



STARK STATE COLLEGE

GENERAL SYLLABUS

Course Information

Course Name: General Chemistry II
Course Number: CHM142

Required Materials

Textbook(s): Silberberg, Martin S. *Chemistry: The Molecular Nature of Matter and Change* (10th ed., McGraw Hill, New York) — including access to **ALEKS** (Assessment and Learning in Knowledge Spaces). You have been automatically enrolled in the SSC Instant Access textbook program. Once you register through the Learning Management System (LMS), you will have full access to the required textbook.

Required Readings: Students are required to use digital library resources or open access databases to access peer-reviewed scientific journal articles related to their project topics.

Additional Materials: **Lab Manual:** *CHM142 General Chemistry II Laboratory Manual* (1st ed., Buyuktanir et al.; available only at the SSC Bookstore). **Safety Gear:** Splash-proof safety goggles and a lab coat are required for all lab sessions. **Lab Notebook:** Used to record data, perform calculations, and complete pre-lab outlines (you may reuse your CHM141 notebook). **Calculator:** A scientific calculator (e.g., Casio fx series or TI-30X IIs) is required; students are responsible for knowing how to use their calculator. **Optional:** *Student Solutions Manual* by Langley and Silberberg (available at the bookstore).

Course Outline/Calendar

The date of coverage and order of coverage may be modified based on the faculty member and events beyond the control of faculty members that interfere with class times and teaching.

Class Schedule-16 week			
WEEK	DATE	LECTURE SUBJECT	ALEKS-EXAM modules
1 and 2		Syllabi Chp15: Organic Compounds 15.1-15.6	ALEKS Prerequisite Review: Math and CHM141—due end of week 1
3	EXAM 1	Exam 1 (Chapter 15)	Module 1: Chp. 15
3 and 4		Chp12: Intermolecular Forces 12.1 - 12.6	
5 and 6		Chp13: The Properties of Mixtures 13.1- 13.6	
7	EXAM 2	Exam 2 (Chapters 12-13)	Module 2: Chp. 12-13

7 and 8		Chp16: Kinetics: Rates and Mechanisms 16.1-16.7	
		Spring Break (3/11-3/17)	
9 and 10		Chp17: Equilibrium 17.1 - 17.6	
11	EXAM 3	Exam 3 (Chapter 16-17)	Module 3: Chp.16-17
11 and 12		Chp18: Acid-Base Equilibria 18.1 - 18.9 Chp19: Ionic Equilibria 19.1 - 19.3	
13		Chp20: Thermodynamics 20.1 - 20.4	
13	EXAM 4	Exam 4 (Chapters 18-19)	Module 4: Chp. 18-19
14		Chp20: Thermodynamics 20.1 - 20.4	
14-15		Chp21: Electrochemistry 21.1-21.5	Module 5: Chp. 20-21
16	FINAL EXAM	Final Exam—Covers All Chapters!	

Class Schedule-8 week			
WEEK	DATE	LECTURE SUBJECT	ALEKS-EXAM modules
1		Syllabi Chp15: Organic Compounds 15.1-15.6	ALEKS Prerequisite Review: Math and CHM141—due end of week 1
2	EXAM 1	Exam 1 (Chapter 15)	Module 1: Chp. 15
2		Chp12: Intermolecular Forces 12.1 - 12.6	
3		Chp13: The Properties of Mixtures 13.1- 13.6	
4	EXAM 2	Exam 2 (Chapters 12-13)	Module 2: Chp. 12-13
4		Chp16: Kinetics: Rates and Mechanisms 16.1- 16.7	
5		Chp17: Equilibrium 17.1 - 17.6	
6	EXAM 3	Exam 3 (Chapter 16-17)	Module 3: Chp.16-17
6		Chp18: Acid-Base Equilibria 18.1 - 18.9 Chp19: Ionic Equilibria 19.1 - 19.3	
7	EXAM 4	Exam 4 (Chapters 18-19)	Module 4: Chp. 18-19
7		Chp20: Thermodynamics 20.1 - 20.4	
7		Chp21: Electrochemistry 21.1-21.5	
8	FINAL EXAM	Final Exam—Covers All Chapters!	Module 5: Chp. 20-21

