

## 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 421. VIROLOGY (3)**

Three hours lecture per week

Prerequisites: CHEM 122; BIOL 301 with a grade of C or better

Study of aspects of molecular structure, genetics, and replication of viruses and other sub-viral agents such as prions and viroids, virus-host interactions, pathogenesis of viral infections, diagnostic virology, and antiviral vaccines and drugs; emphasis on human pathogens.

- 2. Mode of Instruction.**

	<b>Units</b>	<b>Hours per Unit</b>	<b>Benchmark Enrollment</b>
Lecture	____3____	____1____	____24____
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 is an upper-division elective course for students majoring in Biology. It is to study molecular structures and functions of viruses and sub-viral agents such as viroids and prions. It provides up-to-date knowledge in virology 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. Describe the general properties of viruses.
2. Differentiate viruses from other types of microbial agents.
3. Elucidate the mechanisms viruses use to replicate in their hosts.
4. Explain the pathogenic mechanisms of viral diseases.
5. Describe immune defence mechanisms used by the host to fight against viral agents.
6. Describe the concept, practice and significance of immunization.
7. Identify major diagnostic techniques used to assess viruses in various specimens.
8. Name major pathogenic viruses and the diseases they cause.
9. Apply the knowledge learned from this course to prevent viral infections.

- 4. Is this a General Education Course**                      **YES**                      **NO**  
**If Yes, indicate GE category:**

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

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

General properties of viruses

Viral replication and genetics

Pathogenesis and control of viral diseases

Viral immunology  
Diagnosis of viral diseases  
Adenoviruses  
Coronaviruses  
Viroids and prions  
Herpesviruses  
Poxviruses  
Picornaviruses  
Orthomyxoviruses ( Influenza viruses )  
Paramyxoviruses  
Rubella virus  
Rhabdoviruses  
Filovirus  
Arthropod-borne viruses  
Reoviruses and Caliciviruses  
Hepatitis viruses  
Retrovirus: Human immunodeficiency virus and AIDS  
Oncogenic viruses

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

1. **Medical Virology**, David O. White, Frank J. Fenner , Academic Press, 1998
2. **Principles of Molecular Virology (Book with CD-ROM)**, Alan J. Cann, Academic Press; ISBN: 0121585336; 3rd edition (March 15, 2001)
3. **Principles of Virology: Molecular Biology, Pathogenesis, and Control**, S. Jane Flint (Editor), L. W. Enquist, R. M. Krug, S.J. Flint, A. M. Skalka, V. R. Racaniello, Jane S. Flint, Lynn W. Enquist, Vincent R. Racaniello, Amer Society for Microbiology; ISBN: 1555811272; 1 edition (December 1999)
4. **Fundamental Virology**, David M. Knipe (Editor), Peter M. Howley (Editor), Diane E. Griffin (Editor), Robert A. Lamb, Malcolm A. Martin, Lippincott Williams & Wilkins Publishers; ISBN: 0781718333; 4th edition (August 15, 2001)

**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.**

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.**

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Ching-Hua Wang	1-3-03
Proposer of Course	Date