Chemistry, Society and Ethics (C000127)

Valid as from the academic year 2017-2018

Course Specifications

Lecturers in academic year 2017-2018

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Offered in the following programmes in 2017-2018 crdts offering
Bachelor of Science in Chemistry 5 A

Teaching languages

Dutch

Keywords

Chemistry, society, ethics, regulations

Position of the course

Making students conscious of the relation chemistry and society, and conversant with the ethical problems related with chemistry in all its aspects. The knowledge and social/communicative skills of the students are developed.

Contents

Part 1. Chemistry and Society. Lectures on current problems such as:
1) Dioxines and PCBs
2) Polyaromatic hydrocarbons (PAHs), chemical products, procreation and progeny
3) Street drugs (narcotics, stimulating and psychedelic substances)
4) Lipids, detergents, biodegradable substances, household chemicals, fat-substitutes in food
5) Nutrition, essential food, vitamins and allergens
6) Introduction to natural toxins
7) Food safety, International and European norms and regulations
8) Introduction to feromones
9) Protecting the ozon layer and chlorofluorocarbons
10) The chemistry of global climate change
11) Economic and environmental relevance of polymers and recycling
12) Bio-based vs. biodegradable polymers
13) Chemistry at UGent: aromaticity and Kékule, historical perspective

Part 2. Chemistry, Society and Ethics. Active participation students (subjects selected by the students, worked-out in tutorials, presented and discussed before and with fellow-students).

Part 3. Chemistry, Society and Ethics. Practical exercises: Identification of polymers by means of physical testing and of a determination table; Characterization of vegetal and animal oils and fats; analysis of acrylamide in foodstuff; chemical fingerprint of aging paper.

Part 4. Chemistry, Society and Ethics. Tutorials (on current and concrete problems such as ...); Ethics related to the environment (e.g. biocides in agriculture); Ethics related to consumer goods (e.g. genetic manipulated organisms); Bio-ethics (e.g. patenting micro-organisms); Pharma-ethics (e.g. HIV drugs in Africa); Ethics of publishing/reporting; phthalates in toys; European directives concerning endocrine...

(Approved)
disrupting chemicals, Chemistry and ethics of the REACH program; genetic manipulations; Ethics and biochemistry.

Initial competences
Students starting studies in chemistry have limited and superficial knowledge on the relation chemistry, society and ethics.

Final competences
1. Students are able to critically evaluate problems related with chemistry, society and ethics, can properly formulate a personal opinion and communicate with colleagues and neophytes in chemistry.
2. The student understands the chemical background of contemporary problems in relation to chemistry and society.
3. They can also collect relevant literature data to support their opinion.
4. The student is able to report verbally and in written format about a scientific topic to an expert and to a non-expert audience.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment.

Conditions for exam contract
This course unit cannot be taken via an exam contract.

Teaching methods
Group work, lecture, practicum

Extra information on the teaching methods
Theory is taught through plenary lectures. Practical exercises include at first lab sessions during which students perform experimental work. Second, coached exercises are organized during seminars. Both type of exercises take place in smaller subgroups. Finally students have to work in small groups (4 students) on a case study, and report on it both in a written and oral way. The latter takes place in a plenary session through a didactic presentation followed by a discussion with the whole class.

Learning materials and price
A syllabus, PowerPoint presentations and notes for the practical exercises will be available (€ 10). The group works are made available during week 11 (€ 5). Additional information and supporting material will be provided via Minerva.

References
Course content-related study coaching
It is possible to ask the professor and/or academic staff questions after the lessons or by e-mail. An appointment can be made via e-mail.

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination, open book examination

Examination methods in case of periodic evaluation during the second examination period
Written examination, open book examination

Examination methods in case of permanent evaluation
Assignment, report

Possibilities of retake in case of permanent evaluation
examination during the second examination period is not possible

Extra information on the examination methods
• Periodic: written examination consisting of an open and a closed book section covering the group works and the theoretical sections, respectively.
• Permanent: evaluation of the practical exercises and reports
• Group works: both periodic (open book section during the examination) and permanent (report and presentations) evaluation.

Calculation of the examination mark
Periodic evaluation (75%). The closed and open book sections comprise 70% and 5% thereof, respectively.
Permanent evaluation (25%). Reports practical exercises (5%), attitude during practical exercises (5%), reports (10%) and presentation (5%) group works are covered therein.

(Approved)
Students who are absent without any well-justified reason or who do not participate in (part of) the permanent evaluation, do not pass the exam for this course unit. The marks resulting from the permanent evaluation are retained in the second examination period, as the second examination period only consists of a periodic evaluation.