Class Schedule-5 week			
WEEK	DATE	LECTURE SUBJECT	ALEKS-EXAM modules
1		Syllabi Chp15: Organic Compounds 15.1-15.6	ALEKS Prerequisite Review: Math and CHM141—due end of week 1
1	EXAM 1	Exam 1 (Chapter 15)	Module 1: Chp. 15
2		Chp12: Intermolecular Forces 12.1 - 12.6	
2		Chp13: The Properties of Mixtures 13.1- 13.6	
2	EXAM 2	Exam 2 (Chapters 12-13)	Module 2: Chp. 12-13
3		Chp16: Kinetics: Rates and Mechanisms 16.1- 16.7	
3		Chp17: Equilibrium 17.1 - 17.6	
3	EXAM 3	Exam 3 (Chapter 16-17)	Module 3: Chp.16-17
4		Chp18: Acid-Base Equilibria 18.1 - 18.9 Chp19: Ionic Equilibria 19.1 - 19.3	
4	EXAM 4	Exam 4 (Chapters 18-19)	Module 4: Chp. 18-19
5		Chp20: Thermodynamics 20.1 - 20.4	
5		Chp21: Electrochemistry 21.1-21.5	
5	FINAL EXAM	Final Exam—Covers All Chapters!	Module 5: Chp. 20-21

CHM142 Labs

LABS	LM: Lab Manual
All students (including CCP) must buy the lab manual, lab notebook, and safety goggles and lab coat. Scientific calculators are required. All lab report must be submitted with a cover page (download from Brightspace).	Lab notebook: -record the data during the lab. -attach yellow pages to your lab report Pre-lab questions: must be completed before the lab and signed at the beginning of the lab. LAB QUIZZES are located under the Laboratory/LAB EXAMS folder.
Best Practices in The Chemistry Laboratory/Lab Safety EXP 1. Organic Compounds EXP 17. Naming Organic Compounds	Safety Contract (required) Safety Questions: LM-pages 27-28 EXP 1. LM-pages 59-62 (no pre-lab) EXP 17. LM-pages 349-356
EXP 2. Functional Groups, Reactivity, and Polarity	Bring your lab notebook EXP 2. LM-pages 89-98 + lab notebook data pages
EXP 3. Nature's Polymers	EXP 3. LM-pages 109-116+ lab notebook data pages Lab QUIZ 4 covers safety, Exp 1 and 2 and will be completed during lab session.
EXP 4. Preparation of Soap Project PART A: What is your project topic?	Project PART A- Submit via Brightspace EXP 4. LM-pages 127-134+ lab notebook data pages
EXP 5. Analysis of Household Chemicals	EXP 5. LM-pages 145-150+ lab notebook data pages
EXP 6. Cooling Curves and Crystal Structures Project PART B: Summary	Project PART B: Submit via Brightspace EXP 6. LM-pages 175-184+ lab notebook data pages. Graphs must be plotted using EXCEL.

EXP 7. Determination of the Reaction Rates	EXP 7. LM-pages 195-204+ lab notebook data pages (Use EXCEL to write basic equations. This lab also teaches application of integrated rate laws)
EXP 8. Chemical Equilibrium	Typed lab report + LM-pages 233-236 + lab notebook data pages Note: LM-pages 227-232: Use these pages as a guide and not attach them to your typed lab report(See pages 280 and 375-386).
EXP 9. Acid and Base Reactions	EXP 9. LM-pages 259-268 + lab notebook data pages EXP 14. LM pages 323-326 LAB QUIZZES are located under the course links/Laboratory/LAB EXAMS folder.
EXP 10. pH Measurements and Buffers	EXP 10. Typed lab report + LM-pages 283-286 + lab notebook data pages Note: LM-pages 281-282: Use these pages as a guide and do not attach to your typed lab report (See pages 280 and 375-386).
EXP 15. Guided Inquiry: What Makes Candies, Apples, Grapes, and Wine Sour?	EXP 15. LM pages 327-338
EXP 11. Thermodynamics EXP. Electrochemistry (handout)	EXP 11. LM-pages 301-306 + lab notebook data pages. Sample excel sheet is available on Brightspace. (Gibbs free energy calculations using Excel functions.)
Project Presentations	more information is available on Brightspace.
EXP 12. Fuel Cells	EXP 12. LM-pages 315-319+ lab notebook data pages
Finals week. Late lab reports are NOT accepted this week.	