

CH113 Chemistry of Sustainability

Instructor: Margaret Yang

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Course description: Students will be introduced to the basic principles of chemistry and their applications to the understanding and development of sustainability. Sustainability is a global concept which spans all cultures – students will study how issues in environmental protection and human health are being addressed. Comparisons will be made between a developing nation (China) and a developed country (US) to show the differences in the set-up and emphasis of various sustainable systems.

Language: Mandarin Chinese.

Prerequisite: Math 095, high school chemistry

Lecture	Date	Topic/Homework	Articles
		Week 1	
1	4/1	Introductions to basic chemistry concepts and sustainable chemistry	
2	4/3	Introductions to basic chemistry concepts and sustainable chemistry HW1 Due	Green Chemistry Green Society
		Week 2	
3	4/8	Introductions to basic chemistry concepts and sustainable chemistry	Green Consumer Green Business
4	4/10	Introductions to basic chemistry concepts and sustainable chemistry HW 2 Due	
		Week 3	
5	4/15	Organic Chemistry and Polymers	Amazing Biodegradable Plastics Biodegradable materials
6	4/17	Polymers HW 3 Due	White Pollution White Prohibition
		Week 4	
7	4/22	Polymers	
8	4/24	Exam 1	
		Week 5	
9	4/29	Life Cycle Assessment	LCA of China's Cell Phones LCA As A Tool
10	5/1	Renewable energy	Bio-fuel Hydrogen Energy
		Week 6	
11	5/6	Renewable energy	Solar Energy Development

		HW 4 Due	and Progression Solar Energy Development and Use
12	5/8	Renewable energy	Nuclear vs Renewable Energy
		Week 7	
13	5/13	Renewable energy HW 5 Due	Wind Energy
14	5/15	Biochemistry	Biocatalysts Thermophiles
		Week 8	
15	5/20	Biochemistry HW 6 Due	Bio-based materials in China
16	5/22	Exam 2	
		Week 9	
17	5/27	Global Warming	Weather Past, Present, Future
18	5/29	Water Pollution and Treatment	China's Water Crisis Water Pollution in China: A Man-Made Problem
		Week 10	
19	6/3	Water Pollution and Treatment HW 7 Due	Nanotechnology: the new star of technology The Future of Nanotech
20	6/5	Nanotechnology	

Final Exam: Tuesday (6/10) 8am.

Homework: The goal of these out-of-class activities is to encourage students to explore different dimensions of Sustainable Chemistry by utilizing the internet and other resources. Through these investigations, students will gain insights into how sustainability principles are addressed in the big picture, how to search for relevant and informative materials, how to focus the extensive information at hand into concise and edifying presentations, and how to obtain knowledge in a probative and enriching manner. Students advance their comprehension by sharing and discussing these inquiries with the rest of the class.

Grading:

Homework – 15pts each (7)
 In-class discussions – 10pts each (18)
 Exams – 100pts each (2)
 Final – 200pts
 Total number of pts = 685