

Fall 2017

Chemistry 520 Advanced Analytical Chemistry

3 credits

Lectures: MWF 10:10-11:00 AM;
Fulmer Hall 225

Instructor: Profs. Nathalie A. Wall
nawall@wsu.edu
Office: Fulmer 628
Office hours: by appointment only

Required materials and fees: Skoog/West/Holler/Crouch -Bundle: Fundamentals of Analytical Chemistry, 9th Edition. ISBN-13: 978-0495558286; ISBN-10: 0495558281. This book is available at Amazon.com as hardcover, softcover, and e-Textbook: https://www.amazon.com/Fundamentals-Analytical-Chemistry-Douglas-Skoog-ebook/dp/B00B9EOTTO/ref=mt_kindle?_encoding=UTF8&me=

Course materials and announcements will be made through Blackboard; login at learn@wsu.edu , using WSU alias and password.

Special course fee: \$10.00

Prerequisite: General Chemistry, Calculus I, Recommended preparation: CHEM 425 or equivalent

Student Learning Outcome: At the end of this course, the student should be able to understand and solve problems pertaining to solution chemistry.

Expectation for Student Effort: Students ought to actively participate to lectures, review lecture notes and book chapters, practice problem solving, complete assignments (if any) within the given timeline, and take the exams. Additionally, students are expected to have read the chapter ahead of lecture, following the course schedule, at the end of this document. Finally, students are expected to check the Blackboard site for his course on a regular basis.

Week-To-Week Course Outline: A tentative course outline is presented at the end of this book. The course outline will be updated during the semester if needed. Updates will be posted on Blackboard.

Description of Required Assignments: Special reading assignments are described in the course schedule, at the end of this document.

Course Website: Blackboard (<https://learn.wsu.edu>) will be used for course announcements and postings. Use you net ID and password to log in. It is your responsibility to check this site regularly.

Grading:

Exam 1:	300 points
Exam 2:	300 points
Final:	400 points

GRADE RANGES: (guaranteed minimum grade)

94% A	90% A-	87% B+	83% B
80% B-	77% C+	73% C	70% C-
67% D+	63% D	below 62% F	

Exams: Full credit will be given only when the work is shown. Final numerical results or final equations are not sufficient. You will be penalized for showing final numerical results shown without appropriate units. All rules for significant figures apply and points will be removed for incorrect significant figures. Exam 2 will cover material acquired since Exam 1 and the final exam will be cumulative.

Exam 1: TBD

Exam 2: TBD

Final Exam: TBD

Exam place and time will be determined during the first week of class.

Calculators: Students are expected to have and be able to use a scientific calculator. Graphing calculators are allowed, but not required. The use of any stored information/programs in a programmable calculator will be considered cheating (see ACADEMIC INTEGRITY section). PDAs, laptop computers, and/or cell phones with calculators are not allowed during exams and quizzes.

Attendance Policy: Students are required to attend lectures and be present in class during exams.

WSU Reasonable Accommodation: Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center [Pullman] or Disability Services at Pullman campus to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center or Disability Services. For more information contact a Disability Specialist on your home campus.”

Pullman or WSU Online: 509-335-3417, Washington Building 217; <http://accesscenter.wsu.edu>, Access.Center@wsu.edu

Graduate-level courses: Faculty may also use the statement available on the GSC website: <https://gradschool.wsu.edu/rights-and-responsibilities/>

Academic Integrity: Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. *Students who violate WSU's Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404) will fail the assignment, will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct. Student with two (2) instances of violation of WSU's Academic Integrity Policy will fail the course, will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct.*

Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Students, WAC 504-26-010(3). You need to read and understand all of the definitions of cheating: <http://app.leg.wa.gov/WAC/default.aspx?cite=504-26-010>. If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding.

If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at conduct.wsu.edu.

Disruptive behavior: Behavior that persistently or flagrantly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be asked to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Standards and Accountability

Classroom Safety Information: Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the “**Alert, Assess, Act**,” protocol for all types of emergencies and the “Run, Hide, Fight” response for an active shooter incident. Remain **ALERT** (through direct observation or emergency notification), **ASSESS** your specific situation, and **ACT** in the most appropriate way to assure your own safety (and the safety of others if you are able). Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the [FBI's Run, Hide, Fight video](#) and visit the [WSU safety portal](#).

Withdrawing from this Course: The WSU Catalog specifies the details of the WSU withdrawal policy, as indicated below. See the course schedule for withdrawal dates.

