CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA _____BIOLOGY_____

1. Catalog Description of the Course.

BIOL 507 PHARMACOGENOMICS AND PHARMACOPROTEOMICS (3)
Three hours lecture per week
Prerequisite BINF 500, BIOL 504 or permission of instructor

Structural and functional genomics with an emphasis on how these fields operate in drug discovery and optimization. Topics include: genetics of the human response to prophylactic and therapeutic agent, impact of genetic variation on therapeutic efficacy, disease mechanisms, proteomics of genetic and communicable disease, drug action and toxicity, structure encoding, lead discovery and optimization, parallel synthesis, screening virtual libraries.

2. Mode of Instruction.

	Units	**Hours per Unit**	**Benchmark Enrollment**
Lecture	_____3___	____1____	___15_____
Seminar	_____	_____	_____
Laboratory	_____	_____	_____
Activity	_____	_____	_____

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 course is an elective element of the biotechnology emphasis for the proposed Professional Science Masters degree in Bioinformatics

Upon completion of this course, students will be able to:

- explain the genetic factors underlying efficacy/toxicity of drug therapy
- evaluate genomic methods in drug design
- assess the value of phenotyping/genotyping in guiding drug therapy of individual patients
- screen a virtual library for molecules with potential therapeutic value

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 to Structural Genomics
Introduction to Functional Genomics
Genetics of the Human Response to Prophylactic and Therapeutic Agents
Impact of Genetic Variation on Therapeutic Efficacy
Stratifying Diseases by Mechanism
Proteomics/Pharmacoproteomics of Genetic and Communicable Disease
Toxicoproteomics
Drug Discovery and Optimization

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

Kalow, W., Meyer, A. and Tyndale, R. 2001. Pharmacogenomics. Marcel Dekker & Associates, ISBN: 0824705440

Rothstein, M. 2003. Pharmacogenomics: Social, Ethical, and Clinical Dimensions. Wiley-Liss, ISBN: 0471227692
Michelson S and Joho K: Drug discovery, drug development and the emerging world of pharmacogenomics: prospecting for information in a data-rich landscape. Current Opinion in Molecular Therapeutics 2, 651-654 (2000)
Blume, A., Beasley J., and Goldstein, N. 2000. The use of peptides in Diogenesis: A novel approach to drug discovery and phenomics. Biopolymers 55: 347-356
Cochet, Olivier, David J. Heard, Pascale Fehlbaum, Caroline Ducray, and Laurent Cracco. 2003. Exploiting Human Genomic Diversity Through Alternative RNA Splicing. PharmaGenomics 3:26-36
Brown, S. 2002. Essentials of Medical Genomics. Wiley-Liss, ISBN: 047121003X

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.

a. Computer (data processing), audio visual, broadcasting needs, other equipment
b. Library needs
c. Facility/space needs

None

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.

____Amy Denton 31 October 2003_____
Proposer of Course Date