

SCIGNRL105
Science and Society

Fall 2019



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Classroom no: 2

Class times: Tuesdays 11:00-13:00, Fridays 8:45-10:45.

Instructor: Dr. Inez Flameling & Dr. Leon van den Broeke

Email: i.flameling@ucr.nl, l.vandenbroeke@ucr.nl

Tel: Inez Flameling 06-23242083, Leon van den Broeke 06-37597645

Office no. & location: Inez Flameling E1.09, Leon van den Broeke F2.06

Office hours: Inez Flameling Tuesdays + Fridays outside classroom hours, Leon van den Broeke Weekdays on appointment.

I. Track information:

- a) Prerequisites for this course: none
- b) This course is not part of a specific track but valuable for any track taken at UCR.
- c) This course is specifically designed for non-science majors. Science majors are discouraged to take it (see also II)

II. Course description

Science and Society (SCIGNRL105) is intended primarily for students that do not have a background in the (natural) sciences, hence is especially suitable for non-science majors. The students will start to grasp and use scientific methods and develop their scientific thinking and reasoning skills. The aim is to "do science" at a level that is appropriate and to cover many scientific fields with guest lecturers from various disciplines, providing a broad perspective.

The focus of the Science and Society course is to provide students an improved understanding of the vital role of Science in Society. The course will broadly travel through the various scientific disciplines. Special attention will be given to issues that bear great global and societal relevance. Such issues may include climate change, vaccination, natural disasters, the digital revolution and privacy issues, "power" of the pharmaceutical industry, genetic manipulation and more. The class will also be welcome to suggest other hot issues they would like included in class discussion.

III. Study Load

This course earns students four credits (equivalent to 7.5 ECTS). The class meets twice a week for two hours. Preparation time is approximately 10 hours per week.

IV. Course materials

- a) *Required books and literature:*
There is no requirement to purchase a book for this course.
- b) *Other materials:*

Students will be required to access assigned online resources and various news articles. These will be assigned or students will be asked to find relevant sources independently or in groups.

V. Course organization and requirements

a) *General format of class meetings*

- Each day will be devoted to a particular topic or theme. There is a tentative schedule in section VII. However, due to limitations of guest lecturers and other variables, this may be subject to change. Refer to Moodle for the most up-to-date schedule.
- Meetings will begin with students sharing a news item relevant to the theme or topic of the day. The presenting student will lead/moderate a short discussion. A schedule for the news items will be posted on Moodle.
- The theoretical background of the day's topic will be presented. Typically in a traditional lecture format.
- For most class periods, the second half will be dedicated to classroom discussions and/or various in-class activities.

b) *What is expected of students*

- Assigned readings
- Literature/news article searches
- Participate in class discussions and other activities
- Assigned projects and quizzes to be completed out of class
- Class excursions.
- For several sessions it will be required that students bring a laptop to class. Several small in-class assignment will be put on the moodle. **NOTE: Use of laptops in class is only allowed when required by the teacher.**

c) *Rule for missing classes:*

- If as student misses a class, the tutor must be informed
- Missing more than two classes will lead to grade deduction
- Tardiness will affect the grade
- Students missing more than six classes will receive a fail.
- Students missing classes will miss points for in-class assignments.
- Excursions are mandatory and missing them will lead to grade deduction. A replacement assignment can only be made if the student has had to miss the excursion because of medical or personal extenuating circumstances approved by the tutor or senior tutor in writing.

d) *Procedures for communication:*

- All course communication will be done through Moodle or personal emails.
- Students are encouraged to make an appointment with one of the instructors if they feel they could benefit from personal help and tutoring.

This course is subject to UCR academic rules and procedures. Both students and instructors are required to know and follow these rules and procedures.

VI. Assessment

The grading of the course will be based on:

- 3 short (1h) exams, total worth 50%
- Two small projects, each worth 10% (10% x 2 = 20%)

- One final poster, 20%
- Participation and in-class assignments, 10%

VII. Course schedule

(Due to limitations of guest lecturers and other variables, this may be subject to change. Refer to Moodle for the most up-to-date schedule.)

