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| **Course** | **Basis of Toxicology** |
| Type | Semester | ECTS | Code |
|  Obligatory (O) | 6 | 4 |  |
| **The Lecturer** | Smajl Rizani, PhD |
| **Assistant** | Fidan Feka, PhD  |
| **Course Tutor** | Osman Fetoshi, PhD  |
| **The aim and objectives** |  History and Importance of Toxicology Science. Terminology, definition of terms and disciplines in toxicology, classification of toxic substances, environmental contaminants and food chain. Quantitative basics of toxicity and the impact of toxins at the molecular-cell level, the dose-effect ratio of xenobiotics, the importance of risk assessment. Absorption, distribution and accumulation of toxins in the body, biotransformation Phase I and Phase II biodynamics and xenobiotic secretion. Biologicalhysical and chemical methods for the determination of toxins in food, classical and alternative toxicity tests. In seminar students will work on topics related to specific contaminants whose presence is possible in food as well as their toxins with consequences in humans.  |
| **Learning outcomes** | To define the basic terms in toxicology, to identify and classify the source of contamination in the environment and the contaminants most frequently present in food; explain the underlying mechanisms of action of toxic substances at the molecular-cell level and the quantitative aspect of toxicity; To explain classical and alternative methods of toxic tests such as biological, physical and chemical for the determination of toxins in food; understand the importance of risk assessment, etc |
| **Content** | **Weekly plan** | **week** |
| Introduction to Toxicology1. Nga Prokatiotet tek Eukariotet – Qelizat prokariote (viruset, bakterjet).
2. Teknikat ne biologjine qelizore dhe molekulare (gjenetike)
3. Bazat kimike te qelizes
4. Qelizat eukariote- struktura dhe funksioni
5. Struktura perberja dhe roli I membranes plazmatike – transporti membranor
6. Sistemi membranoz I mbrendshem - Organelet qelizore , ndertimi dhe funksioni
7. Berthama qelizore – Struktura dhe sinteza e Acideve nukleike (gjenet dhe kromozomet)
8. Proceset metaboliko- rregulluese ne qelize .
9. Parimet e trashegimise
10. Ndarja qelizore – mitoza dhe mejoza
11. Indet – ndarja, ndertimi dhe roli I tyre
12. Organet dhe sistemet e organeve – ndertimi dhe roli I tyre
13. Embriologjia
14. Taksonomia , klasifikimi dhe sistematika
 | 1 |
| Type of toxical substances | 2 |
| The nature of action of toxic compounds | 3 |
| The distribution of toxic substances | 4 |
| The metabolism of xenobiotics- foreign substances | 5 |
| The reactions of Phase II.  | 6 |
| Colloquium 1 | 7 |
| Toxicity toward detoxification | 8 |
| The types of explosion and the response | 9 |
| Direct toxic action | 10 |
| Biomarkers | 11 |
| Drugs and toxic substances | 12 |
| Industrial toxicology | 13 |
| Colloquium 2 | 14 |
|  | Final exam | 15 |
| **Literature/References** | 1. Skriptë interne Bazat e Toksikologjisë nga Dr.sc. Smajl Rizani
2. Ferdi Brahushi - Ndotësit organic dhe ekotoksikologjia
3. Kapllan Sulaj -Toksikologjia ushqimore
4. Hayes, W. (2009) Principles and Methods of Toxicology, 4. izd, Taylor & Francis Books, New York.
5. Timbrell, J.A. (2009) Principles of Biochemical Toxicology, 4.izd., Taylor&Francis, London.
6. Klaassen, C. (2007) Casarett & Doull's Toxicology: The Basic Science of Poisons,7.izd. McGraw-Hill Professional, New York.
7. Hodgson, E. (2004) A Textbook of Modern Toxicology, 3. izd., Wiley-Interscience, Hoboken, NJ.
8. Timbrell, J.A. (1995) Introduction to Toxicology, 2. izd., Taylor&Francis, London..
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