

CHEMStudy/POGIL Chemistry course outline

Mare Sullivan July 2024 (from 2011)

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Date	Classroom Activity
Mon 8/29	Mini- POGIL activity: Whoa! What's going on in chemistry?
Tues 8/30	Mini-quiz; Lab #1-1: Burn, Baby, Burn!
Wed 8/31	Mini-quiz; POGIL: Significant Digits
Thurs 9/1	Mini-quiz: 3 words that describe how you are feeling about chemistry class Pre-Assessment: How much chemistry do you already know? (ACS practice exam – 40 q's/ 40 mins - answer ONLY the questions you know; mark the others as "X" = clueless or "?" = some idea, but confused)
Fri 9/2	<i>No class: HS Retreat @ Lake Sammamish</i>
Mon 9/5	<i>No class: Labor Day holiday</i>
Tues 9/6	Lab #1-2: A Race to the Finish
Wed/Thurs 9/7-8	Mini-Quiz; POGIL: Data Analysis: Organizing Data ; Practice using LabQuests for Lab #1-3
Fri 9/9	Mini-Quiz; Lab #1-3: Feelin' the Heat; H ₂ O song
Mon 9/12	Mini-Quiz; Lab #1-4: Mystery of the Disappearing Wax, Part I and Part II
Tues 9/13	Mini-Quiz; Lab #1-4: Mystery of the Disappearing Wax, Part III
Wed/Thurs 9/14-15	Mini-Quiz; Lab #1-5: Further Investigations of Burning Candles
Fri 9/16	Mini, Quiz; POGIL: Significant Digits, Part II
Mon 9/19	Mini-Quiz; Lab #1-6: Feelin' the Heat – the Sequel
Tues 9/20	Lab #1-6: Feelin' the Heat – the Sequel
Wed/Thurs 9/21-22	Lab #1-6: Feelin' the Heat – the Sequel; Create-your-own study guide for Chapter 1 and the 3 POGIL activities we've completed so far
Fri 9/23	EXAM : Chapter 1 & POGIL activities
Mon 9/26	Ch 2 Model 1: Solubility of gases; Lab #2-1: A gas is a gas is a gas... or is it?
Tues 9/27	Mini-Quiz; Ch 2 Model 2: P vs. V using LabQuests; Amedeo Avogadro Song
Wed/Thurs 9/28-29	Mini-Quiz; POGIL: The Mole , Models 1 and 2
Fri 9/30	<i>No class: Juniors to UW; senior sneak; sophomore project</i>
Mon 10/3	POGIL: The Mole, Model 3; The Mole Song
Tues 10/4	Mini-Quiz; Ch 2 Read This! The Mole; Molar Mass
Wed-Fri 10/5-7	<i>No class: NWCSI Convention</i>

Date	Classroom Activity
Mon 10/10	POGIL: Mole Ratios in Chemical Reactions (1.5 days)

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Tues 10/11	Mini-Quiz; Practice g→mol and mol →g problems, using the conversions grid
Wed 10/12	<i>No class: PSAT</i>
Thurs 10/13 Fri 10/14	POGIL: Inventory Time in the Chemistry Lab (1.5 days)

Mon 10/17	Mini-Quiz; POGIL: Limiting Reactants (1.5 days)
Tues 10/18	Mini-Quiz; Practice g→mol and mol →g problems, using the “mole hill” graphic
Wed/Thurs 10/19-20	EXAM: Chapter 2 & POGIL activities; skim & highlight Lab #3-1; Lab #3-1 Day 1
Fri 10/21	Lab #3-1 Day 2

Sat 10/23 *National Mole Day!*

Mon 10/24	Lab #3-1 Day 3
Tues/Wed 10/25-26	Lab #3-1 Day 4; begin summarizing Lab #3-1, using graphic organizer
Thurs/Fri 10/27-28	Lab #3-1 Day 5; finish summarizing Lab #3-1, using graphic organizer; Intro to FLR requirements

Mon 10/31	Expert review of Phy Sci students' FLR first drafts
Tues 11/1	POGIL: Ideal Gas Law (1.5 days)
Wed/Thurs 11/2-3	Mini-Quiz; PV = nRT Song; Ch 4 Molar Volume; Model 3: Barometers & Manometers
Fri 11/4	Mini-Quiz: Mixing Gases; Charles' Law; Absolute Zero; Kelvins

Mon/Tues 11/7-8	Review for Qtr 1 Exam; practice test-taking behaviors for ACS type timed tests
Wed 11/9	QUARTER EXAM: ACS 40 q's/ 40 mins (answer ONLY the questions you know; mark the others as “X” = clueless or “?” = some idea, but confused)
Thurs/Fri 11/10-11	<i>No class: grading day & Veterans' Day</i>

