

Course description

Course abbreviation: KCH/CHEMO
Course name: Chemometry
Academic Year: 2016/2017

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Department/Unit /	KCH / CHEMO	Academic Year	2016/2017
Title	Chemometry	Type of completion	Exam
Accredited/Credits	Yes, 4 Cred.	Type of completion	Combined
Number of hours	Přednáška 2 [Hours/Week] Cvičení 1 [Hours/Week]	Course credit prior to	NO
Occ/max	Status A Status B Status C	Counted into average	YES
Summer semester	11 / - 0 / 0 0 / 0	Min. (B+C) students	not determined
Winter semester	0 / - 0 / - 0 / -	Repeated registration	NO
Timetable	Yes	Semester taught	Summer semester
Language of instruction	Czech	Internship duration	0
Substituted course	None		
Preclusive courses	N/A		
Prerequisite	N/A		
Informally recommended courses	N/A		
Courses depending on this Course	N/A		

Course objectives:

Aims
The lectures give basic survey of methods used in the statistic treatment of experimental data. Explanation of theoretical bases is completed with many illustrations of particular methods used for the actual examples from chemical practice. The practical is focused on solution of the most common statistic tasks in the chemical research.

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. Introduction into problems, variates
 2. One-dimensional data - point and interval estimation of parameters
 3. One-dimensional data - exploratory data analysis I
 4. One-dimensional data - exploratory data analysis II
 5. One-dimensional data - testing of hypotheses
 6. One-dimensional data - analysis of small sets
 7. Analysis variance - one-factor
 8. Analysis variance - two-factor
 9. Correlation and regression
 10. Regression diagnostics
 11. Calibration
 12. Bases of non-linear regression
 13. Introduction into multi-dimensional data analysis

Prerequisites - other information about course preconditions

none

Competences acquired

Competences

The students know methods used in the basic statistic treatment of experimental data. They can solve the basic statistic examples with use MS Excel.

Fields of study

Guarantors and lecturers

- **Guarantors:** doc. RNDr. Václav Slovák, Ph.D.
- **Lecturer:** doc. RNDr. Václav Slovák, Ph.D.
- **Tutorial lecturer:** doc. RNDr. Václav Slovák, Ph.D.

Literature

- **Basic:** Pytela O. *Chemometrie. Skripta VŠCHT Pardubice (1993)*..
- **Recommended:** Meloun M., Militký J. *Statistické zpracování experimentálních dat. East Publishing Praha (1998)*..
- **Recommended:** Tvrdík J. *Základy statistické analýzy dat. Skripta OU (1998)*..

Time requirements

Activities	Time requirements for activity [h]
Being present in classes	39
Self-tutoring	15
Preparation for an exam	36
Consultation of work with the teacher/tutor (incl. electronic)	10
Total:	100

assessment methods

professional knowledge

Written examination

teaching methods

professional knowledge

Computer-based tutoring

Dialogic (discussion, dialogue, brainstorming)

Monologic (explanation, lecture, briefing)

learning outcomes

professional knowledge - knowledge resulting from the course:

Competences

The students know methods used in the basic statistic treatment of experimental data. They can solve the basic statistic examples with use MS Excel.

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Chemistry	Postgraduate Master	Full-time	Analytical Chemistry of Solid Phase	1	2013	2016	Povinné předměty	A	1	LS