

Disciplines

Summaries

General Chemistry

QG005 Chemistry and Job Market

OF:S-5 T:01 P:00 L:00 O:00 D:00 HS:01 SL:01 C:01 AV:C FM:75 EX:N

Aspects and possibilities of the career.

QG080 Internship

OF:S-5 T:00 P:08 L:00 HS:08 SL:00 C:08 AV:C FM:75 EX:N

Prerequisite: AA475

Internship in a chemical company.

QG091 Oil and Petrochemical

OF:S-6 T:02 P:00 L:00 HS:02 SL:02 C:02 AV:N FM:75 EX:S

Prerequisites: QI245 QO521

Introduction to activities related to the processing and refining of petroleum aiming to the production of fuels and inputs for the petrochemical industry. Polymerization and polymers based on petroleum, as well as on other sources of energy and inputs (natural gas, synthesis gas and methanol) are also covered, always under a chemical point of view

QG092 Organic Geochemistry

OF:S-6 T:02 P:00 L:00 HS:02 SL:02 C:02 AV:N FM:75 EX:S

Prerequisite: QO321

Along with geology, paleontology, biology and petroleum engineering, organic geochemistry aims to the characterization of oils and sediments, obtaining data related to their origin, generation rock, migration and conditions of the petroleum reservoirs by studying biological markers.

QG100 Chemistry

OF:S-5 T:002 P:000 L:002 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

Periodicity and proprieties; redox reactions and oxidation states; chemical bonding in insulators, conductors and semiconductors; concepts of electrochemistry; reduction potentials; energy storage.

QG101 Chemistry I

OF:S-5 T:004 P:000 L:000 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

Atomic structure, periodic classification and properties of the elements. Chemical bonding; structure and properties of substances. Notions of physical chemistry: thermodynamics, chemical equilibrium and electrochemical cells.

QG102 Experimental chemistry I

OF:S-5 T:001 P:000 L:003 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

Experiments illustrating the scientific method, concepts of mol and chemical bonding, redox reactions, chemical equilibrium, pH, solubility product, preparation and purification of substances.

QG104 Chemistry

OF:S-1 T:004 P:000 L:000 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

The atom: forms and energy of the orbitals and electron distribution. The Periodic Table and periodic properties. Chemical bonding and related properties. Properties of simple materials. Aqueous solutions: how to express concentration, pH and equilibrium constant. Notions of physical chemistry: energy, equilibrium and kinetics of geological processes. Functions of organic chemistry and examples related to the Earth System.

QG107 Chemistry I (Biology)

OF:S-1 T:002 P:000 L:004 O:000 D:000 HS:006 SL:006 C:006 AV:N EX:S FM:75%

Stoichiometry. Chemical bonding. Functions of organic chemistry. Experiments illustrating the scientific method, concepts of mol, chemical bonding, equilibrium, pH, acids and bases, titration, purification of substances.

QG108 General Theoretical Chemistry

OF:S-1 T:04 P:00 L:00 HS:04 SL:04 C:04 AV:N FM:75 EX:S

Atomic structure; periodicity of atomic properties, models of chemical bonding (ionic and covalent); molecular geometry; intermolecular interactions, general properties of solids, liquids and gases; notions of thermodynamics.

QG109 Experimental General Chemistry

OF:S-5 T:01 P:00 L:03 HS:04 SL:04 C:04 AV:N FM:75 EX:S

Experiments illustrating basic techniques and concepts in chemistry.

QG191 Chemistry

OF:S-1 T:004 P:002 L:000 O:000 D:000 HS:006 SL:006 C:006 AV:N EX:S FM:75%

Formulas and chemical equations. Periodic classification and properties of the elements. Notions of physical chemistry, thermochemistry, chemical equilibrium and electrochemical cells. Chemical bonding, structure and properties of the substances. Minerals. Natural and synthetic polymers.

QG362 Chemistry with Safety

OF:S-1 T:02 P:00 L:00 HS:02 SL:02 C:02 AV:N FM:75 EX:N

Safety in the chemical laboratory, identification and uses of safety equipment, handling of substances with safety, storage and discharge of chemical waste, training related to care in emergencies as chemical contamination and first aid techniques, legislation about work safety.

QG564 Experimental Organic and Inorganic Chemistry

OF:S-1 T:00 P:00 L:08 HS:08 SL:08 C:08 AV:N FM:75 EX:S

Prerequisites: QG109 QI145 QO521

Strategies of synthesis, purification and characterization of organic and inorganic compounds, illustrating equilibrium shifts by removal or precipitation of products or by-products; synthesis under an inert atmosphere; purification by distillation, crystallization, sublimation or column chromatography; characterization by infra red and nuclear magnetic resonance spectroscopies, melting point, mass spectrometry and gas phase chromatography.

QG565 Experimental Organic and Inorganic Chemistry

OF:S-1 T:00 P:02 L:08 O:02 HS:12 SL:08 C:12 AV:N FM:75 EX:S

Prerequisites: QG109 QI246 QO521 / QI145 QO521

Strategies of synthesis, purification and characterization of organic and inorganic compounds, illustrating equilibrium shifts by removal or precipitation of products or by-products; synthesis under an inert atmosphere; purification by distillation, crystallization, sublimation or column chromatography; characterization by infra red and nuclear magnetic resonance spectroscopies, melting point, mass spectrometry and gas phase chromatography.

QG566 Teaching Strategies in Organic and Inorganic Chemistry

Prerequisites: AA480 QG564

Studies of didactic strategies for the teaching of fundamentals of synthesis, purification and characterization of organic and inorganic substances. Articulation of theoretical and practice concepts, TI resources and other media in order to elaborate a teaching proposal to be presented in an oral or written way.

