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| 1. Course title: Analytical Chemistry I. sem | | | | | |
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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): 3 | | | |
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| 6. Preliminary conditions (max. 3):   * Analytical Chem. I. lect. | | | | | |
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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):  Borbála Boros PhD (Faculty of Science, Institute of Chemistry, Department of Analytical and Environmental Chemistry) | | | | | |
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| 11. Teacher(s) and percentage: | | Dr. Borbála Boros | | 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 quantitative analytical chemistry. The examples show the use of analytical chemistry in every day practice.  Learning outcomes: students completing the course will have knowledge on basic quantitative analytical methods and calculations. Students get 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  Week 2: Chemical equilibria in analytical chemistry.  Week 3: Acid-base equilibria  Week 4: pH calculation: Strong acid and strong basic solutions  Week 5: pH calculation: Soft acids and basics  Week 6: pH calculation: Salt solutions,  Week 7: pH calculation: Buffer solutions  Week 8: Complex equilibria, stability.  Week 9: Precipitation processes.  Week 10: Solubility  Week 11: Redox Balances. Redox Potential.  Week 12: Volumetric analysis. Evaluation of titrations.  Week 13: Error Calculation. | | | | | |
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| 15. Mid-semester works  It is compulsory to participate in seminar. | | | | | |
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| 16. Course requirements and grading  Two written tests, on the 7th and 13th week.  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. Borbála Boros  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| Dr. László Kollár program supervisor | | |