

Course Specifications

From the academic year 2017-2018 up to and including the

Course size (nominal values; actual values may depend on programme)

Credits 5.0 Study time 140 h Contact hrs 42.5 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	Dutch	lecture	37.5 h
		seminar	5.0 h

Lecturers in academic year 2018-2019

Strubbe, Katrien	WE06	lecturer-in-charge
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Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Geography and Geomatics (main subject Geography)	5	A
Bachelor of Science in Geography and Geomatics (main subject Surveying)	5	A
Bachelor of Science in Geography and Geomatics	5	A
Joint Section Bachelor of Science in Geography and Geomatics	5	A

Teaching languages

Dutch

Keywords

Structure of matter, chemical bonding, physical state of matter, chemical reactions, chemie en milieu

Position of the course

- To acquire a general overview of and the necessary insight in the basic concepts of the structure and the reactivity of matter (see Contents) which is needed as basic knowledge and as a prerequisite for more specialized courses .
- To gain knowledge about products, materials and chemical processes which are of major importance for the future geography scientist.
- As the stress is made on the logical links between the concepts of chemistry, the course is well suited to attribute to the development of scientific skills such as analytical reasoning, ability to critical reflection and problem solving capability.

Contents

- Chemical terminology: element, compound, atom, ion, molecule, chemical reaction.
- Structure of matter: atoms, ions, electronic configurations, chemical bonding (ionic, covalent and metallic), molecules (geometry, polarity), ionic compounds
- Behaviour of collections of molecules and ions: intermolecular interactions, physical states of matter (gas, liquid, solid), aqueous solutions, state diagram of pure matter
- The final state of chemical changes: chemical equilibrium
- Chemical reactions in aqueous solutions: acid-base reactions (pH), redox reaction, precipitation reactions.
- Chemistry and environment.

Initial competences

There is no prerequisite chemistry knowledge as the chemistry course starts from the elementary level. Basic skills in mathematics are supposed.

Final competences

- 1 to show insight in the fundamental concepts governing the structure and the reactivity of matter (see Contents).
- 2 to apply insights in structure and behaviour of matter to analyse and solve simple chemical problems.

- 3 to show insight in the specific characteristics of chemical processes versus physical ones.
- 4 to show insight in the chemical nature of some selected (natural) phenomena.
- 5 to show insight in the mutual relationship between science in general and chemistry specific and societal developments.
- 6 to put his education in geography in the broader context of natural sciences.

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

Lecture, seminar

Learning materials and price

Dutch written syllabus
Cost: 10 EUR

References

ELO/ICT (Minerva)

Course content-related study coaching

- Seminars to develop the chemical problem solving skills
- Individual learning assistance by the lecturer (after each lecture) or an assistant (on demand)
- Interactive assistance by ELO: frequently asked questions, fora, ...
- exercises on curios (ELO)

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Evaluation by an open-question exam: insight test for basic concepts by application oriented theory questions; test for acquisition of the basic concepts in chemical problem solving by problem questions.

Calculation of the examination mark

Every question is associated with a given percentage of the global quotation, all marks of the individual questions are summed.