

NEW COURSE PROPOSAL

PROGRAM AREA BIOLOGY

- 1. Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

BIOL 402 TOXICOLOGY (3)

Three hours of lecture per week.

Prerequisite: CHEM 122; BIOL 201 with a grade of C or better.

An in depth study of toxic chemicals and their interactions within the ecosystems. Topics include the origin, fate, chemical and biological detection, and quantification of pollutants and toxins and their impact on organisms at the molecular, biochemical, cellular, physiological, organismal, and community levels of organization. Basic toxicology, genetic toxicology, environmental mutagenesis and the molecular basis of mutation induction will be covered.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u>3</u>	<u>1</u>	<u>30</u>
Seminar	<u> </u>	<u> </u>	<u> </u>
Laboratory	<u> </u>	<u> </u>	<u> </u>
Activity	<u> </u>	<u> </u>	<u> </u>

- 3. Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This is an elective course designed to introduce biology students to the latest advances in toxicology.

Students that successfully complete this course should be able to:

1. Apply problem-solving skills to toxicity problems and issues.
2. Evaluate biological factors that influence toxicity.
3. Demonstrate their ability to reason both inductively and deductively with experimental information and data.
4. Describe the nature and actions of chemicals on biological systems.
5. Select and apply experimental procedures to toxicity testing.

4. Is this a General Education Course **No**

If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

- Introduction
- Biochemistry and Metabolism of Xenobiotics
- Cytochrome P-450
- Biological Oxidations

- Chemcial Mutagenesis
- Carcinogenesis
- Toxic Effects of Chemicals
- Clinical Toxicology
- Antidotal Therapy

6. References. [Provide 3 - 5 references on which this course is based and/or support it.]

Loomis's Essentials of Toxicology, 4th Ed., T. Loomis and A. Hayes, Academic Press, ISBN 0-12-455625-6
Molecular Toxicology P.D. Josephy, Oxford, ISBN 0-19-509340-2
Environmental Toxicology, 3rd Ed. S.F. Zakrzewski, Oxford, ISBN 0-19-514811-8
Toxicology, Marquardt, Schafer, McClellan, and Welsch eds. Elsevier Science, ISBN 0-12-473270-4

7. List Faculty Qualified to Teach This Course.

Biology faculty

8. Frequency.

a. Projected semesters to be offered: Fall _____ Spring X Summer _____

9. New Resources Required.

- Computer (data processing), audio visual, broadcasting needs, other equipment
- Library needs
- Facility/space needs

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

Ching-Hua Wang	1 JAN 2003
Proposer of Course	Date