

# Course description

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

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

## Studijní opory

### 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:** Tvrdlík 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
<b>Total:</b>	<b>100</b>

### 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