WITHDRAWAL FROM A COURSE

An undergraduate or professional student may withdraw from a course after the 30th day of the regular term up through the end of the 13th week with these provisions:

- (a) At the end of each term, the number of withdrawals will be counted for undergraduate and professional students. Once four withdrawals have been used, no further withdrawals will be allowed in subsequent terms. Withdrawals that result from the cancellation of enrollment will not be counted. (For those entering WSU in fall 1998 through summer 2004, once six withdrawals have been used, no further withdrawals will be allowed in subsequent terms.)
- (b) After the withdrawal limit is reached, an undergraduate or professional student may, in exceptional circumstances, submit a petition through the Registrar's Office for an exception to the withdrawal limit. See Rule 57.
- (c) If a grade has been entered for a course, the grade may not be changed to a withdrawal without the instructor's consent.
- (d) Withdrawals do not reduce tuition charges.
- (e) For academic calendars that vary from the regular 15-week term, a prorated schedule will be used to determine the withdrawal deadline.
- (f) The grade shall be marked W, and payment of the service fee shall be mandatory.

Graduate students who wish to request a course withdrawal after the 30th day must do so through the Graduate School.

Anticipated Course Schedule

		Skoog et al. Chapter	Special Assignment to complete prior to class
Monday, August 21, 2017	-----no Class-----		
Wednesday, August 23, 2017	Syllabus - Systematic error	Ch.5	Read Ch. 1-4
Friday, August 25, 2017	Random errors	Ch 6	
Monday, August 28, 2017	Random errors - statistical treatment	Ch 6/7	
Wednesday, August 30, 2017	Statistical data treatment	Ch 7	
Friday, September 01, 2017	problem solving		
Monday, September 04, 2017	-----Holiday - no Class-----		
Wednesday, September 06, 2017	Sampling	Ch 8	
Friday, September 08, 2017	Sampling	Ch 8	
Monday, September 11, 2017	Aqueous solution	Ch 9	
Wednesday, September 13, 2017	Aqueous solution/ionic strength	Ch 9/10	
Friday, September 15, 2017	problem solving		
Monday, September 18, 2017	Complex system	Ch 11	
Wednesday, September 20, 2017	Complex system/Volumetric Titration	Ch11/13	Read Ch. 12
Friday, September 22, 2017	problem solving		
Monday, September 25, 2017	Volumetric titration	Ch13	
Wednesday, September 27, 2017	Neutralization	Ch 14	
Friday, September 29, 2017	problem solving		
Monday, October 02, 2017	Strong and weak acid/bases	Ch15	
Wednesday, October 04, 2017	Strong and weak acid/bases / Complexation	Ch15/17	Read Ch. 16
Friday, October 06, 2017	problem solving		
Monday, October 09, 2017	Complexation	Ch 17	
Wednesday, October 11, 2017	Complexation	Ch 17	
Friday, October 13, 2017	problem solving		
Monday, October 16, 2017	Intro to electrochem	Ch18	
Wednesday, October 18, 2017	Intro to electrochem / stand. potentials	Ch18/19	
Friday, October 20, 2017	problem solving		
Monday, October 23, 2017	Building Pourbaix Diagram		
Wednesday, October 25, 2017	Building Pourbaix Diagram		
Friday, October 27, 2017	problem solving		
Monday, October 30, 2017	Potentiometry	Ch 21	Read Ch. 20
Wednesday, November 01, 2017	Potentiometry/electrolysis	Ch 21/22	
Friday, November 03, 2017	problem solving		
Monday, November 06, 2017	Electrolysis	Ch22	
Wednesday, November 08, 2017	Voltametry	Ch23	
Friday, November 10, 2017	-----Holiday - no Class-----		
Monday, November 13, 2017	Voltametry	Ch23	
Wednesday, November 15, 2017	Voltametry	Ch23	
Friday, November 17, 2017	problem solving		
Monday, November 20, 2017	-----Holiday - no Class-----		
Wednesday, November 22, 2017	-----Holiday - no Class-----		
Friday, November 24, 2017	-----Holiday - no Class-----		
Monday, November 27, 2017	Kinetics		
Wednesday, November 29, 2017	Kinetics		
Friday, December 01, 2017	problem solving		
Monday, December 04, 2017	<i>Buffer zone for late lectures</i>		
Wednesday, December 06, 2017	<i>Buffer zone for late lectures</i>		
Friday, December 08, 2017	problem solving		
December 11-15, 2017	Final exam week		