



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF CHEMISTRY  
COURSE OUTLINE  
WINTER 2016

1. **Course:** Nanoscience 511, Integration of Nanotechnology and Biology for Medical Applications

Lecture Sections:

L01: MoWe, 6:00-7:15 pm, SA107

Instructors	Office	Tel. No.	E-mail address	Office hours
Dr. Max Anikovskiy	EEEL 237A	(403) 220-3115	<a href="mailto:m.anikovskiy@ucalgary.ca">m.anikovskiy@ucalgary.ca</a>	By appointment

Desire 2 Learn (D2L) Nanoscience 511

Nanoscience Program Office: SA 229J, 403-220-6049, [undrchem@ucalgary.ca](mailto:undrchem@ucalgary.ca)

2. **Prerequisites:** Nanoscience 401

<http://www.ucalgary.ca/pubs/calendar/current/nanoscience.html>

3. **Grading:** The University policy on grading and related matters is described sections [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Midterm Examination (75 min; March 9, 2016; in class):	35%
Presentations:	20%
Participation:	5%
Group project (presentation):	15%
Group project (final paper):	25%

Each piece of work submitted or presented by the student will be assigned a percentage score. The student's average percentage score for the various components 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.

A+	A	A-	B+	B	B-
>90% in <u>all</u> components	86-100%	82-85%	78-81%	74-77%	70-73%

C+	C	C-	D+	D	F
66-69%	62-65%	58-61%	54-57%	50% - 53%	< 50%

4. **Missed Components of Term Work:** 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:** No class exercises will be held outside of scheduled class hours

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** Some course materials can be downloaded from D2L Nanoscience 511  
No textbook is required for this course.

7. **Examination Policy:** Midterm examinations will be closed book. There is no final examination in this course. Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory and Optional Course Supplemental Fees:** There are no supplementary fees associated with this course.
9. **Writing across the curriculum statement:** In this course, the quality of the student's writing in the exams, quizzes, and the final paper will be a factor in the evaluation of these pieces of work. See also [Section E.2](#) of the University Calendar.
10. **Human studies statement:** No human studies are conducted in this course.

**11. OTHER IMPORTANT INFORMATION FOR STUDENTS:**

- (a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties.
- (b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- (c) **Academic Accommodation Policy:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at [http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities\\_0.pdf](http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.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, preferably in writing, to the Associate Head of Chemistry, Dr. Ashley Causton, by email [ahugchem@ucalgary.ca](mailto:ahugchem@ucalgary.ca) or phone (403) 220-5353.
- (d) **Safewalk:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, 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 also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **Student Union Information:** VP Academic Phone: 403 220-3911 Email: [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca)  
SU Faculty Rep. Phone: 403 220-3913 Email: [science1@su.ucalgary.ca](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca) and [science3@su.ucalgary.ca](mailto:science3@su.ucalgary.ca);  
Student Ombuds Office: 403 220-6420 Email [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca) <http://ucalgary.ca/provost/students/ombuds>
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses ([www.ucalgary.ca/usri](http://www.ucalgary.ca/usri)). Your responses make a difference - please participate in USRI Surveys.

Department Approval: Approved by Department Head

Date: December 3, 2015

Associate Dean's Approval for

Alternate final examination arrangements: Approved by Associate Dean

Date: December 22, 2015

Course syllabus

Week	Date	
1	11-Jan-16	Introduction to nanobiosensors
	13-Jan-16	Approaches to target detection
2	18-Jan-16	Antibodies
	20-Jan-16	Aptamers
3	25-Jan-16	Surface chemistry, chemical modification
	27-Jan-16	Protein labeling chemistry
4	01-Feb-16	DNA labeling chemistry
	03-Feb-16	Linkers for bioconjugation
5	08-Feb-16	Microfluidics
	10-Feb-16	Absorption and fluorescence
6	15-Feb-16	Reading week
	17-Feb-16	Reading week
7	22-Feb-16	Forster resonance energy transfer (FRET)
	24-Feb-16	Correlation spectroscopy techniques
8	29-Feb-16	Correlation spectroscopy techniques
	02-Mar-16	Nanoscience in medical imaging and diagnostics
9	07-Mar-16	Nanoscience in medical imaging and diagnostics
	09-Mar-16	Midterm exam
10	14-Mar-16	Presentations
	16-Mar-16	Presentations
11	21-Mar-16	Presentations
	23-Mar-15	Presentations
12	28-Mar-16	Presentations
	30-Apr-16	Presentations
13	04-Apr-16	Presentations
	06-Apr-16	Presentations
14	11-Apr-16	Project presentations
	13-Apr-16	Project presentations