

UNIVERSITY OF CALGARY  
DEPARTMENT OF CHEMISTRY  
**COURSE SYLLABUS**  
FALL 2020

**COURSE: CHEMISTRY 321 – Environmental Chemistry**

LEC	DAYS	TIME	ROOM	INSTRUCTOR	OFFICE	PHONE	EMAIL	OFFICE HOURS
L01	Tu/Th	15:30-16:45	Zoom On-line	Dr. Kimura-Hara	--	--	s.kimurahara@ucalgary.ca	Tu/Th 16:45 – 17:45

**COURSE WEBSITE or Desire 2 Learn (D2L):**

- **REQUIRED TEXTBOOK:** Environmental Chemistry, 5th Ed., by Colin Baird and Michael Cann, W.H. Freeman, NY

**RECOMMENDED TEXTBOOKS:**

- Elements of Environmental Chemistry, 2<sup>nd</sup> Edition, by Ronald Hites and Jonathan Raff, ISBN 978-1-118-04155-0
- Fundamentals of Environmental and Toxicological Chemistry: Sustainable Science, 4<sup>th</sup> Edition, by Stanley E. Manahan, CRC Press (2013)
- Environmental Chemistry: A global perspective, 3<sup>rd</sup> Edition, by G.W. vanLoon and S.J. Duffy, Oxford University Press

**TOPICS COVERED:****Module I. Chemistry Review & Chemical Pollutants**

Chemistry Review of Fundamentals  
Toxicology  
Contaminants of concern: pesticides, persistent organic pollutants (dioxins, furans, PCBs), endocrine disruptors, toxic metals

**Module II: Water chemistry and water treatment**

Aqueous chemistry  
Drinking water and wastewater treatment

**Module III: Environmental chemistry in the biosphere**

Chemistry and pollution of the atmosphere  
Catalytic destruction of stratospheric ozone and Montreal Protocol  
Greenhouse effect and climate forcing

**Module IV: Energy and Soil Chemistry**

Energy, Radioactivity  
Soil

This course does not have a laboratory component.