



COURSE OUTLINE

1. **Course:** NANS 301, Introduction to Nanoscience and Nanotechnology - Fall 2023

Lecture 01 : TR 18:00 - 19:15 in SB 146

Instructor	Email	Phone	Office	Hours
Dr. Stephen Lane	stephen.lane@ucalgary.ca	403 220-2250	EEEL 544	By appointment
Dr Elmar Prenner	eprenner@ucalgary.ca	220-7632	BI 145	TBA

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:

The lectures will be delivered in three blocks.

For clarity, *synchronous* lectures are *live*; *asynchronous* are viewed *on-demand*.

Except for asynchronous content, synchronous content will *not* be recorded. Lecture notes will be made available on D2L.

The following components will be delivered in-person:

Prof. Stephen Lane (Sep 5 to Oct 5)

This block will be delivered in-person. Students are expected to attend the scheduled lecture times, however some content may be made available in online recordings ahead of lecture time.

Prof. Elmar J. Prenner (Nov 21 to Dec 5)

This block will be delivered in-person. Students are expected to attend the scheduled lecture times, however some content may be made available in online recordings ahead of lecture time.

Online Delivery Details:

This course does not follow a scheduled meeting pattern.

Prof. Stephen Lane (Oct 12 to Nov 9)

This block will be delivered in a blended fashion (students are expected to attend at scheduled lecture times).

1. Pre-recorded lectures will be posted on D2L each week. These are around 30-60 minutes. Students will need to watch these to prepare for lectures.
2. Corresponding in-class components will offer students the opportunity to work with their group on exam-style questions, as well as supplemental discussion and demonstrations.

Course Site:

D2L: NANS 301 L01-(Fall 2023)-Introduction to Nanoscience and Nanotechnology

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

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):

3 units from Engineering 204, Chemistry 201, 209 or 211; and Chemistry 203 or 213; and 3 units from Mathematics 249, 265, 275.

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:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
Quizzes ¹	18%	Ongoing		
Assignments ²	12%	Ongoing		
Midterm ³	25%	Oct 10 2023 at 06:00 pm (60 Minutes)	in-person	In class
Term paper ⁴	20%	Dec 08 2023		
Registrar Scheduled Final Exam	25%	Will be available when the final exam schedule is released by the Registrar	in person	Will be available when the final exam schedule is released by the Registrar

¹ Quizzes are done in-class at the beginning of class. Quizzes will tentatively occur on the following dates: September 12, 26; Oct 3, 24, 31; Nov 7, 28; Dec 5. All quizzes carry the same weight. While dates may vary by one class period, students will be given notice the lecture period before should the quiz be postponed (quizzes will not be moved up in the schedule). Quizzes take precedence over out-of-class activities from other classes. There will be no deferral option available.

² There will be 3 assignments. A1: Sep 14, due Sep 21. (group - all participating students in a group will be assigned the same grade) A2: Oct 31, due Nov 9. (individual) A3: Nov 23, due Nov 28. (individual)

³ The term test will be a scheduled, in-person exam, during regular class time. It takes precedence over out-of-class activities from other classes. There will be no deferral option available.

⁴ The term paper is a group task. All students will be assigned the same grade, unless egregious circumstances warrant so. These circumstances must be discussed with the instructor prior to submission.

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.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	86 %	82 %	78%	74%	70 %	66 %	62%	58%	54 %	50 %

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.

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>

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.

There is no deferred midterm examination in this class. In the event that a student misses the midterm and an

excused absence is approved, the weight of the midterm examination will be shifted to the final examination.

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

There are no scheduled out of class activities for this course.

6. **Course Materials:**

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:**

Examinations will be closed book. Non-programmable calculators during examinations will be allowed. Calculator Feature: the capability to perform calculations electronically on user-entered numerical data without the capability to employ pre-stored or user-entered formulae. This feature is provided by the most elementary calculator, permits the elementary arithmetic operations (addition, subtraction, multiplication and division) and possibly the trigonometric, hyperbolic, exponential and logarithmic operations.

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.

In this course, the quality of the student's writing in all submitted work will be a factor in the evaluation of this work. 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 (syva@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.
- e. **Student Union Information:** [SU contact](#), Email your SU Science Reps: science1@su.ucalgary.ca, science2@su.ucalgary.ca, science3@su.ucalgary.ca,

f. Academic Accommodation Policy:

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to Associate Head, Undergraduate by email ahugchem@ucalgary.ca preferably 10 business days before the due date of an assessment or scheduled absence.

- g. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)
[Student Academic Misconduct Policy](#) and [Procedure](#)
[Faculty of Science Academic Misconduct Process](#)
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- h. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.
- i. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by

placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.

- j. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

Course Outcomes:

- explain key concepts of nanoscience and nanotechnology
- explain why properties of nanomaterials are size dependent
- predict the behavior of nanomaterials
- describe approaches to design and fabrication of functional nanomaterials
- describe the scientific method and justify its use in science
- outline the structure of a research paper and a peer review
- interpret and communicate published research to a general scientific audience
- participate actively in a group by contributing to group discussions and writing a scientific text

Electronically Approved - Aug 30 2023 11:21

Department Approval