

# Chemistry 2211a Course Outline 2023–2024

## Inorganic Elements in Life

Instructor Martin Stillman

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Appointment by email or arrange at the end of each lecture. There is also usually time at the end of each lecture for a meeting.

Note: This Course Outline is subject to change. This revision dated 2023 Sept 6 abc.

**Course Website** [instruct.uwo.ca/chemistry/2211a](http://instruct.uwo.ca/chemistry/2211a) (no www)  
**AND NOTE lower case)**

The missing of critical information due to failure to check the website or read your @uwo.ca email cannot be used as a basis for appeal. NOTE: This is not OWL!

### Course Materials

See the 1st INTRO unit on the web site for other books that are in the library. NO NEED TO BUY THIS BOOK IT WILL BE AVAILABLE IN THE LIBRARY AND FOR LOAN FROM PROF STILLMAN, HOWEVER, THE BOOKSTORE HAS AN eBook VERSION FOR ABOUT \$75 THAT WOULD BE USEFUL IF YOU FIND THE TOPICS REALLY INTERESTING.

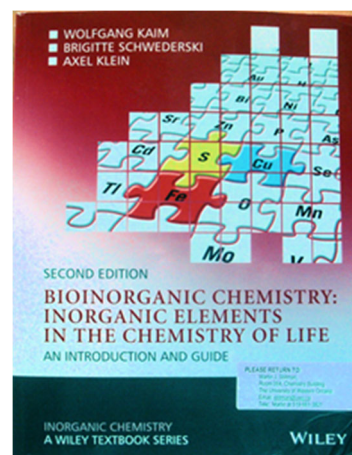
The 2nd edition of Kaim, Schwederski & Klein (KS&K)- “Bioinorganic Chemistry: Inorganic elements in the chemistry of life” in the book store ISSN: 1939-5175

**NOTE: Content for tests and exams will be solely taken from the printed notes available on the course web site – IT IS NOT NECESSARY TO PURCHASE A TEXTBOOK. However, the Kaim, et al. book above is very useful.**

### Course Components

**Chemistry 2211a has four components: lectures, posters, a 90 minute midterm test and a 3 hour final exam.**

The lecture component will introduce students to the fundamental concepts of bioinorganic chemistry, with an emphasis on the roles of metals in the biological world. **Lecture attendance is mandatory** and



**attendance may be taken.** Missing important announcements given at lectures cannot be used as the basis for an appeal. **This course is delivered in-person.** **The midterm test , poster assessment and final exam will be in-person.**

After taking this course you will be able to assess the importance of metal ions in Nature. You will be able to assess news reports and your own reading about the importance of metals in your own life and the lives of your family members and friends. You will be able to address the value of essential metals in your diet, toxic metals to avoid, and metals that play a role therapeutically in drugs you might take in your future.

Overall you will be able to begin to understand the role metals play in a healthy life of all organisms.

The poster component will allow students, in groups of two, to research and then present a scientific poster on a topic chosen from a list provided by the course instructor. Each group will be assessed through “interviews” during the last two weeks of the term. Students will also visit, and learn from, other students’ posters during those two weeks. Poster guidelines will be provided at a later date. You will learn to assess complex data and describe it in both writing on the poster and in person in your interview. These are aspects of your future career that will be very useful talents. The poster assignment is a critical part of this course.

The final exam will be cumulative except specific units that will be omitted - the exact syllabus will be provided via the web site page.

## Anticipated Lecture Topics (subject to change and available time)

Topic	Description
A	Introduction to Bioinorganic Chemistry – this is a major review of the whole course and will provide an invaluable review resource before the final exam. <u>Note this is a lengthy unit and you will need to prepare by reading the text before each lecture.</u> You will find that the lecture style to be different in many aspects to other courses and you will want to become familiar with and adapt to this style.
B	Essential Inorganic Chemistry: orbitals, electronic configurations, HSAB theory, ligands, coordination complexes, equilibrium/stability constants
C	Essential Biochemistry: amino acids and their acid-base properties, protein structure, cells, common biological ligands  Projected end of lecture material for the midterm exam (subject to change –will be confirmed in the lectures before the midterm exam)
D	Catalysis: zinc, cobalt
E	Photosynthesis: magnesium
F	Toxicity of Selected Elements
G	Introduction to Metals in Medicine

## Lecture Information

Section	Time and Room	Instructor	Office	Email
001	TUESDAYS 9:30–10:30, THURSDAYS 9:30 -11:30	Dr. Martin Stillman	ChB 9	Martin.stillman@uwo.ca

If you wish to meet with me, please send an email for an appointment using only your Western email address (@uwo.ca) and include *Chem 2211a* in the subject line (ESSENTIAL!) or arrange to meet with me after one of the classes.

