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ENVR 436/636
Toxicology and Human Physiology
Fall 2001
3.0 Credits (3 hrs/wk)

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Course Description

This course reviews general human physiology and the acute and chronic effects of toxicants upon physiological mechanisms.

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Prerequisites

ENVR 321, TDEC 122 or equivalent (undergraduates); ENVR 501 (graduates); knowledge of or experience with basic biochemistry and physiology desired.

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Textbook(s) or other required material

Required: Ottoboni, M.A. – The Dose Makes the Poison (2nd Edition) (1997). John Wiley & Sons
Supplemental: Casarett & Doull's - Toxicology, The Basic Science of Poisons (5th Edition) (1996). McGraw-Hill.

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Course Objective(s)

- To teach basic concepts of toxicology and human physiology
- To encourage an understanding of basic mechanisms of toxicant action through study of well-known toxicants
- To develop proficiency with toxicological nomenclature
- To provide a knowledge base for further in-depth exploration of toxicological issues

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Topics Covered

- History and Evolution of Toxicology as a Science

- Principles of Toxicology
  Dose-Response
  Probit Analysis
  Safety Margins

- Physiology and Toxic Responses of:
  Skin
  Respiratory System
  Liver
  Kidney
  Nervous System
  Reproductive System

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Computer Usage

There is no required computer usage for this course. Students should be fairly proficient with computers in order to access web-based resources. Additionally, course lectures are available for downloading from a server maintained by the library.

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Laboratory Projects

There are no laboratory projects scheduled for this course.

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Web-Based Resources

General:

http://igm.nlm.nih.gov/

National Library of Medicine, National Institutes of Health, databases. Note particularly **Chem*ID*** (listing of CAS# for chemical substances) and **TOXLINE** (database of research abstracts on many chemicals)

http://www.biology.arizona.edu/chh/

Problem sets and tutorial on basic principles of toxicology from the University of Arizona's The Biology Project

http://esynopsis.uchc.edu/

University of Connecticut School of Medicine Department of Pathology collection of descriptions/slides of various organ systems and pathological states

Specific:

Skin

http://www.nsc.gov.sg/commskin/skin.html

Compilation of links to resources about common skin diseases. Provided by the National Skin Centre, Singapore. Of special interest to this class are those about contact allergy, occupational skin diseases and psoriasis.

Respiratory System

http://www.biology.arizona.edu/chh/

Problem sets and tutorials on the respiratory system from the University of Arizona's The Biology Project

Liver

http://www-medlib.med.utah.edu/WebPath/LIVEHTML/LIVERIDX.html

Collection of slides of liver steatosis, cirrhosis, and neoplasms

Kidney

http://www.biology.arizona.edu/chh/

Problem sets and tutorials on kidneys and metals from the University of Arizona's The Biology Project

Nervous System

http://anatomy.utmb.edu/microanatomy/nerve/peripheral_nerve_histology.htm

Slides of peripheral nerve axons, myelin, and Nodes of Ranvier

http://anatomy.utmb.edu/microanatomy/nerve/spinal_cord_histology.htm

Slides of Nissl substance

Reproductive System

http://www.biology.arizona.edu/human_bio/problem_sets/Human_Reproduction/human_reproduction.html

Problem set and tutorial on human reproductive system from the University of Arizona's The Biology Project

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Prepared by: Jane Huggins, Ph. D. Date: 05/01/01