Week	Date	Time	Theme	Instructor
Module 1: Basic science				
Week 1	Aug 27	Tuesday 11:00-13:00	Course introduction Periodic Table of Elements Science Principles	LvdB + IF
	Aug 30	Friday 8:45-10:45	Periodic Table of Elements Correct Scientific Language	LvdB
Week 2	Sep 03	Tuesday 11:00-13:00	Atomic Build-up Electricity	LvdB
	Sep 06	Friday 8:45-10:45	Electromagnetism Radioactivity	LvdB
Module 2: Water				
Week 3	Sep 10	Tuesday 11:00-13:00	Radioactivity Stratification	LvdB
	Sep 13	Friday 8:45-10:45	Salinity pH	LvdB
Week 4	Sep 17	Tuesday 11:00-13:00	Nutrient cycling Contamination	LvdB
	Sep 20	Friday 8:45-10:45	Toxicology - Purification Correct Scientific Language	LvdB
Week 5	Sep 24	Tuesday 11:00-13:00	Exam block 1 + 2	LvdB
Module 3: Plastics				
	Sep 27	Friday 8:45-10:45		LvdB
Week 6	Oct 01	Tuesday 11:00-13:00	Basics of Polymers Bioplastics	LvdB
	Oct 04	Friday 8:45-10:45	Bioplastics Life Cycle Analysis	LvdB
Week 7	Oct 08	Tuesday 11:00-13:00	Excursion to RWZI	LvdB
	Oct 11	Friday 8:45-10:45	Guest Speaker: G. Andringa "psychoactive drugs" Correct Scientific Language	LvdB
	Oct 14-18	Fall Break	Fall Break	
Module 4: health				
Week 8	Oct 22	Tuesday 11:00-13:00	Covra excursion (9:00-13:00)	IF
	Oct 25	Friday 8:45-10:45	Food, alcohol & drugs Vaccinations epidemiology	IF
Week 9	Oct 29	Tuesday 11:00-13:00	genetics Science Communication	IF

			Working with ACCRHET101	
	Nov 01	Friday 8:45-10:45	<i>Moderation day – no class</i>	<i>IF</i>
Week 10	Nov 05	Tuesday 11:00-13:00	Stem cells Cloning ageing	<i>IF</i>
	Nov 08	Friday 8:45-10:45	Working with ACCRHET101	<i>IF</i>
Module 5: space & atmosphere				
Week 11	Nov 12	Tuesday 11:00-13:00	Exam block 3 + 4	<i>IF</i>
	Nov 15	Friday 8:45-10:45	Climate change	<i>IF</i>
Week 12	Nov 19	Tuesday 11:00-13:00	Energy transition	<i>IF</i>
Module 6: nature & biodiversity				
	Nov 22	Friday 8:45-10:45	Biological evolution <i>Due date for pseudoscience project</i>	<i>IF</i>
Week 13	Nov 26	Tuesday 11:00-13:00	Biodiversity	<i>IF</i>
	Nov 29	Friday 8:45-10:45	Agriculture	<i>IF</i>
Week 14	Dec 03	Tuesday 11:00-13:00	overpopulation	<i>IF</i>
	Dec 06	Friday 8:45-10:45	Exam block 5 + 6	<i>IF</i>
Week 15	Dec 10	Tuesday 11:00-13:00	Revision session; consultations for posters (subscribe via moodle)	<i>LvdB + IF</i>
	Dec 13	Friday 13:00-13:45	<i>Poster presentations during the lunchbreak. Regular class canceled.</i>	<i>LvdB + IF Guests Welcome</i>

VIII. SCIGNRL105 Science and Society Student Learning Outcomes:

By the end of this course, students will have

- Developed the ability to recognize and identify the role of science in some of today's most pressing global societal issues.
- Gained an initial experience in executing the scientific method
- Gained an initial understanding of some of the contemporary techniques and processes in science
- Gaining an initial understanding of both the power and limitations of science
- Developed numerical literacy by becoming more familiar with numbers, graphs, the scale of things (from particles to planetary systems) and simple formulas.
- Gained awareness of and worked on academic (scientific) integrity by considering ethics, transparency, objectivity etc.

- g) Can critically examine research techniques and results that are used to gain our understanding of the world. Recognizing limitations of published studies and comparing reproducibility in other studies.