## Important Dates

Event	Time and Room	Building
<b>1st class</b>	<b>Thursday, 7th Sept. 9:30-11:30</b>	<b>ChB 9</b>
Lectures cancelled	TUESDAY AND THURSDAY 31 <sup>st</sup> October and 2 <sup>nd</sup> November (reading week)	
Last lecture	Thursday, 7 <sup>th</sup> December	
Last day to tell prof Stillman about Mid-Term exam conflicts or issues	Sept. 30 <sup>th</sup>	BUT NOTE THE MID-TERM IS IN CLASS TIME SO THERE CANNOT BE A CONFLICT WITH OTHER CLASSES
Mid term Exam	<b>THURSDAY 26<sup>th</sup> OCTOBER 2023 9:30-11:20 CLASS TIME</b> Note- there is no make-up because this is class time.	<b>ROOM TBA</b> <b>MAKE SURE YOU KNOW WHERE THIS ROOM IS!!</b>
Poster Topics posted for selection (teams of 2 work on each topic)	<b>Tuesday 10<sup>TH</sup> October</b> this is for you to consider and then make your selections via the Doodle Poll on Friday	ON A DOODLE PAGE – url to be sent to you via OWL on <b>FRIDAY Oct 13<sup>th</sup> at 12 noon.</b>
Poster topic and teams finalized	<b>TUESDAY 17<sup>th</sup> October</b> – 9:30 (that is during the lecture)	It is a requirement for this course that you select a poster topic and therefore a team member between 13 <sup>th</sup> and 17 <sup>th</sup> October Teams must plan and work together cooperatively by sharing schedule information and communication information. This is a team project.
Posters must be up	<b>Before 5 pm 17<sup>th</sup> November</b>	Lower Ground corridor in ChB (ChB 064 to 051) Poster board assignment posted outside ChB 064.
Poster assessment	(Assessment time and day must be selected by 14 <sup>TH</sup> Nov. at noon. Failure to select an assessment time and day from the Doodle scheduler provided online will result in a time and day being assigned.)  <b>20<sup>th</sup> Nov – 1<sup>st</sup> Dec</b> Note: assessment (30 mins) is outside class time between 8:30 am and 7:00 pm – Monday to Friday	..in person in the corridor – outside class time assessment time to be selected from DOODLE timetable

# Evaluation Components

The overall course grade, out of 100, will be calculated as listed below. Listed next to the respective components are their maximum contributions toward the course grade.

Component	Notes	Normal Value	Missed Midterm
Midterm Test		35	--
Poster	Weighted average of individual and group marks Following in-corridor oral assessment	30	30
Final Exam	Cumulative, scheduled by the Registrar, 3 hours	35	70

**In order to obtain credit for the course, all of the following requirements must be met:**

1. Obtain a minimum of 50% on the Poster component (15 out of 30).
2. Obtain a minimum *weighted average* of 50% on the Midterm Test and the Final Exam. That is, the Midterm Test mark out of 35, plus the Final Exam mark out of 35, must be greater than or equal to 35 out of 70. In the case of a missed Midterm Test, a minimum of 50% (35 out of 70) on the Final Exam must be obtained.
3. Obtain a minimum of 50 out of 100 on the overall course grade. Students who meet this requirement, but fail to meet one or more of the above requirements, will receive a course grade no greater than 40 out of 100.

None of the components will be “dropped” and it is not possible to have the components reweighted unless they were legitimately missed.

Only nonprogrammable calculators may be used on tests and exams. Aside from the calculator, **no other electronics (phones, iPods, etc.) may be in your possession during tests and exams, even for timekeeping purposes.**

**There is no Periodic Table provided for either mid-term or final exam.**

**You will be required to memorize the key metals and non-metals that impact bioinorganic chemistry. Prof Stillman will be very clear on what to memorize.**

**Scholastic offences** are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website:  
<http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>. Computer-marked, multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

All required papers and poster content may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

## Missed Course Components

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at [scibmsac@uwo.ca](mailto:scibmsac@uwo.ca). In accordance with University policies on privacy, medical documentation can only be collected by the Academic Counselling unit of the student's Home Faculty.

For further information, please consult the university's medical illness policy at [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

## Missed Midterm Test or Final Exam

**There is no make-up midterm test.** If YOUR FACULTY Dean's Office has approved your circumstances, the value of the midterm test will be shifted to the Final Exam as described in the table shown on the previous page.

If you miss the Final Exam, contact your Dean's Office as soon as possible. They will assess your eligibility to write the Special Exam Note that approval of accommodation for any course component worth 10% or more can only be made by the student's Dean's Office/Academic Counselling unit. Define the procedures for accommodation for work worth less than 10%; i.e., will the instructor grant accommodation, or is the student referred to the student's Dean's Office/Academic Counselling unit?

The Faculty of Science policies on Exam Conflicts are posted here:

[https://www.uwo.ca/sci/counselling/procedures/exam\\_conflicts.html](https://www.uwo.ca/sci/counselling/procedures/exam_conflicts.html)

(Departments are obliged to provide a make-up midterm or advanced seating in the event of a schedule conflict)

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam). (SPC).

### Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

## Mandatory Notice from the Registrar

Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites. The prerequisite for this class is Chemistry 1301a and 1302b. Grade 12 or first-year university biology is also highly recommended. Antirequisites are Chemistry 2271a. The website of the Office of the Registrar is <http://www.registrar.uwo.ca>.

## Accommodation and Accessibility

### Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

### Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the

assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see: [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Consideration\\_for\\_absences.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf) and for the Student Medical Certificate (SMC), see: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see [http://www.registrar.uwo.ca/examinations/exam\\_schedule.html](http://www.registrar.uwo.ca/examinations/exam_schedule.html)).

## Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link: <https://www.proctortrack.com/tech-requirements/>

Tests and examinations in this course MAY BE conducted using Zoom. You will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam session will **not** be recorded.\*

More information about the use of Zoom for exam invigilation is available in the Online Proctoring Guidelines at the following link: <https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom. Information about the system requirements are available at the following link: <https://support.zoom.us/hc/en-us>

\* Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the test or examination.

## Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

[New] Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western ([http://www.health.uwo.ca/mental\\_health](http://www.health.uwo.ca/mental_health)) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.

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