ for more details.

Student Conduct Code:

Please review the student conduct code at <http://www.wiu.edu/policies/acintegrity.php> violation of the student conduct code can result in a failing grade and may be subject to further academic penalties.

See also

http://www.wiu.edu/student_services/student_development_office/current/absencepolicy.php

Students with Disabilities:

“Students with disabilities: In accordance with University values and disability law, students with disabilities may request academic accommodations where there are aspects of a course that result in barriers to inclusion or accurate assessment of achievement. To file an official request for disability-related accommodations, please contact the Disability Resource Center at 309-298-2512, disability@wiu.edu or in 143 Memorial Hall. Please notify the instructor as soon as possible to ensure that this course is accessible to you in a timely manner.”

University Values:

University values, Title IX, and other federal and state laws prohibit sex discrimination, including sexual assault/misconduct, dating/domestic violence, and stalking. If you, or someone you know, has been the victim of any of these offenses, we encourage you to report this to the Title IX Coordinator at 309-298-1977 or anonymously online at: http://www.wiu.edu/equal_opportunity_and_access/request_form/index.php. If you disclose an incident to a faculty member, the faculty member must notify the Title IX Coordinator. The complete Title IX policy is available at: <http://www.wiu.edu/vpas/policies/titleIX.php>.

Any situation, condition, or circumstance not covered in the syllabus is subject to the decisions of the instructor only.