Mon 11/14	Lab #4-1: Bubble Up! - preparations
Tues 11/15	Lab #4-1: Bubble Up! - collect data
Wed/Thurs 11/16-17	Lab #4-1: Bubble Up! – process the data; review for Ch 3&4 exam
Fri 11/18	EXAM: Ch 3 & 4

11/22-25 P/T/S conferences; Thanksgiving break

Mon 11/28	POGIL: Classification of Matter
Tues - Fri 11/29-12/2	Mini-Quiz; TI: Change You Can Believe In (2 days) Mini-Quiz; TI: The Only Thing Constant in Life Is Change (2 days)

Date	Classroom Activity
Mon 12/5	Ch 5 Model 1 Evaporation; Model 2: BP & Heat of Vaporization
Tues 12/6	Mini-Quiz; Ch 5 BP & Vapor Pressure; Model 3: MP & Heat of Melting (Fusion)
Wed- Fri 12/7-9	Mini-Quiz; POGIL: How Do You Like Your Lemonade? (1.5 days) POGIL: Sweet & Salty Aren't Just Different Flavors (1.5 days)
Mon 12/12	Mini-Quiz; Lab #5-1: To be or not to be... an electrolyte?
Tues 12/13	Ch 5 BP of pure substances and mixtures (mix ice & salt to check MP); solutions; solubility
Wed/Thurs 12/14-15	Lab #5-2: If you're not part of the solution, you're part of the precipitate
Fri 12/16	EXAM: Ch 5 & POGIL activities
12/19-30	<i>No class: Christmas break</i>
Mon 1/2	POGIL: Inside the Atom (1.5 days)
Tues 1/3	Mini-Quiz; Ch 6 Noble Gases (ex. A-I)
Wed /Thurs 1/4-5	Mini-Quiz; Ch 6 Alkali Metals (ex. J-L); Halogens (ex. M-N); Relative diameters of molecules, atoms, and ions
Fri 1/6	Mini-Quiz; Ch 6 Hydrogen (ex. O-R)
Mon 1/9	Teacher's choice...
Tues/Wed 1/10-11	1st SEMESTER FINAL EXAM (ACS 60 q's/ 80 mins)
Thurs/Fri 1/12-13	POGIL: What's in a Name?
Mon 1/16 Tues 1/17	Mini-Quiz; POGIL: Empirical Formulas and Molecular Formulas (1.5 days)
Wed - Fri 1/18-20	<i>Lorenzo's Oil</i> DVD and ethics case study
Mon 1/23	<i>Lorenzo's Oil</i> DVD and ethics case study
Tues-Thurs 1/24-26	Write 5 ¶ essay for <i>Lorenzo's Oil</i> ethics case study
Fri 1/27	<i>No class: grading day</i> END OF 1ST SEMESTER
Mon 1/30 Tues 1/31	POGIL: Naming Ionic Compounds (1.5 days)
Wed/Thurs 2/1-2	Mini-Quiz; TI: How Much Energy Does It Take to Melt an Ice Cube?
Fri 2/3	Mini-Quiz; Lab #7-1: What is the heat of reaction?
Mon 2/6	POGIL: Hot Pot (1.5 days)
Tues/Wed 2/7-8	Mini-Quiz; POGIL: Bond Enthalpies (1.5 days)
Thurs/Fri 2/9-10	Ch 7 Hess's Law (ex. D-I); Ch 8 Model 1& Model 2

