

Course description

Course abbreviation:	KCH/HISCH	Page:	1 / 3
Course name:	History of Chemistry		
Academic Year:	2016/2017	Printed:	22.05.2018 10:11

Department/Unit /	KCH / HISCH	Academic Year	2016/2017
Title	History of Chemistry	Type of completion	Pre-Exam Credit
Accredited/Credits	Yes, 3 Cred.	Type of completion	Oral
Number of hours	Přednáška 1 [Hours/Week] Seminář 1 [Hours/Week]		
Occ/max	Status A Status B Status C	Course credit prior to	NO
Summer semester	0 / - 0 / - 0 / -	Counted into average	NO
Winter semester	0 / 0 17 / - 3 / 15	Min. (B+C) students	not determined
Timetable	Yes	Repeated registration	NO
Language of instruction	Czech	Semester taught	Winter semester
Substituted course	None	Internship duration	0
Preclusive courses	N/A		
Prerequisite	N/A		
Informally recommended courses	N/A		
Courses depending on this Course	N/A		

Course objectives:

Aims

Knowledge from the history of chemistry is a considerable motivation element in the chemistry education on all the types of schools. This one-term course includes the basic periods of development of the natural sciences and their main contribution from the point of view of the chemical disciplines development. An attention is played to the significant personalities credited for the chemistry development.

Requirements on student

Evaluation of the subject as well as the exam grading is made according to the articles No 31 - 33 in the Regulations on Study and Examinations University of Ostrava

Content

Content

1. week - Era of the metals processing. Gold, silver, copper, iron, lead, tin.
2. week - Hellenic philosophy. Pre-Socratic era (Thales, Anaximandros, Herakleitos, Empedokles, Leukipos, and Demokritos). The top era of Greek philosophy (Socrates, Platon, Aristotle), philosophy after Aristotle's death.
3. week - Alchemy - Chinese, Greek-Egyptian, Arabian.
4. week - West European alchemy, alchemy in Bohemia.
5. week - Iatrochemistry and pneumochemistry, Paracelsus, Elmont, Boyle, Cavendish.
6. week - Phlogiston theory, Stahl, Priestley, Scheele.
7. week - The scientific based of chemistry, Lomonosov, Lavoisier, Dalton, Avogadro, Berzelius, Wohler, Liebig
8. week - Era of the periodic system formation, Dobereiner, Chancoirtois, Olding, Newlands, Mayer, Mendělejev, Brauner.
9. week - Structure of atom, radioactivity. Evolution of ideas about the atomic structure, Thompson, Rutherford, Planck, Bohr, Broglie, Heisenberg, Schrödinger. Radioactivity - Becquerel, Curie, Fermi, Hahn, Soddy.
10. week - Brief survey of the inorganic chemistry evolution, s-, p-, d- a f- elements - history of discovery, discoverers.
11. week - Brief survey of the organic chemistry evolution. Dye, indigo, vinegar, beer, alcohol, gunpowder, insecticides, caoutchouc (rubber), the synthetic macromolecular substances.
12. week - Brief survey of the biochemistry evolution. Vitamins, enzymes, narcotics, medicines, nucleic acids.
13. week - The Nobel prize winners, Nobel, van 't Hoff, Grignard, Richards, Haber, Ruzicka, Meitner, Curie - Sklodowska, Pauling, Crowfoot - Hodgkin.

Prerequisites - other information about course preconditions

none

Competences acquired

Competences

The students know the basic historical discoveries from the field of chemistry and the related branches. They orientate in the historical development of the scientific chemical theories. They acquire skills to connect the historical discoveries with the present state. They critically work with conclusions of the historical discoveries and they interpret them suitably. They acquire bases of history in data. They can independently work with text, sort the historical data of discoveries and document the historical discoveries by presentation. They acquire the communicative competences (presentation), the learning competences (self-study), and the problem solving competences (data comparison).

Fields of study**Guarantors and lecturers**

- **Guarantors:** doc. RNDr. Jiří Kalina, Ph.D.
- **Lecturer:** doc. RNDr. Jiří Kalina, Ph.D.
- **Seminar lecturer:** doc. RNDr. Jiří Kalina, Ph.D.

Literature

- **Basic:** SOLÁROVÁ,M., LICHTEMBERG,K. *Vybrané kapitoly z historie chemie..* Brno, 2000.
- **Extending:** BUDIŠ,J. *Historie chemie slovem a obrazem.* Brno, 1995.
- **Recommended:** BANÝR,J. *Stručné dějiny chemie a chemické výroby..* Praha, 1995.

Time requirements

Activities	Time requirements for activity [h]
Being present in classes	26
Self-tutoring	15
Semestral work	15
Scientific text studying in the Czech language	5
Preparation for a credit test	14
Total:	75

assessment methods**professional knowledge**

- Continuous analysis of student's achievements
- Dialogue
- Written examination

teaching methods**professional knowledge**

- Dialogic (discussion, dialogue, brainstorming)
- Monologic (explanation, lecture, briefing)
- Projection (static, dynamic)
- Working with text (coursebook, book)

learning outcomes**professional knowledge - knowledge resulting from the course:**

Competences

The students know the basic historical discoveries from the field of chemistry and the related branches. They orientate in the

historical development of the scientific chemical theories. They acquire skills to connect the historical discoveries with the present state. They critically work with conclusions of the historical discoveries and they interpret them suitably. They acquire bases of history in data. They can independently work with text, sort the historical data of discoveries and document the historical discoveries by presentation. They acquire the communicative competences (presentation), the learning competences (self-study), and the problem solving competences (data comparison).

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Chemistry	Bachelor	Full-time	Chemistry	1	2012	2016	Povinně volitelné předměty	B	1	ZS
Chemistry	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2	2016	Výběrové předměty	C	1	ZS
Chemistry	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2014	2016	Výběrové předměty	C	1	ZS
Physics	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2014	2016	Výběrové předměty	C	1	ZS