QG636 Experimental Planning

OF:S-2 T:04 P:00 L:00 HS:04 SL:04 C:04 AV:N FM:75 EX:S

Prerequisites: QG108 *ME414

Introduction to statistics. Factorial design. Model building. Modeling of mixtures. Simplex optimization.

QG650 Organic and Inorganic Synthesis Laboratory

OF:S-2 T:00 P:00 L:06 HS:06 SL:06 C:06 AV:N FM:75 EX:S

Prerequisites: QI145 QI245 QO521

Strategies of synthesis, purification and characterization of organic and inorganic compounds, illustrating equilibrium shifts by removal or precipitation of products or by-products; synthesis under an inert atmosphere; purification by distillation, crystallization, sublimation or column chromatography; characterization by infra red and nuclear magnetic resonance spectroscopies, melting point, mass spectrometry and gas phase chromatography.

QG680 Supervised Training I

OF:S-2 T:01 P:00 L:00 O:05 HS:06 SL:01 C:06 AV:N FM:75 EX:N

Prerequisites: AA460 EL874

Supervised formative activities to promote interaction among experiences, practices and knowledge related to the teaching of chemistry and the instructional material available in schools and non-formal educational spaces. The actions to be developed include the insertion in the dynamics of the school and in its processes of organization, management and interaction with the community.

QG760 Teaching Projects in Chemistry

OF:S-1 T:00 P:03 L:00 O:05 HS:08 SL:03 C:08 AV:N FM:75 EX:N

Prerequisite: AA470

Classroom discussions on theoretical and conceptual aspects aiming to the elaboration of experimental or theoretical projects related to the teaching of chemistry focusing in the basic or non-formal education. The projects will be developed along the semester, followed by the critical reading of several texts related to the teaching of Chemistry and Education, application of IT resources and other media, aiming to the elaboration of an oral presentation and reports to be shared with the class. The result of each project, duly reasoned by specific literature and registered in a monograph, that might include instructional material, will be also presented in oral form.

QG860 Research Projects in Chemistry

OF:S-2 T:00 P:03 L:00 O:05 HS:08 SL:03 C:08 AV:N FM:75 EX:N

Prerequisite: AA475

Development of scientific research projects under supervision of a member of the Institute of Chemistry staff.

QG880 Supervised Training II

OF:S-2 T:02 P:00 L:00 O:06 HS:08 SL:02 C:08 AV:N FM:75 EX:N

Prerequisites: EL874 QG680

Execution of supervised projects of practices related to the Teaching of Chemistry in schools or non-formal educational spaces, aiming to the articulation of abilities and competences developed in activities of chemical and didactic-pedagogic formation. The developed actions include the insertion in the dynamics of the school and in its processes of organization, management and interaction with the community.

QG960, QG961... to QG979 Special Topics in General Chemistry I to XX

OF:S-6 T:01 or 02 P:00 or 01 L:00 HS:02 SL:02 C:02 AV:N or C FM:75 EX:S or N

Prerequisite: AA200

Different topics available when the course is offered.

QG981 Special Topics in Teaching of Chemistry I

OF:S-5 T:002 P:000 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:N EX:S FM:75%

Prerequisite: AA200

Approach of contemporary issues directly or indirectly related to the Teaching of Chemistry, articulating the scientific knowledge, bibliographic productions and instructional material. Specificities will be described when the course is offered.

QG982 Special Topics in Teaching of Chemistry II

OF:S-5 T:002 P:000 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:N EX:S FM:75%

Prerequisite: AA200

Approach of contemporary issues directly or indirectly related to the Teaching of Chemistry, articulating the scientific knowledge, bibliographic productions and instructional material. Specificities will be described when the course is offered.

QG983 Special Topics in Teaching of Chemistry III

OF:S-5 T:002 P:000 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:N EX:S FM:75%

Prerequisite: AA200

Approach of contemporary issues directly or indirectly related to the Teaching of Chemistry, articulating the scientific knowledge, bibliographic productions and instructional material. Specificities will be described when the course is offered.

QG984 Special Topics in Teaching of Chemistry IV

OF:S-5 T:002 P:000 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:N EX:S FM:75%

Prerequisite: AA200

Approach of contemporary issues directly or indirectly related to the Teaching of Chemistry, articulating the scientific knowledge, bibliographic productions and instructional material. Specificities will be described when the course is offered.

QL701 Integrated Projects

OF:S-2 T:002 P:000 L:000 O:004 D:000 HS:006 SL:002 C:006 AV:N EX:S FM:75%

Prerequisite: QG760

Execution of projects related to the Teaching of Chemistry articulating conceptual aspects developed with a theoretic and/or experimental approach and/or with application of TI resources and other media directed High School. The basis of the projects involves a critical and directed bibliographic research, followed by the elaboration of a text describing the

executed proposal. The activities are supervised in an integrated way by the staff of the Institute of Chemistry and of the Faculty of Education of Unicamp.

QL702 Scientific Cultural Activities I

OF:S-1 T:000 P:002 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:C EX:N FM:75%

Prerequisite:AA200

Contact with the production and divulgation of knowledge in Chemistry, Education and related fields in scientific and cultural activities, by participation in seminars, conferences and workshops.

QL703 Scientific Cultural Activities II

OF:S-2 T:000 P:002 L:000 O:000 D:000 HS:002 SL:002 C:002 AV:C EX:N FM:75%

Prerequisite.: AA200

Interaction with the production and divulgation of knowledge in Chemistry, Education and related fields in scientific and cultural activities, by participation in seminars, conferences and workshops.