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| 1. Course title: General toxicology | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): seminar | | |
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| 4. Contact hours: 3 | | 5. Number of credits (ECTS): 4 | | |
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| 6. Preliminary conditions (max. 3): none | | | | |
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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): **Gábor Papp Ph.D. (Faculty of Sciences, Institute of Biology, General and Environmental Microbiology)** | | | | |
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| 11. Teacher(s) and percentage: | | Gábor Papp Ph.D. | | 100% |
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| 12. Language:English | | | | |
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| 13. Course objectives and/or learning outcomes:  Objectives: This seminar covers the study of toxicology at infra- and supra-individual levels. It presents the toxic effects, the emerging symptoms and the possibilities of measuring the toxicity at the cellular and organic levels. Systematically introduces the important processes that affect the subject of environmental toxicology, the groups of contaminants and natural toxins.  Learning outcomes:  Upon completion of this course, the student will demonstrate basic knowledge in the following:  - tools and important techniques used in the Toxicology Laboratory,  - basic terminology of the scientific field.  - the toxic effects in their environment,  - local and global environmental problems  Students will have a more environmentally conscious approach than the average, and encourage people living in their surroundings to do so.  They will become open to the knowledge of toxicology-related fields understand the interrelations between them.  The seminar emphasizing the student's ability to critically read and evaluate papers in the areas of toxicology, evaluate and interpret directed experimental work. | | | | |
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| 14. Course outline   1. Basics of toxicology: The history of toxicology. The disciplines of toxicology. The concepts of toxicology. 2. Factors affecting the development of toxic effects: dosage, time, routes of exposure, differences between species. 3. Toxicokinetics: absorption of various toxic substances, distribution of the toxic substance in the body, biotransformation, excretion of the toxic substance. 4. Toxicology of organs and organ systems, local and systemic toxic effects. 5. Laboratory evaluation of toxicity, clinical chemistry and hematology, pathology and histopathology. Toxicological tests. 6. Cytotoxicity, genotoxicity, types of genotoxic effects, repair mechanisms. Methods for determining mutagenicity. 7. Test 1. The effect of UV radiation on microorganisms, the photoreactivation test (practical task). Practice of the Ames and Del tests (practical task). 8. Carcinogenesis. Grouping of carcinogenic substances, formation of carcinogenic effects. 9. The basics of ecotoxicology, the history of environmental toxicology, basic concepts, the fate of toxic substances in the environment. Practical application of Azotobacter agile ecotoxicity test (practical exercise). 10. Havarias. Polluting sources 1: Pollutants in the air. Soil contaminants. 11. Polluting sources 2: contaminants of surface and groundwater. Examination of the toxic effects of metal ions (practical task). 12. Intoxications. Severity of poisoning, symptoms of poisoning. Occupational Health Toxicology. Risk Assessment, (practical task). 13. Bacterial, animal and plant toxins in nature. Investigation of plant antimicrobial substances (practical task). Mycotoxins. Classification, detection, detoxification procedures. 14. Test 2 | | | | |
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| 15. Mid-semester works  week 7: test 1  week 14: test 2.  Attending lectures is required. | | | | |
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| 16. Course requirements and grading  Grades:  0–50% unsatisfactory  51–65% satisfactory  66–80% fair  81–90% good  91–100% excellent  Labnotes: Evaluation of the labnotes after the 6 practical tasks, on a scale of 1-5. The final is the arithmetic mean of the average of the two exam papers and the average of the marks obtained for the labnotes. An additional condition for the completion of the semester is to absolve at least the satisfactory level of the two tests (one by one). We will provide an opportunity to improve the grade of the tests during the semester. The tests are based on and follow the thematics. | | | | |
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| 17. List of readings   1. Ernest Hodgson: A textbook of modern toxicology, John Wiley Sons, Inc., 2004. | | | | |
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| 18. Recommended texts, further readings   1. A digital textbook is available from the lecturer. | | | | |
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| **Date** | 13 April, 2017 | **Prepared by** |  | |
| Gábor Papp Ph.D. | |
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| **Endorsed by** | | |  | |
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