## Curriculum Proposal

**BIOL 19-20 #2**

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**New Course**

1.2 BIOL 3299/5299 Virology (3 credits)

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Form 1

Curriculum Modification Summary

College: Business, Mathematics, and Science
Department: Biology
Proposer: Holly LaFerriere
Proposer’s position: Assistant Professor

Describe the modification(s) you propose, and how it (/they) will work to students’ advantage. (This description and explanation will be included in Curriculum Report packets forwarded to the Faculty Senate.):

I propose the addition of BIOL 3299/5299 Virology to the curriculum. This course provides students with the necessary background to understand how viruses infect people, cause disease, and may lead to epidemics. This experience will be beneficial to students interested in medical professions, biomedical research, and those that want a better understanding of viruses.

Modifications proposed (specify number of each):

_____Course Modification(s) (form 2)
_1___New Course(s) (form 3)
_____Course Drop(s) (form 4)
_____Program Modification(s) (form 5)
_____New Program(s) (form 6)
_____Program Drop(s) (form 7)

The modifications affect (check):

____Liberal Education
_X_Undergraduate Curriculum
_X_Graduate Curriculum
_____Teacher Licensure Program(s)
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Form 3
Updated: 9.19.15

New Course Form

Course Number:
Undergraduate: BIOL 3299
Graduate: BIOL 5299

Course Title: Virology

Course Description: This course explores virology, which is the study of viruses that infect all manner of life on earth. We will focus on animal viruses and those that impact human health. Important discoveries from viruses that infect microbes, plants, and non-human animals will be included. Prerequisite(s): One year introductory biology or consent of instructor

Credits: 3

Prerequisite(s):
Undergraduate: One year introductory biology or consent of instructor
Graduate: None

1. Reason(s) for creating this course: Virology is an area of study that is of interest to all those planning to enter medical professions, biomedical research, or that want to know more about how viruses infect people, cause disease, and may lead to epidemics. I also had several students express an interest in this type of course after taking Microbiology. This course will be advantageous to many of our students. It has been taught successfully as an experimental course Summer 2018 and 2019.

2. How often will this course be offered? Every summer.

3. What are the student learning outcomes for the course (please precede each outcome with "Students will...")?
   1. Students will analyze the nature of viruses, including their structure, replication and classification.
   2. Students will examine how infection and replication of viruses is constrained by the viral genome and host immune defenses.
   3. Students will assess how transmission strategies, immune evasion and host responses contribute to viral pathogenesis.
   4. Students will interpret viral evolution mechanisms and how they contribute to emergence and reemergence of viral disease.
   5. Students will evaluate biological, environmental and human behavior (including social and political behavior) that contributes to transmission of viruses, particularly emerging and re-emerging disease.
6. Students will comprehend and appreciate the major and varied laboratory techniques and research approaches employed in the field of virology.

4. What are the major content areas for the course?

Viral structure and Nomenclature
Viruses as obligate intracellular parasites including their replication cycles
Epidemiology
Laboratory diagnosis, treatment, and prevention
Details on specific viruses: Poliovirus, Influenza viruses, Hepatitis viruses, Herpesviruses, HIV, Rabies, Poxviruses, and new/emerging viruses
Viruses and Cancer
History of viruses

5. Is this course repeatable for credit, and if so, what is the maximum number of credits that can be earned?

Not repeatable

6. If this course is intended primarily for off-campus delivery (not offered on campus), what delivery mechanism will be used?

Online through D2L

7. What is the projected maximum class size (cap)?

30

8. What qualified faculty will be available to teach this course?

Holly LaFerriere, Ph.D.

NOTE WELL: Department and dean, in approving this proposal, attest both to the adequacy of the qualifications of faculty here named, and to their availability to teach the course at the frequency specified above, without excessive overload or disruption to other curriculum.

9. What additional library and other resources need or should be provided for this course, that are not already available?

None

10. What special personal property or service fee(s) would be charged to students taking this course? These charges would be for 1) items that are retained by the student and have an educational or personal value beyond the classroom, or 2) services that are on the student’s behalf (see MnSCU Board Policy 5.11).
Amount per student: $15 per credit per student
For: Differential Tuition

11. Attach a sample syllabus for the course. Note: if this course is double-numbered (u-grad/grad), the syllabus must include an additional component for graduate students.
Bemidji State University
BIOL 3299/5299: Virology
Course Credits: 3
Summer Semester, 2019

Instructor: Holly LaFerriere, Ph.D.
Office: Sattgast 218N
Phone: 218-755-2946
Email: HLaFerriere@bemidjistate.edu (Preferred)

Course Description
This course explores virology, which is the study of viruses that infect all manner of life on earth. We will focus on animal viruses and those that impact human health. Important discoveries from viruses that infect microbes, plants, and non-human animals will be included.

Prerequisites: One-year introductory biology or consent of instructor

Student Learning Outcomes:
1. Students will analyze the nature of viruses, including their structure, replication and classification.
2. Students will examine how infection and replication of viruses is constrained by the viral genome and host immune defenses.
3. Students will assess how transmission strategies, immune evasion and host responses contribute to viral pathogenesis.
4. Students will interpret viral evolution mechanisms and how they contribute to emergence and reemergence of viral disease.
5. Students will evaluate biological, environmental and human behavior (including social and political behavior) that contributes to transmission of viruses, particularly emerging and re-emerging disease.
6. Students will comprehend and appreciate the major and varied laboratory techniques and research approaches employed in the field of virology.


Web materials: I will use the Desire 2 Learn (D2L) website to interact with students during this online course. Emails are sent to your BSU account—PLEASE check this account regularly. The D2L website address is: https://bemidjistate.ims.mnscu.edu/ Log in using your user name and password and click on “Virology” under the courses listed at the bottom of the page. Course materials will be available under the “content” tab. Your grades will be available under the “grades” tab.

Additional online resources: This Week in Virology (TWiV) is a podcast and blog that provides more opportunities to learn about virology: http://www.microbe.tv/twiv/ Early episodes have more introductory material.

Grading for All Students: Grades will be based on exams, quizzes and discussions.
200 points exams – one midterm and one final exam
90 points discussions – 1 or 2 discussion/collaborative assignments each week
135 points quizzes - one quiz each week
425 points total

**Exams:** Exams will be timed, open-book, online exams.

**Graduate Students:** In addition to the assignments listed for all students, graduate students will complete a current topics in Virology assignment. They will be tasked with identifying an emerging viral disease, writing a PowerPoint presentation on the virus that causes the disease, and sharing a recording of the presentation they develop with the class. Once this is complete, they will lead a class discussion about the virus using discussion posts. This assignment will be worth 100 pts.

Grades will be based on the following scale:
- A+=100%; A=93-99.9%; A-=90-92.9%; B+=87-89.9%; B=83-86.9%; B-=80-82.9%;
- C+=77-79.9%; C=73-76.9%; C-=70-72.9%; D+=67-69.9%; D=60-66.9%; F= below 60%

**Instructor policies:**
- Each student is responsible for completing all course requirements and for keeping up with all activities of the course
- Profanity or improper conduct of any kind will not be tolerated.

**Assignment Deadlines:** Assignments handed in after the due date, may receive reduced credit or not be accepted at all.

**Time Expectations:** This is a condensed course worth 3 credits. Students are expected to spend about 15 hours per week on the course.

**Academic Integrity Statement:** BSU students are expected to practice the highest standards of ethics, honesty and integrity in all of their academic work. Any form of academic dishonesty (e.g., plagiarism, cheating and misrepresentation) may result in disciplinary action. Possible disciplinary actions may include failure for part or an entire course as well as suspension from the University. It is suggested that students review BSU’s statement on academic integrity found within the Student Code of Conduct.

**Students with Special Needs:** BSU is committed to making all educational programs, course materials, services and activities sponsored by the University accessible to individuals with disabilities. Students requesting accommodations due to a disability or other need for access should contact Accessibility Services as soon as possible. Accessibility Services is located at Decker Hall 202. PH: 218.755.3883 or email: accessibility@bemidjistate.edu. This information is also available through Minnesota Relay Services at 800.627.3529.

**Mental Health and Counseling:** Students may experience mental health concerns or stressful events that may lead to diminished academic performance. The Student Center for Health & Counseling is available to assist you with concerns and can include stress relief services. They can be reached in Cedar Hall, First Floor. Phone: (218) 755-2053.

**Class Schedule (subject to change with notice)**

Week 1: Chapter 1 - Introduction to Viruses
Week 2: Chapter 2 - Virus Architecture and Nomenclature
Chapter 3 – Eukaryotic Molecular Biology, Cellular hurdles, and How Viruses Hijack Host Cells

Week 3: Chapter 4 - Mechanisms of Viral Entry and Spread of Infection, Chapter 5 - Host Resistance to Viral Infections, and Epidemiology

Week 4: Chapter 6 – Epidemiology
Chapter 7 – Laboratory Diagnosis of Viral Diseases and Working with Viruses in the Research Laboratory

Week 5: Midterm Exam
Chapter 8 – Poliovirus and Enteroviruses

Week 6: Chapter 9 – Influenza Viruses
Chapter 10 – Hepatitis Viruses
Chapter 11 - Herpesviruses

Week 7: Chapter 12 – Human Immunodeficiency Virus
Chapter 13 – Rabies
Chapter 14 - Poxviruses

Week 8: Chapter 15 – New and Reemerging Viruses
Chapter 16 – Viruses and Cancer

Week 9: Chapter 17 – The History of Medicine, Clinical Trials, Gene Therapy and Xenotransplantation
Chapter 18 - Bacteriophages

Final Exam

Upon request this document can be made available in alternate formats. Please contact Accessibility Services at 755-3883.
BSU Curriculum Forms

Form 8
Updated: 09.18.15

Signatures

_Holly LaFerriere / Assistant Professor / 09.26.2019_________________________________
Proposer / Title / Date

_Mark Wallert / Biology / 09.27.2019________________________________________
Chair or Director / Department or Program / Date
Note: "All departmental recommendations [on curriculum] must be reviewed and
approved by the department's faculty."--IFO/MnSCU Master Agreement

At this point, packet goes to Records Office/Curriculum Coordinator to be logged in
to the Curriculum Proposal Progress Grid.

_Marilyn Yoder / Business, Mathematics and Sciences / 10.03.2019________________
Dean / College / Date

Note: If proposal is sent back to the Proposer, please notify the Curriculum
Coordinator. If approved, packet goes to Academic Affairs Office.