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| 1. Course title: Analytical Chemistry III. lab. | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): practice | | | |
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| 4. Contact hours: 4 hoursper week | | 5. Number of credits (ECTS): 5 | | | |
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| 6. Preliminary conditions (max. 3):   * Analytical Chemistry II. lab. in parallel | | | | | |
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| 7. Announced:fall semester, spring semester, both | | | | | |
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| 8. Limit for participants: 12 | | | | | |
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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 | | 20 % | |
| Dr. Borbála Boros | | 20 % | |
| Dr. Balázs Csóka | | 20 % | |
| Dr. Ágnes Dörnyei | | 20 % | |
| Dr. Tímea Pernyeszi | | 20 % | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  Objectives: Applying theoretical knowledge in practice.  Focusing student's attention to the problems that can be solved by analytical methods every day.  Learning outcomes: students completing the course will have *knowledge* on basic quantitative analytical methods. They alone will be *able* to measure and evaluate. | | | | | |
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| 14. Course outline   1. Introduction 2. Sample preparation procedures 3. Mass Spectrometry (MS): Detection of capsaicinoids 4. Liquid Chromatography I. (HPLC - UV-Vis): Determination of bioactive compounds 5. Liquid Chromatography II. (HPLC - UV-Vis): Chiral separation 6. Liquid Chromatography III. (HPLC-MS): Detection of polyphenols from plant extracts 7. Gas Chromatography I. (GC): Determination of chlorinated hydrocarbons 8. Gas Chromatography II. (GC-MS): Determination of urinary steroid metabolites by GC-MS coupled technique 9. Electrophoresis I.: Determination of proteins by gel electrophoresis 10. Electrophoresis II. (CE - MS): Determination of Bioactive Compounds by CE-MS Linked Technique 11. SFC 12. X-ray diffraction (XRD) 13. Written test | | | | | |
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| 15. Mid-semester works  It is compulsory to participate in practice. | | | | | |
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| 16. Course requirements and grading  *Short written test:* Each week the laboratory session begins with a short test. The test is based on the exercises of that week and the previous week (calculations, theoretical background of the determinations).  *Lab note:* During the laboratory session all students have to write a lab note, which should contain the theoretical background of the determinations, the procedure, all data of the measurements, calculations and conclusions.  *Final grade:* Grading is based on three separate factors:  - the average grade of short tests (an average of at least 2.0 is necessary to avoid a ‘fail’ final grade)  - the average grade of measurements, lab notes (an average of at least 2.0 is necessary to avoid a ‘fail’ final grade)  - the average grade Tests (an average of at least 2.0 is necessary to avoid a ‘fail’ final grade)  If one of the criterion is not fulfil, the final grade will be the fail and the student have to retake the course the next year. | | | | | |
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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.   Harris, Daniel C. :Quantitative chemical analysis, 8th edition, New York: W. H. Freeman and Co., [2010], cop. 2010 | | | | | |
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| **Date** | 27April, 2017 | **Prepared by** |  | | |
| Dr. Ibolya Kiss  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| Dr. László Kollár program supervisor | | |