 COURSE OUTLINE

1. **Course:** GLGY 323, Geochemical Processes - Winter 2024

   Lecture 01: MWF 14:00 - 14:50 in MS 325

   Instructor: Dr Rajeev Sasidharan Nair
   Email: rnair@ucalgary.ca
   Phone: 403 220-4823
   Office: ES 152
   Hours: By appointment

   Labs for this course will be conducted in ES254.

   To account for any necessary transition to remote learning for the current semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

   **In Person Delivery Details:**

   Lectures and labs will be in-person sessions.

   **Course Site:**

   D2L: GLGY 323 L01-(Winter 2024)-Geochemical Processes

   **Note:** Students must use their U of C account for all course correspondence.

   **Lab sections**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>B01</td>
<td>Tu 8-10.50 am</td>
<td>ES254</td>
</tr>
<tr>
<td>B02</td>
<td>Tu 11-1.50 pm</td>
<td>ES254</td>
</tr>
<tr>
<td>B03</td>
<td>Tu 2-4.50 pm</td>
<td>ES254</td>
</tr>
</tbody>
</table>

   **Equity Diversity & Inclusion:**

   The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

2. **Requisites:**

   See section 3.5.C in the Faculty of Science section of the online Calendar.

   **Prerequisite(s):**
   Geology 313, Chemistry 201 or 211; Chemistry 203 or 213.

3. **Grading:**

   The University policy on grading and related matters is described in F.1 and F.2 of the online University Calendar.

   In determining the overall grade in the course the following weights will be used:

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Weight</th>
<th>Due Date (duration for exams)</th>
<th>Modality for exams</th>
<th>Location for exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Assignments¹</td>
<td>20%</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture Midterm 1</td>
<td>15%</td>
<td>Feb 15 2024 at 06:00 pm (2 Hours)</td>
<td>in-person</td>
<td>TBD</td>
</tr>
<tr>
<td>Lecture Mid-term Exam 2</td>
<td>25%</td>
<td>Mar 14 2024 at 06:00 pm (2 Hours)</td>
<td>in-person</td>
<td>TBD</td>
</tr>
<tr>
<td>Registrar Scheduled Final Exam</td>
<td>40%</td>
<td>Will be available when the final exam schedule is released by the Registrar</td>
<td>in person</td>
<td>Will be available when the final exam schedule is released by the Registrar</td>
</tr>
</tbody>
</table>

¹ There will be 11 labs with the first 10 due at the beginning of the following lab session. Please see D2L for more info about Lab 11.
Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

<table>
<thead>
<tr>
<th>Minimum % Required</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>93</td>
<td>86</td>
<td>82</td>
<td>77</td>
<td>74</td>
<td>71</td>
<td>67</td>
<td>62</td>
<td>58</td>
<td>54</td>
<td>50</td>
</tr>
</tbody>
</table>

This course will have a Registrar Scheduled Final exam that will be delivered in-person and on campus. The Final Examination Schedule will be published by the Registrar’s Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2 hours.

**Students must achieve >50% for lab and lecture exam components separately to pass the course.**

The University of Calgary offers a flexible grade option, Credit Granted (CG) to support student’s breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: [https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade](https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade)

4. **Missed Components Of Term Work:**

In the event that a student legitimately fails to submit any online or in-person assessment on time (e.g. due to illness, domestic affliction, etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date, or possible exemption and reweighing of components. Absences not reported within 48 hours will not be accommodated. Students may be asked to provide supporting documentation (Section M.1) for an excused absence, See FAQ.

If an excused absence is approved, options for how the missed assessment is dealt with is at the discretion of the coordinator or course instructor. Some options such as an exemption and pro-rating among the components of the course may not be a viable option based on the design of this course.

Zero marks will be awarded for missed/incomplete lab assignments.

Students are expected to consult with peers and take notes if a lecture is missed. Instructor will not post completed/annotated class notes on D2L.

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in Section 3.6. It is the student’s responsibility to familiarize himself/herself with these regulations. See also Section E.6 of the University Calendar.

5. **Scheduled Out-of-Class Activities:**

The following out of class activities are scheduled for this course.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Location</th>
<th>Date and Time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam 1</td>
<td>On campus, Exam Room TBA</td>
<td>Thursday, February 15, 2024 at 6:00 pm</td>
<td>2 Hours</td>
</tr>
<tr>
<td>Midterm Exam 2</td>
<td>On Campus, Exam Room TBA</td>
<td>Thursday, March 14, 2024 at 6:00 pm</td>
<td>2 Hours</td>
</tr>
</tbody>
</table>

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than 14 days prior to the date of the out-of-class activity so that alternative arrangements may be made.

6. **Course Materials:**

Required Textbook(s):


Instructor will regularly use supplementary materials from outside of this textbook for discussions during lecture time. Students are responsible for taking necessary notes in class. Instructor will not provide completed notes. Taking good notes in class is fundamental to doing well in this course.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
Webcam/Camera (built-in or external);
Microphone and speaker (built-in or external), or headset with microphone;
Current antivirus and/or firewall software enabled;
Stable internet connection.

For more information please refer to the UofC ELearning online website.

7. Examination Policy:

Exams will be a mix of multiple choice and descriptive questions including numerical calculations. Exams will be weighted more towards descriptive questions including numerical calculations. There is no Lab examination for this course. However, all the materials discussed in the labs are fair game for the lecture exams.

All exams are closed book. Non-programmable/non-communicating calculators will be required during the exams.

Students should also read the Calendar, Section G, on Examinations.

8. Approved Mandatory And Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section E.2 of the University Calendar.

The quality of the student's writing in the lecture exams and laboratory reports will be a factor in determining the grade. The descriptive exams in this course requires students to write answers in complete, coherent sentences. See also Section E.2 of the University Calendar.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also Section E.5 of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See Section I.3 of the University Calendar.

a. Term Work: The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within ten business days of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections I.1 and I.2 of the University Calendar.

b. Final Exam: The student shall submit the request to Enrolment Services. See Section I.3 of the University Calendar.

12. Other Important Information For Students:

a. Mental Health The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, Mental Health Services Website) and the Campus Mental Health Strategy website (Mental Health).

b. SU Wellness Services: For more information, see their website or call 403-210-9355.

c. Sexual Violence: The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (svsa@ucalgary.ca) or phone at 403-220-2208. The complete University of Calgary policy on sexual violence can be viewed here.

d. Student Ombuds Office: A safe place for all students of the University of Calgary to discuss student related issues, interpersonal conflict, academic and non-academic concerns, and many other problems.
Course Outcomes:

- Read and comprehend scholarly articles using geochemical tools for understanding Earth's history
- Examine models for explaining the abundance and distribution of elements and isotopes in nature
- Work with, arrange and interpret quantitative major, minor, trace element and isotopic geochemical data
- Formation of minerals and rocks and construct phase diagrams to illustrate stability conditions
- Use principles of equilibrium thermodynamics to evaluate the stability of mineral phases and to determine the conditions of data
- Develop an understanding of and limitations of analytical methods used to obtain qualitative and quantitative geochemical data
- Apply principles of chemistry to address and solve a range of problems in geosciences including characterizing natural materials and interpreting geological processes based on observed chemical variations
- Use principles of equilibrium thermodynamics to evaluate the stability of mineral phases and to determine the conditions of formation of minerals and rocks and construct phase diagrams to illustrate stability conditions
- Work with, arrange and interpret quantitative major, minor, trace element and isotopic geochemical data
- Examine models for explaining the abundance and distribution of elements and isotopes in nature
- Read and comprehend scholarly articles using geochemical tools for understanding Earth's history

Approvals Pending