

Name of university, Name of faculty: Trnava University
Faculty of Health Care and Social Work

INFORMATION SHEET OF THE SUBJECT

Code: LMbD01		Name: Analytical Chemistry	
Cover: Department of Theoretical Disciplines and Laboratory Investigation Methods			
Type of educational activity: Lecture, Practise		Number of credits: 5	Recommended semester: WT
Scope of educational activity (in hours): Weekly: 1/3 For term of study: ZS 23,69			Study grade: 1. PO
Method of educational activity:			
Recommended semester	Study programme		
1.year WT	Laboratory Medicine (D1-LVMvZ-22)		
Underlie subjects:			
Conditions for passing the course: Method of evaluation: Completion by taking an examination Continuous evaluation: none Final evaluation: - Submission of all protocols from practise (max. 10% of evaluation) - Successful completion of the test from examples focused on the preparation of solutions (3 examples, of which it is necessary to calculate at least 2 to successfully pass the test) (max. 10% of evaluation) - Final written test (max. 80% of evaluation) Evaluation: A: 100 – 95%; B: 94 – 89%; C: 88 – 83%; D: 82 – 77%; E: 76 – 71%; FX: 70% and less Finished: exam - written test			
Learning outcomes: VV1 Student will be able to define general concepts of chemistry and nomenclature of organic and inorganic compounds VV2 Student will know the principles of analytical methods used in clinical chemistry VV3 Student is able to work with examples for the preparation of solutions and apply the experience in practice VV4 Student is able to perform basic laboratory tasks leading to the preparation of solutions (weighing, pipetting) VV5 The student is able to determine the pH of solutions using pH meters VV6 The student is able to determine the density of solutions using a measuring cylinder, densitometer and pycnometer VV7 The student is able to apply the methods of quantitative analysis in laboratory practice			
Schedule of subject: Lectures: 1) Introduction, principles of laboratory work 2) General concepts of chemistry 3) Optical methods 4) Potentiometry, amperometry 5) Coulometry, conductometers 6) Analytical methods in clinical chemistry - Chromatographic methods - thin layer chromatography 7) Analytical methods in clinical chemistry - Chromatographic methods - gas and liquid chromatography 8) Analytical methods in clinical chemistry - Electrophoretic methods - surface electrophoresis, capillary electrophoresis 9) Analytical methods in clinical chemistry - Electrophoretic methods - isoelectric focusing, isotachopheresis 10) Analytical methods in clinical chemistry - basics of enzyme analytics 11) Analytical methods in clinical chemistry - Immunochemical methods 12) Biosensors Practise: 1) Basic activities in the laboratory - weighing 2) Basic laboratory activities - measuring volumes 3) Basic laboratory activities - density measurement 4) Basic laboratory activities - separation of mixture components 5) Preparation of measuring solutions 6) Standardisation of measuring solutions 7) Dosimetry - alkalimetry 8) Dosimetry - acidimetry 9) Preparation of buffer solutions 10) Testing the buffering capacity of buffer solutions 11) Measurement of pH of solutions using acid-base and natural indicators 12) Measurement of pH of solutions using a pH meter			
Recommended reading: 1) DEVÍNSKY, F.- HEGER, J.: Organická chémia, 2013, ISBN 9788080633882. 2) POTOČNÁK, I.: Chemické výpočty vo všeobecnej a anorganickej chémii. Univerzita Pavla Jozefa Šafárika v Košiciach, Prírodovedecká fakulta, 2017, ISBN 978-80-8152-523-0 / online: https://unibook.upjs.sk/img/cms/2017/pf/chem-vypocty-naweb.pdf			

- 3) SÁDECKÁ, J.- NETRIOVÁ, J.: Analytické metódy v klinickej chémii, STU v Bratislave, 2008, ISBN 978-80-227-2821-8.
4) ŠEVČÍK J.G.K.: Měření a výsledky v analytické chemii, Český Těšín: 2 Theta, 2009, ISBN ISBN 978-80-86380-48-3.

Language requirements: Slovak

Notes:

The daily combined method consists of: lecture /on-line, distance, self-study/; practise /attend/.
Self-study is supported by e-learning.
100% participation is required.

Course evaluation:

Assessed students in total: 899

A	B	C	D	E	FX
10%	18%	18%	14%	16%	24%

Lecturers:

RNDr. Mgr. et Mgr. Nicholas Martinka, PhD., lecturer, examiner, instructor

Date of last change: 01.09.2026

Approved by: doc. Ing. Stanislava Blažíčková, PhD., MPH, univ.prof.