

<p>EVALUATION METHODS Written mid-term exams and final exam (evaluate study outcomes 1-6)</p> <p>There are two mid-term exams. The first one covers main terms and the basics of environmental chemistry, chemical cycles, aquatic and atmospheric chemistry. The second mid-term covers the geochemistry, toxicological chemistry, environmental chemistry of hazardous wastes and the principals of sustainable development. The final exam covers all topics listed above.</p>	<p>EVALUATION CRITERIA Evaluation criteria of mid-term exams and final exam:</p> <ul style="list-style-type: none"> • Mastery of terms • Knowledge of chemistry to understand the fundamentals of environmental chemistry • Knowledge on the nature, reactions, transport, and fate of chemical species in the environment • Ability to describe the interactions among water, air, earth, life, and technology • Knowledge on the chemistry of toxic substances with emphasis upon their interactions with biological tissue and living organism • Ability to implement the environmental chemistry knowledge to ensure the sustainable development <p><u>Explanation of numeric grades (mid-term and final exam)</u></p> <p><i>Excellent (5)</i> – Student’s answers excellently cover the material on the sources, reactions, transport, effects and fates of chemical species in water, soil, and air environments and the effects of technology thereon. The answers are clear and detailed. The student is able to describe the interactions among water, air, earth, life and technology as well as chemical cycles by chemical equations. The student is very proficient in the fundamentals of toxicological chemistry and sustainable development with emphasis upon the environmental chemistry. Specific conclusions and comments are added. The student demonstrates mastery of all the terms.</p> <p><i>Very good (4)</i> - Student’s answers cover the material on the sources, reactions, transport, effects and fates of chemical species in water, soil, and air environments and the effects of technology thereon. The answers are clear and detailed. The student is mostly able to describe the interactions among water, air, earth, life and technology as well as chemical cycles by chemical equations. The student is enough proficient in the fundamentals of toxicological chemistry and sustainable development with emphasis upon the environmental chemistry. The student demonstrates mastery of terms.</p> <p><i>Good (3)</i> - Student’s answers with minor mistakes mostly cover the material on the sources, reactions, transport, effects and fates of chemical species in water, soil, and air environments and the effects of technology thereon. The student is familiar with the fundamentals of toxicological chemistry and sustainable development with emphasis upon the environmental chemistry; however, is not able to describe in details the interactions among water, air, earth, life and technology as well as chemical cycles by chemical equations. The student demonstrates mastery of terms.</p> <p><i>Satisfactory (2)</i> – Student’s answers with major mistakes cover the material on the sources, reactions, transport, effects and fates of chemical species in water, soil, and air environments and the</p>
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	<p>effects of technology thereon; however, the answers are neither specific nor detailed. The student is not able to describe in details the interactions among water, air, earth, life and technology as well as chemical cycles by chemical equations. The student makes some minor mistakes in terminology.</p> <p>Poor (1) - Student's answers are weak, only partly cover the material, and are insufficiently detailed and specific. The student is not able to describe in details the interactions among water, air, earth, life and technology as well as chemical cycles by chemical equations. The student is partly familiar with the fundamentals of toxicological chemistry and sustainable development with emphasis upon the environmental chemistry. There are major mistakes, some of them in terminology.</p>
<p>Oral presentation at the seminar (evaluates study outcomes 2-4, 6)</p> <p>Every student makes one oral presentation at the seminar (the topic is given by the supervisor and covers nature, reactions, transport, fate and toxicology of specific group of environmental pollutants as well as the environment pollution problem and its solution based on the principles of sustainable development).</p>	<p>Evaluation criteria for the seminar presentation:</p> <ul style="list-style-type: none"> • Knowledge on the nature, reactions, transport, and fate of chemical species in the environment • Knowledge on the chemistry of toxic substances with emphasis upon their interactions with biological tissue and living organism • Ability to implement the environmental chemistry knowledge by evaluating the environmental processes to ensure the sustainable development • Ability to transfer knowledge to the audience and answer questions • Quality of illustrations; staying within time limit <p><u>Explanation of numeric grades (presentation)</u></p> <p>Excellent (5) – Presentation covers the topic in entirety, is coherent and detailed. Presenter demonstrates outstanding knowledge of the topic, ability to analyse the problem and resolve that based on the principles of sustainable development. Presentation is clear, includes specific details; illustrations are informative and relevant. The author has added own appraisals, comments, and conclusions. The presenter observed the time limit and was able to answer all the questions.</p> <p>Very good (4) - Presentation covers the topic in entirety, is coherent and detailed. Presenter demonstrates outstanding knowledge of the topic, ability to analyse the problem and resolve that based on the principles of sustainable development. Presentation is clear, includes specific details; illustrations are informative and relevant. The presenter observed the time limit and was able to answer all the questions.</p> <p>Good (3) - Presentation covers the topic but misses some aspects of the problem. Presenter demonstrates general mastery of the topic and ability to analyse the problem. However, the presentation is not coherent and there are minor mistakes. The presentation is generally clear; illustrations are relevant. The presenter observed the time limit but could not answer all the questions.</p> <p>Satisfactory (2) - Presentation covers the topic in general but</p>

	<p>misses some aspects of the problem. The presenter demonstrates general knowledge of the topic but is in difficulty with the analysis of the problem. The presentation is not coherent and there are minor mistakes. The presentation is generally clear; illustrations are generally relevant. The presenter observed the time limit but was not able to answer all the questions.</p> <p>Poor (1) - Presentation covers the topic only partly and misses some aspects of the problem. The presenter is in difficulty with the analyses of the problem. The presentation is not clear; some illustrations are irrelevant. The presenter exceeded the time limit and could not answer all the questions.</p>
<p>Laboratory works report and written test (evaluate study outcome 7)</p> <p>Every student performs laboratory works, present laboratory works report and participates in the written test.</p>	<p>Evaluation criteria for laboratory works:</p> <ul style="list-style-type: none"> • Ability to perform environmental samples analysis and assess the obtained results from the aspect of environmental protection • Deadlines keeping • Laboratory works performance according to the manual • Quality of laboratory report <p>The laboratory works are performed according to the laboratory manual. The report is prepared taking into account tasks and exercises as well as using equations given in the manual. Knowledge on analysis performance procedure, the main calculation equations and their application are required for successful passing of the written test. The assessment is failed if the laboratory works report is presented incorrectly, calculation results are wrong, final result and conclusion are not presented and laboratory works calculation and background knowledge is lacking. The written test is passed if 60% of the answers are correct; otherwise it is failed.</p>
<p>PREREQUISITES TO GAIN ADMISSION TO EXAM</p>	<p>Participation in the laboratory works, acceptance of written report and passing of the written test are mandatory. Participation in the seminars and oral presentation is mandatory. The mid-term exams are strongly recommended but not mandatory.</p>
<p>FORMATION OF THE FINAL GRADE</p>	<p>The preliminary grade consists of the sum of two mid-term scores (40% each) and the seminar score (20%). If both mid-term exams are graded “satisfactory” or higher, the preliminary grade may become final. Students who are not satisfied with the preliminary result or received mid-term grades below “satisfactory” are required to take a written final exam that covers entire course. In this case, the final exam will contribute 80% and seminar 20% to the final grade.</p>