Date	Classroom Activity
Mon/Tues 2/13-14	Lab #8-1: Clock Reaction
Wed/Thurs 2/15-16	Ch 8 Theory of Reaction Rates; Model 3: Catalysts; <i>Juniors may take exam during class or at long lunch Thurs 2/15</i>
Fri 2/17	EXAM Ch 7 & 8 & POGIL activities (<i>Juniors at UW</i>)
Mon 2/20	<i>No class: Presidents' Day holiday</i>
Tues 2/21	Lab #9-1: How can you detect the direction of a chemical reaction? (2 days)
Wed/Thurs 2/22-23	Mini-Quiz; POGIL: More Than Meets the Eye (1.5 days)
Fri 2/24	Mini-Quiz; Dynamic Equilibrium Song; Ex. B- E
Mon/Tues 2/27-28	Lab #9-3: How can you determine the equilibrium constant for a reaction?
Wed /Thurs 2/29-3/2	Making sense of Lab #9-3; Ch 9 Le Chatelier's Principle & Dynamic Equilibrium
Fri 3/2	<i>No class: inservice day</i>
Mon 3/5	Ch 9 Equilibrium; ex. F-O
Tues 3/6	Mini-Quiz; Ch 10 Model 1: $\text{Mg}(\text{OH})_2$ is insoluble
Wed/Thurs 3/7-8	Lab #7-1: What is the nature of a chemical reaction?; Ch 10 Model 2: Solubility of Compounds in Water; Lab #10-1: K_{sp}
Fri 3/9	Mini-Quiz; Ch 10 Model 3: K_{sp} values
Mon 3/12	Mini-Quiz; POGIL: Net Ionic Equations
Tues 3/13	EXAM: Ch 9 & 10 & POGIL activities
Wed/Thurs 3/14-15	Ch 11 Mini-labs: acid/base classification of solutions; POGIL: Acids and Bases
Fri 3/16	
Mon 3/19	Mini-Quiz; POGIL: Strong vs. Weak Acids (1.5 days)
Tues 3/20	Mini-Quiz; Ch 11 Acid Dissociation Constants
Wed/Thurs 3/21-22	Mini-Quiz; POGIL: Acids and pH (1.5 days)
Fri 3/23	Mini-Quiz; Ch 11 Model 4: Neutral, Acidic, Basic
Mon 3/26	EXAM: Ch 11 & POGIL activities
Tues/Wed 3/27-28	Mini-Quiz; Acids & Bases Lab Bonanza (2 days)
Thurs/Fri 3/29-30	Lab #12-1; POGIL: When Push Comes to Shove (day 1)
Mon 4/2	POGIL: When Push Comes to Shove (day 2)
Tues 4/3	POGIL: When Push Comes to Shove (day 3); Redox Blues Song
Wed/Thurs 4/4-5	3rd Quarter EXAM: ACS 60 q's/ 80 mins
Fri 4/6	<i>No class: grading day</i>

Date	Classroom Activity
Mon/Tues 4/16-17	POGIL: Energy on Demand (2 days)
Wed/Thurs 4/18-19	Mini-Quiz; Lab #12-1: Which metals are “pushier”?
Fri 4/20	Ch 12 Metal Reactivity Series; Anodes & Cathodes; Model 1
Mon 4/23	Mini-Quiz; Ch 12 Oxidation Numbers
Tues/Wed 4/24-25	Ch 12 Voltage; SHE (Standard Hydrogen Electrode); Lab #12-2: How does a lead storage battery work?
Thurs/Fri 4/26-27	EXAM: Ch 12 & POGIL activities; Ch 12 Cell Voltage & Using a Standard Oxidation Potential table to design a battery for an ipod or iphone or ipad (3.7V)
Mon 4/30	Lab #14-1: Moles of e^- vs. moles of Cu^{+2} reduced
Tues-Fri 5/1-4	Ch 14 Faraday & Electrolysis; John Dalton & Atomic Theory; Magic Rays (H, Na, and Hg discharge tubes); Thomson & Cathode Rays; “Plum Pudding” model of atom; Rutherford’s Gold Foil Experiment; Empirical Formula (review)
Mon 5/7	Mini-Quiz; POGIL: Electron Configuration (1.5 days); Electron Configuration Polka Song
Tues 5/8	Mini-Quiz; POGIL: Cracking the Periodic Table Code (1.5 days)
Wed/Thurs 5/9-10	Mini-Quiz; POGIL: Electrons Illuminate Chemistry – using spectroscopes and H discharge tube (1.5 days)
Fri 5/11	Mini-Quiz; POGIL: Trendy Periodic Table (1.5 days)
Mon 5/14	Mini-Quiz; TI: I’m Too Sexy – Molecular models (1.5 days)
Tues 5/15	Mini-Quiz; TI: To Share or Not to Share: How Does It Shape Thee? (2 days)
Wed/Thurs 5/16-17	
Fri 5/18	Mini-Quiz; POGIL: Shape Up! (molecular shapes) (1.5 days)
Mon 5/21	EXAM: Ch 14 & POGIL activities
Tues/Wed 5/22-23	POGIL: Naming Molecular Compounds ; How to study for ACS type exams (mark X, circle ?, answer some; cover multiple choice answers w/scratch paper; estimate; start doing 30 min of timed WebAssign review problems every night
Thurs/Fri 5/24-25	Mini-Quiz; POGIL: Fundamentals of Experimental Design ; practice a few ACS type problems, using yesterday’s strategies for test taking
Mon 5/28	<i>No class: Memorial Day holiday</i>
Tues 5/29 – Fri 6/8	Partner Chemistry Research Projects (9 “days”)
Mon 6/11	Chemistry Symposium: Presentation of Research Project Posters
Tues-Thurs 6/12-14	FINAL EXAM: ACS 80 questions/ 80 minutes