Course Syllabus for Chemistry in Society

Text: **Chemistry in the Community: Chemcom**, American Chemical Society, 5th ed, 2006.

Week 1	**Session**	**Objectives**	**Activities**
Day 1	Morning	1. Welcome/Introductions 2. Course overview 3. Pre-Assessment 4. Laboratory safety	1. Periodic table name 2. Syllabus, mysterious box activity 3. Pre-Assessment 4. Lab procedures, equipment, demo
	Afternoon	1. Accuracy vs. Precision 2. Scientific notation 3. Measurement, significant figures, and density	1. Accuracy questions 2. Lecture and discussion 3. Lecture and discussion (equipment); Measurement and significant figures lab
Day 2	Morning	1. Riverwood case 2. Identify ways water is used 3. Identify ways to save water 4. Water purification	1. Read articles and discuss 2. Discussion, compile ideas 3. Create a plan for Easton site 4. Foul water lab
	Afternoon	1. Physical versus chemical change 2. Atomic theory and chemical equations	1. Physical versus chemical examples 2. Clay exercise
Day 3	Morning	1. Ionic compounds 2. Ionic compounds in water 3. Riverwood case	1. Lecture and discussion 2. Water testing lab 3. Discussion
	Afternoon	1. Solubility 2. Concentration 3. Observing solubility	1. Solubility curves 2. Practice 3. Supersaturation lab
Day 4	Morning	1. Heavy metals and pH 2. Polar versus non-polar 3. Riverwood case	1. Lecture and discussion 2. Solvent lab 3. Discussion
	Afternoon	1. Water purification 2. Water softening	1. Riverwood articles 2. Water softening lab
Day 5	Morning	1. Explanation of City Council meeting 2. City Council meeting preparation	1. Lecture 2. Students work in groups
	Afternoon	1. City Council meeting 2. City Council debate 3. City Council decision	1. Groups present to class 2. Students debate 3. Students decide course of action

Week 2	Session	Objectives	Activities
Day 6	Morning	1. Physical versus chemical changes 2. Periodic table 3. Periodic trends	1. Review discussion 2. Read magazine article 3. Lecture and discussion
	Afternoon	1. Metals versus nonmetals 2. Uses of metals	1. Metal or nonmetal lab 2. Lecture and discussion
Day 7	Morning	1. Reactivity 2. Law of conservation of mass 3. Balancing equations	1. Copper-silver single replacement demo 2. Converting copper lab 3. Lecture and practice
	Afternoon	1. Stoichiometry 2. Review conservation of mass	1. Lecture and practice 2. Retrieving copper lab
Day 8	Morning	1. Alloys and allotropes 2. Conservation in the community 3. Review types of materials	1. Lecture and discussion 2. Read articles and discuss 3. Discussion
	Afternoon	1. Introduce petroleum 2. Distillation	1. Read and discuss 2. Distillation lab
Day 9	Morning	1. Lewis dot structures 2. Structure of alkanes (writing and naming) 3. Boiling points of alkanes 4. Isomers	1. Lecture and discussion 2. Molecular models 3. Graph data 4. Lecture and discussion
	Afternoon	1. Petroleum 2. Types of energy 3. Endothermic versus exothermic 4. Law of conservation of energy	1. Review 2. Mechanical vs. chemical, potential vs. kinetic 3. Demos 4. Lecture and practice
Day 10	Morning	1. Combustion 2. Heats of combustion 3. Altering fuels	1. Combustion lab 2. Lecture and practice 3. Lecture and discussion
	Afternoon	1. Petrochemical and polymers 2. Saturated versus unsaturated 3. Functional groups 4. Condensation	1. Lecture, reading and discussion 2. Modeling 3. Lecture and discussion 4. Condensation lab

Week 3	**Session**	**Objectives**	**Activities**
Day 11	Morning	1. Food groups and diet 2. Food diary 3. Food as fuel 4. Origin of energy in food	1. Food pyramid discussion 2. Explanation 3. Calorie calculations 4. Mapping exercise
	Afternoon	1. Energy in versus energy out 2. Energy storage and use 3. Limiting reagent	1. Analyze food diary 2. Carbohydrates versus fats (saturated versus unsaturated) 3. Lecture and discussion
Day 12	Morning	1. Proteins 2. Proteins in diet 3. Enzymes	1. Lecture and discussion 2. Analyze food diary 3. Enzyme lab
	Afternoon	1. Vitamins 2. Vitamins in diet 3. Vitamin C	1. Lecture and discussion 2. Analyze food diary 3. Vitamin C lab
Day 13	Morning	1. Minerals 2. Minerals in diet 3. Food additives	1. Lecture and discussion 2. Analyze food diary 3. Food coloring lab
	Afternoon	1. Artificial sweetener 2. Final project	1. Reading and discussion 2. Explain, research
Day 14	Morning	1. Final project	1. Research
	Afternoon	1. Final project	1. Presentations
Day 15	Morning	1. Final project	1. Presentations
	Afternoon	1. Wrap up	1. Post-assessment