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, Q V W U X F W R Alberta Flemming: B&GS room 0172, [rflemmin@uwo.ca](mailto:rflemmin@uwo.ca) (office hours TBA)

7 H D F K L Q J D V M L U N W D F Q W R L M C F A R 4 @ u w o . c a and Kael Doomernik [kdoomern@uwo.ca](mailto:kdoomern@uwo.ca)

Students must use their Western (@uwo.ca) email addresses when contacting their instructors

/ H F W X U M W T H U R S D A Y and Wednesday

/ D E R U D W E D N E S D A Y

2 E M H F W T H I S c o u r s e introduces students to minerals. We will examine their crystalline nature, chemical composition, physical and optical properties. Students will also develop an understanding of the connections between these phenomena. From a theoretical perspective, students will understand how the properties of minerals are a product of their crystalline nature and how mineral structures can be

u o C Reading in Text

Crystallography Klein and Dutrow:

Week 1: Sept 9, 11 Introduction to mineralogy, Physical properties; Point symmetry Ch 1, 2

Week 2: Sept 16, 18 Six crystal systems: symmetry & axes; Crystal forms & Miller indices Ch 6

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Week 3: Sept 23, 25 Periodic table, radius ratio, coordination polyhedra, closest packing Ch 3-4

Week 4: Sept

30, Oct 2 Chemical substitution, solid solution, exsolution, and ordering Ch 3-5, 11, 12

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Week 5: Oct 7, 9 Properties of polarized light; Optical properties of minerals

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Week 1:	Sept 11	Physical Properties of Minerals	no	native elements, halides
Week 2:	Sept 18	Point symmetry operations; six crystal systems	yes	oxides
Week 3:	Sept 25	External morphology: crystal forms, Miller indices	yes	sulphides
Week 4:	Oct 2	Closest packing and coordination	yes	carbonates, sulphates
Week 5:	Oct 9	Optical microscopy - plane & cross polarized light	yes	orthosilicates
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Week 7:	Oct 23	Optical microscopy - Anisotropic - uniaxial	yes	ring & chain silicates
Week 8:	Oct 30	Optical microscopy - Anisotropic - biaxial	yes	sheet silicates
Week 9:	Nov 6	Optical microscopy - Mafic igneous minerals	yes	framework silicates
Week 10:	Nov 13	Optical microscopy - Felsic igneous minerals	yes	
Week 11:	Nov 20	Optical microscopy - Metamorphic minerals	no	
Week 12:	Nov 27	Review session (mock final exam)		mock mineral exam
Week 13:	Dec 4	)LQDO ODE H[DP		)LQDO PLQH UDOW H[DP

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*Manual of Mineral Science*, 23<sup>rd</sup> Ed. (2008), by C. Klein and B. Dutrow, Wiley. (Required)  
 [Or you can use previous edition: *Manual of Mineral Science*, 22<sup>nd</sup> Ed. (2002), by C. Klein, Jr, Wiley.]  
*Minerals in Thin Section*, 2<sup>nd</sup> Ed. (2003) D. Perkins and K.R. Henke, Prentice Hall. (Optional)  
*Introduction to Optical Mineralogy*, 4<sup>th</sup> Ed. (2012) by W.D. Nesse, Oxford University Press (Optional).  
 [Or you can use the previous edition: *Introduction to Optical Mineralogy*, 3<sup>rd</sup> Ed. (2004) by Nesse]  
 Supplementary material will be given weekly, posted to QWL: <https://westernu.brightspace.com/>.

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Midterm class test: (50 minutes)	October 28	20 %
Lab assignments:	Weekly (8) Due the week following the lab (-10% per day penalty will apply to late labs)	20 %
Lab mineral quizzes:	Weekly (8)	10 %
Lab exam: (2 hours)	Dec 4	20 %
Final exam: (2 hours)	TBD - Scheduled by the Registrar	30 %

No electronic devices may be used during tests/exams. Non-programmable calculators are acceptable.  
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## & R X U V H : H E V L W H

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course on OWL (<https://westernu.brightspace.com/>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

## 3 R O L F L H V U H J D U G L Q J O D E R U D W R U \ Z R U N D Q G P L G W H U P W H V W

If you are unable to attend a weekly lab session or unable to write the midterm due to illness or other serious circumstances, please follow the procedures below:

For missed Labs you need to contact the professor and the Teaching Assistant to arrange accommodation. This should be done before the lab, or within 24 hours of your absence:

- You will be required to complete a missed lab on your own time, but you may hand it in up to one week late without penalty.
- Missed quizzes will receive zero (no make-ups), but you will be graded on the best 7 of 8 quizzes.

If a student has received academic accommodation for a missed midterm test, their final exam will be reweighted at 50%. *There will not be a makeup midterm test.*

*) X U W K H U Q R W H D E R X W* It is the University's policy that a student who chooses to write a test or exam deems themselves fit enough to do so. Claims of medical, physical, or emotional distress after the fact will not be considered. However, if a student improves their grade in their final exam by 10% over their grade in the midterm test, the student may qualify to have the final exam given full weight (50%) and the midterm grade discounted. (Note that this will not apply if the student fails to write the midterm exam.)



*(WKL FDO & RQG XFW*

