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| 1. Course title: Analytical Chemistry calculations I. | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): seminar | | | |
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| 4. Contact hours: 2 hoursper week | | 5. Number of credits (ECTS): 2 | | | |
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| 6. Preliminary conditions (max. 3): | | | | | |
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| 7. Announced:fall semester, spring semester, both | | | | | |
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| 8. Limit for participants: - | | | | | |
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| 10. Responsible teacher (faculty, institute and department):  Ibolya Kiss PhD (Faculty of Science, Institute of Chemistry, Department of Analytical and Environmental Chemistry) | | | | | |
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| 11. Teacher(s) and percentage: | | Dr. Ibolya Kiss | | 100 % | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  Objectives: The lecture intends to introduce students to the analytical calculations. The course gives an insight into the quantitative analytical chemistry. The examples are shown the use of analytical chemistry in practical and every day.  Learning outcomes: students completing the course will have knowledge on basic quantitative analytical methods and calculations. Students get a knowledge and skills, and they will be able to solve analytical problems. Their positive *attitude* towards innovative methods will increase significantly. | | | | | |
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| 14. Course outline  Week 1: Solutions, solution preparation. Standard solutions. Concentration calculation basics.  Week 2: Chemical equilibria in analytical chemistry.  Week 3: Acid-base equilibria: pH count (Acids, bases, salts, acid-base mixtures).  Week 4: Complex Equilibria, Stability Stability.  Week 5: Precipitating processes. Solubility product  Week 6: Redox Equilibria in Analytical Chemistry.  Week 7: Methods of Volumetric Analysis. Evaluation of titrations. Calculation error.  Week 8: Acid-alkalimetry.  Week 9: Redoximetric Methods  Week 10: Permanganometry.  Week 11: Iodometry.  Week 12: Complexometry.  Week 13: Argentometry. | | | | | |
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| 15. Mid-semester works  It is compulsory to participate in seminar. | | | | | |
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| 16. Course requirements and grading  The written exam is based on the seminars, the available electronic materials and seminar materials.  Grades:  0–50% fail  51–65% acceptable  66–75% average  76–90% good  91–100% excellent | | | | | |
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| 17. List of readings   1. Skoog, West, Holler, Crouch: Fundamentals of Analytical Chemistry, 9th edition Brooks/ Cole 2. Holler, Skoog, Crouch: Principles of Instrumental Analysis, 6th edition, Brooks/ Cole | | | | | |
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| 18. Recommended texts, further readings   1. An electronic textbook is available from the lecturer. 2. Harris, Daniel C. :Quantitative chemical analysis, 8th edition, New York: W. H. Freeman and Co., [2010], cop. 2010 | | | | | |
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| **Date** | 27 April, 2017 | **Prepared by** |  | | |
| Dr. Ibolya Kiss  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| Dr. László Kollár program supervisor | | |