

Programme: M. Sc. (Zoology)

Course Code: ZOO-309

Number of Credits: 2

Effective from AY: 2018-19

Title of the Course: Genetic Toxicology

<u>Prerequisites for the course:</u>	Basic working knowledge of Anatomy, Physiology and ecology.	
<u>Objective:</u>	Provides broad theoretical knowledge within toxicology and development of a general working knowledge of the principles and practice of clinical toxicology.	
<u>Content:</u>	Module 1: Introduction to toxicology, Branches of toxicology, Dosage and time response relationships. Biotic and abiotic aspects effecting toxicity. Means of exposures (acute, chronic, Impact of toxicants on organism (Direct/ indirect, long term etc.) Toxic risk assessment. Ecotoxicology and bio-monitoring.	12 hours
	Module 2: Genotoxicity: Introduction to genotoxicity, Neurotoxicity Vs Genotoxicity / hepatotoxicity, Mechanisms, test techniques like bacterial reverse mutation assay, <i>in vitro</i> toxicology testing, <i>In vivo</i> toxicology testing, comet assay, Chemotherapy, Risk and different treatment like alkylating agents, intercalating agents, enzyme inhibitors.	12 hours
<u>Pedagogy:</u>	Lectures/ tutorials/assignments/self-study	
<u>References/Readings</u>	1. Butler JC, Principle of Toxicology, John Wiley & Sons, NY. 2. Duffers JH, Environmental Toxicology, Edwards Arnold Publ. London 3. De Anil Kumar, Environmental Chemistry, Wiley Eastern Ltd., New Delhi. 4. Hays JW and RR Laws, Handbook of Pesticide Toxicology (vol. I), Academic Press, NY 5. Li A and Heflich RH, Genetic Toxicology, CRC Press, USA.	
<u>Learning Outcomes</u>	1. Identification of different routes of exposure of environmental toxins. 2. Understanding of the physiological and genotoxic effects of drugs and environmental toxins. 3. Knowledge of various techniques for Toxicity evaluation.	