

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

**1. COURSE: CHEMISTRY 533, Advanced Inorganic Chemistry: Main Group Elements**

LEC	DAYS	TIME	ROOM	INSTRUCTOR	OFFICE	PHONE	EMAIL	OFFICE HOURS
L01	MWF	10:00-10:50	MS 527	Dr. R. Roesler	SB 339	220-5366	<a href="mailto:roesler@ucalgary.ca">roesler@ucalgary.ca</a>	M 11:00 - 12:00 W 11:00 - 12:00

Desire 2 Learn (D2L) course name: <https://d2l.ucalgary.ca/d2l/home/295457>

Departmental Office: SA 229, 220-5341, [chem.undergrad@ucalgary.ca](mailto:chem.undergrad@ucalgary.ca)

- 2. Course Description:** Lectures: Chemistry of the s- and p-block elements. Interpretation of nuclear magnetic resonance, electron paramagnetic resonance, vibrational and mass spectra. Fundamental concepts and industrial uses of inorganic heterocycles and polymers, electron-deficient and organometallic compounds. Solid-state chemistry. Tutorial: Applications of chemical principles to inorganic synthetic and qualitative analytical problems.
- 3. TEXTBOOK:** Christoph Elschenbroich, "Organometallics", Wiley-VCH, Third Edition (2006).

**4. TOPICS COVERED AND SUGGESTED READING:**

<b>COURSE CONTENTS</b>	<b>Lectures<sup>a</sup></b>	<b>Chapter in Textbook</b> <i>(not all sections will be covered)</i>
<b>HISTORY OF MAIN GROUP CHEMISTRY</b>	1	Chapter 1
<b>GROUP 1</b>	2, 3	Chapter 5
<b>GROUP 2</b>	4, 5	Chapter 6
<b>BORON</b>	6-8	Chapter 7
<b>HEAVIER GROUP 13 ELEMENTS</b>	9, 10	Chapter 7
<b>CARBON</b>	11 - 13	N/A
<b>SILICON</b>	14, 15	Chapter 8
<b>HEAVIER GROUP 14 ELEMENTS</b>	16, 18	Chapter 8
<b>NITROGEN</b>	19	N/A
<b>PHOSPHORUS</b>	20 - 22	N/A
<b>HEAVIER GROUP 15 ELEMENTS</b>	23, 24	Chapter 9
<b>OXYGEN</b>	25	N/A
<b>SULFUR</b>	26, 27	N/A
<b>HEAVIER GROUP 16 ELEMENTS</b>	27	Chapter 10
<b>GROUP 17</b>	28, 29	N/A
<b>GROUP 18</b>	30	N/A
<b>SPECTROSCOPIC METHODS</b>	31 - 36	N/A

<sup>a</sup> The number of lectures allocated to each topic is TENTATIVE

Department Approval: Approved by Department Head

Date: