

BI 011: BIOLOGY OF VIRUSES

Originator

msilveira

Justification / Rationale

This proposal is to add an online modality option to this lecture-only course. This course is approved for transfer to CSUs and UCs. Adding the online modality option will provide more access to students who need the general elective.

Effective Term

Fall 2023

Credit Status

Credit - Degree Applicable

Subject

BI - Biology

Course Number

011

Full Course Title

Biology of Viruses

Short Title

BIOLOGY OF VIRUSES

Discipline**Disciplines List**

Biological Sciences

Modality

Face-to-Face

100% Online

Hybrid

Catalog Description

This course is designed for science and non-science major students. The course emphasizes molecular and cellular biology, epidemiology, and development of diseases caused by human viruses. This includes the study of viral structure, classification, natural viral habitats, viral replication methods, host immune responses to viral infections, human viral diseases, viral isolation techniques, immunization and treatments. The scientific method is introduced and specific examples of its application to the study of viruses are included.

Schedule Description

This course provides an introduction and understanding of the biology of viruses to both science and non-science major students, specifically emphasizing those viruses implicated in human diseases.

Advisory: ENG 061

IGETC: 5B

Lecture Units

3

Lecture Semester Hours

54

Lab Units

0

In-class Hours

54

Out-of-class Hours

108

Total Course Units

3

Total Semester Hours

162

Prerequisite Course(s)

Advisory: ENG 061

Required Text and Other Instructional Materials**Resource Type**

Book

Author

Shors, Teri

Title

Understanding Viruses

Edition

2nd

City

Sudbury, Massachusetts

Publisher

Jones and Bartlett Publishers

Year

2013

College Level

Yes

Flesch-Kincaid Level

12.7

ISBN #

9781284025927

For Text greater than five years old, list rationale:

This edition is the newest for this text. Once a newer edition is published, it will be adopted.

Class Size Maximum

28

Entrance Skills

Read and respond in writing beyond literal interpretation of reading assignments.

Requisite Course Objectives

ENG 061-Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.

Entrance Skills

Organize and express ideas in writing, reports, and answering essay exam questions.

Requisite Course Objectives

ENG 061-Use theses to organize paragraphs into coherent analyses.

ENG 061-Demonstrate the ability to think critically and express ideas using various patterns of development.

ENG 061-Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.

Entrance Skills

Use critical thinking skills in reading and composition.

Requisite Course Objectives

ENG 061-Demonstrate the ability to think critically and express ideas using various patterns of development.

Entrance Skills

Use appropriate vocabulary and style.

Requisite Course Objectives

ENG 061-Recognize features of style such as purpose, audience and tone integrate these elements into academic and professional writing.

Entrance Skills

Apply standard rules of grammar, punctuation, composition mechanics, and use correct spelling

Requisite Course Objectives

ENG 061-Use theses to organize paragraphs into coherent analyses.

ENG 061-Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.

Course Content

1. Introduction to Viruses
2. Human Cell Biology Review
 - a. Basic human cell anatomy
 - b. Human cellular functions (protein synthesis, replication, communication)
3. Structure of Viruses
 - a. Viral morphology
 - b. Nucleic acids
 - c. Enveloped/non-enveloped
4. Viral Classification
5. Viral Infections and Pathogenesis
 - a. Preferred routes of entry
 - b. Mechanisms of viral spread
6. Host immune responses to viral infections
 - a. Host physiological factors
 - b. Non-specific host defenses
 - c. Specific host defenses
7. Diagnosis of Viral Infections
8. Antiviral Treatments
9. Drugs
 - a. Vaccines
10. Viral Epidemiology
 - a. Centers For Disease and Control (CDC); World Health Organization (WHO)
 - b. Morbidity and Mortality Weekly Report (MMWR)
11. Viral Infections and Cancer
 - a. Hepatitis B and C viruses: interactions in human liver cancer
 - b. Human Papilloma Virus (HPV) infections
 - c. Kaposi's Sarcoma in HIV
 - d. Epstein Barr Virus (EBV) and Burkitt's lymphoma
 - e. HTLV-1/HTLV-2 in Human T-cell leukemia and Lymphoma

12. Poliovirus and Other Enteroviruses
13. Influenza Viruses
14. Rabies
15. Poxviruses
16. Herpesviruses
17. Human Immunodeficiency Virus
18. Hepatitis Viruses
19. Epidemiology of Transmissible Spongiform Encephalopathies (TSEs)
 - a. Prion infections
 - b. Viroids
20. New and Reemerging Viruses
21. Facilities For Studying Viruses
 - a. Biosafety Level (BSL) 1-4 facilities and Guidelines
22. Prevention of Viral Infections (Review)

Course Objectives

Objectives	
Objective 1	Analyze and examine basic anatomy and physiology of the human body as it relates to viral infections.
Objective 2	Critically evaluate the sometimes conflicting medical information concerning viruses.
Objective 3	Research and discuss local, national and worldwide virus information resources and how to access them.
Objective 4	Understand and discriminate symptoms and treatment of specific viral diseases.
Objective 5	Explain and assess the different modalities used in viral infection treatment.
Objective 6	Describe viral disease prevention strategies.
Objective 7	Analyze scientific literature related to viruses.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Describe the anatomy of a virus and a human cell.
Outcome 2	Describe the mechanisms for viral entry and spread through the human body.
Outcome 3	Assess the roles of different viruses as threats to the health of worldwide and local populations.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Use of whiteboard or Powerepoint slides for lecture notes. Multimedia presentations of biological phenomena or viruses in current events.
Activity	Activities and assignments may be used in class to reinforce course concepts. Online: activities and assignments will be used to reinforce retention of lecture material.
Discussion	In-person: Discussions will be held in the lecture space with possibility of small presentations to kick-start discussion. Online: Discussions, based on lecture, will be used to promote student discourse and allow students to connect lecture topics to what happens outside of class.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Presentations/student demonstration observations	Students will research, develop, and explain presentations about the effects of viruses. An example would be finding and presenting on a current news article relating to viruses and connecting it to course concepts. Students will research and develop presentations out of class and will explain the topic in class. Online: This presentation may be in written, video, or other form. May be used to start online discussions.	In and Out of Class
Tests/Quizzes/Examinations	Exams and quizzes will require students to identify, apply, and explain important concepts and facts. Quizzes and exams will consist of multiple choice, matching, true/false and short answer questions. Online: Exams and quizzes will be administered online, using the LMS	In Class Only

Assignments
Other In-class Assignments

1. Lecture quizzes and exams.
2. Student presentations.

Other Out-of-class Assignments

1. Assigned readings in text and supplementary materials
2. Internet searches of local and national virus related resources

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?

Only the college LMS and relevant websites will be used. Websites should be some reputable scientific or news organizations.

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.

The online version of this course will allow students to utilize real time data, from trusted websites, in order to enhance their understanding of the topics. Students will be able to benefit by learning that understanding viruses is a current, ongoing, and evolving endeavor.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

- Discussion forums with substantive instructor participation
- Online quizzes and examinations
- Private messages
- Regular virtual office hours
- Timely feedback and return of student work as specified in the syllabus
- Video or audio feedback
- Weekly announcements

External to Course Management System:

Direct e-mail
Posted audio/video (including YouTube, 3cm mediasolutions, etc.)
Synchronous audio/video

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.

Weekly announcements along with emails will serve as a starting point for regular effective contact. Additional emails (class-wide and individual) will continue contact and be tailored to the student needs. Discussion boards will allow regular professor-student and student-student communication. Virtual office hours will be offered and can serve as a group session for more student-student communication.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.

Interacting with students outside the LMS may include video conference and email. Video conferencing will allow students to ask questions in a more comfortable setting and allow the instructor to spend as much time as needed to explain concepts.

Other Information**Comparable Transfer Course Information****University System**

CSU

Campus

CSU San Bernardino

Course Number

BIOL 217

Course Title

Biology of Sexually Transmitted Diseases

Catalog Year

2014-15

COD GE

C1 - Natural Sciences

CSU GE

B2 - Life Science

IGETC GE

5B - Biological Science

MIS Course Data**CIP Code**

26.0502 - Microbiology, General.

TOP Code

040300 - Microbiology

SAM Code

E - Non-Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status

Transferable to both UC and CSU

General Education Status

Y = Not applicable

Support Course Status

N = Course is not a support course

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

11/01/2022

Academic Senate Approval Date

11/10/2022

Board of Trustees Approval Date

12/16/2022

Course Control Number

CCC000513188

Programs referencing this course

Liberal Arts: Math and Science AA Degree (<http://catalog.collegeofthedesert.eduundefined/?key=29>)