

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA _____

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 420. CELLULAR AND MOLECULAR IMMUNOLOGY (4)

Three hours of lecture and three hours of laboratory per week.

Prerequisites: CHEM 122; BIOL 300 with a grade of C or better.

Study of cellular and molecular aspects of the immune system and its responses against infectious agents and/or environmental insults. Included are development of the organs and cells of the immune system, genetics of the molecules of the immune system and their functions and interactions during an immune response, immunological disorders such as immunodeficiencies, autoimmune diseases, transplantation, and contemporary immunological techniques used in clinical diagnosis and other modern research and development applications. A lab fee is required.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	___3___	___1___	___24___
Seminar	_____	_____	_____
Laboratory	___1___	___3___	___24___
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 is an upper-division elective course for students majoring in General Biology and a required course for students majoring in Biology with an Emphasis in Cell and Molecular Biology. It is to study cellular and molecular aspects of the immune system and its responses against infectious agents and/or environmental insults. It provides up-to-date knowledge and modern technology to students who are interested in medically related professional careers as well as careers in public and private sectors.

Students completing this class should be equipped with the knowledge and skills to:

1. Identify major components of the immune system at organ, cellular and molecular levels.
2. Discuss normal functions of these components during immune responses.
3. Elucidate the relationship between major cellular and molecular components of the immune system.
4. Explain adverse functions of these cellular and molecular components during abnormal circumstances.
5. Describe mechanisms of diseases associated with adverse functions of the immune system.
6. Apply immunologic techniques to solve certain clinical and research problems.

4. Is this a General Education Course **YES** **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 immunology
Immune system and immune response
Antigen
Immunoglobulin
Immunoglobulin genetics
B cell maturation and response
The major histocompatibility complex genes and molecules and their functions
T cell maturation
T cell receptor
T cell response
Cytokines
Complements and inflammation
Immunity to infection
Vaccine development
Immunity to tumors and transplants
Immunodeficiency
Hypersensitivities
Autoimmunity
Laboratory techniques

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

1. **Kuby Immunology**, Richard A. Goldsby, Thomas J. Kindt, Barbara A. Osborne, Janis Kuby, W H Freeman & Co.; ISBN: 0716733315; 4th edition, 2000
2. **Cellular and Molecular Immunology**, Abul K. Abbas, Andrew H. Lichtman, Jordan S. Pober, Abdul K. Abbas. W B Saunders Co; ISBN: 0721682332; 4th edition, 2000
3. **Immunobiology**, Charles Janeway (Editor), Paul Travers, Garland Pub; ISBN: 081533642X; 5th edition, 2001
4. **Roitt's Essential Immunology**, Ivan M. Roitt, Peter J. Delves, Blackwell Science Inc; ISBN: 0632059028; 10th edition, 2001
5. **Immunology: A Laboratory Manual**, Richard L. Myers, McGraw-Hill Science/Engineering/Math; ISBN: 0697113132; 2nd edition, 1994
6. **Manual of Immunological Methods**, P. Brousseau (Editor), M. Beaudet (Editor), Yves Payette, Barry R. Blakely, CRC Press; ISBN: 084938558X, 1998
7. **Immunology (The Clinical Laboratory Manual Series)**, Juanita A. Smith, Delmar Learning; ISBN: 0827356374; 1st edition, 1995

7. List Faculty Qualified to Teach This Course.

Ching-Hua Wang or other biology faculty member

8. Frequency.

a. Projected semesters to be offered: Fall x Spring x Summer x

9. New Resources Required.

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

1-3-03

Proposer of Course

Date