**Course Information Sheet**

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| **University:** *University of Presov* | |
| **Faculty:** *Faculty of Humanities and Natural Sciences* | |
| **Code:** *2EKO/ANACH/22* | **Title of Course: Analytical chemistry** |
| **Form of Study:** *lectures 1 hour per week, seminars and laboratory course 2 hours per week*<br>**Number of contact hours:**<br>**per week:** *1+2* **per level/semester:** *lectures 10 hours, seminars and laboratory course 20 hours, self-study 90 hours*<br>**Method of study:** *full-time study* | |
| **Number of credits:** *4* | |
| **Semester:** *1.* | |
| **Degree/Level:** *2.* | |
| **Prerequisities:** - | |
| **Grading Policy (Assessment/Evaluation):**<br>*Written exam 70 %.*<br>*Continuous semestral examination during seminars 30 %.*<br>*Success criteria (percentage):*<br>*a) A - 100.00 - 90.00%*<br>*b) B - 89.99 - 80.00%*<br>*c) C - 79.99 - 70.00%*<br>*d) D - 69.99 - 60.00%*<br>*e) E - 59.99 - 50.00%*<br>*f) FX - 49.99 and less%.* | |
| **Aims and Objectives:**<br>After the completion of this course, students will:<br>*- be familiar with the methods of chemical analysis;*<br>*- be able to perform basic calculations in analytical chemistry;*<br>*- know to determine results of basic analytical measurements;*<br>*- be able to perform basic laboratory experiments in analytical chemistry.* | |
| **Syllabus/Indicative Content:**<br>1. *Analytical chemistry - general terminology, analytical reactions, preparation of solutions.*<br>2. *Qualitative chemical analysis – common, selective and specific reagents for cations and anions.*<br>3. *Quantitative chemical analysis – volumetric and gravimetric analysis.*<br>4. *Volumetric titrations. Classification of titration methods.*<br>5. *Acid-base titrations.*<br>6. *Precipitation titrations.*<br>7. *Complexometric titrations.*<br>8. *Redox titrations.*<br>9. *Electroanalytical methods - potentiometry, electrogravimetry, and coulometry.*<br>10. *Optical methods in analytical chemistry.*<br>11. *Spectral methods – FTIR, UV-VIS, NMR, AAS.*<br>12. *Non-spectral optical methods – refractometry, polarimetry, RTG diffraction analysis.*<br>13. *Purification and separation techniques – chromatography.*<br>14. *Laboratory experiments in analytical chemistry.*<br>*Self-study:*<br>*1. Preparation to laboratory course (protocols).* | |

*2. Calculations in analytical chemistry.*

**Suggested readings:**

*1. J. Garaj a kol.: Analytická chémia, SNTL/ALFA, Bratislava 1987*
*2. Majer L. a kol. Analytická chémia, 1989*
*3. Gondova T. a kol. Analytická chémia, Košice, 1998*
*4. A. Skoog, F.J. West, F.J.Holler: Analytical Chemistry. An Introduction, Saunders College, 6th ed., Philadelphia, 1994.*
*5. R.Keller (Ed.): Analytical chemistry, Wiley-VCH, Weinheim 1998.*
*6. Dean's Analytical Chemistry Handbook. Pradyot Patnaik, McGraw-Hill Education - Europe, 2004, 1280 p.*
*7. Handbook of Green Analytical Chemistry, Eds: Miguel de la Guardia Salvador Garrigues, 2012, ISBN: 9780470972014, John Wiley a Sons, Ltd, 566 p.*

**Language of Instruction:** *slovak*

**Other course information:** available in winter semester

**Grading history**

*83 students*

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 10% | 12% | 27% | 22% | 18% | 12% |

**Lecturer/Instructor:**

Doc. Ruslan Mariychuk, PhD. - lectures
RNDr. Romana Smolková, PhD. – seminars
RNDr. Adriana Eliašová, PhD. – semináre/cvičenia
RNDr. Daniela Gruľová, PhD. – semináre/cvičenia

**Last update:** 9. May 2022

**Approved by:** *uvádza sa meno a priezvisko zamestnanca vysokej školy (štandardne garant študijného programu), ktorý zmenu schválil*