

## COURSE SYLLABUS

### EVSC 616 and 416 , Toxicology (Prof. Pradyot Patnaik)

#### Lecture Topics

Introduction to the Course ; absorption, distribution and excretion of toxicants.  
Biotransformation of toxicants, enzymatic reactions, Bioactivation.  
Toxic effects, target organs, mechanisms of action, molecular targets.  
Modifying factors of toxic effects, host factors, chemical interaction.  
Toxicology of the liver, hepatotoxicants, types of liver injury.  
Toxicology of the kidney, nephrotoxicants, testing procedures.  
Toxicology of the skin, dermatotoxicants.  
Carcinogenesis, mode of action, human carcinogens, classification of carcinogens.  
Teratogenesis, developmental toxicants and their effects, mode of action.  
Toxicity of pesticides, organochlorine- , organophosphorus- , carbamate- , and chlorophenoxy pesticides and herbicides  
Miscellaneous toxicants of specific structural features: dioxins and related compounds; nerve gases.  
Toxicity of metals, certain common features and toxic effects, exposure risks.  
Food additives and contaminants.  
Occupational toxicology, exposure limits and monitoring.  
Environmental pollutants, air-, water-, and soil pollutants.  
Toxicologic evaluation, risks and safety assessment, mathematical models.

Course review and review for the final exam

#### *Final Examination and submission of project papers*

Textbook: *Lu's Basic Toxicology, 5<sup>th</sup> edition* by Frank C, Lu and Sam Kacew , published by Taylor & Francis

Grading: The final exam and the project paper will each carry a total of 100 points. The cumulative total points will be 200. The final grades for the semester will be assessed from the overall performance in the final exam and evaluation of the project paper. The project paper will be evaluated based on the depth, contents and clarity of write-ups.