



Course Approval Form

For instructions:
<http://registrar.gmu.edu/facultystaff/catalog-revisions/course/>

Action Requested: (definitions available at website above)

- Create NEW Inactivate
 Modify (check all that apply below)

Course Level:

- Undergraduate Graduate

- Title (must be 75% similar to original) Credits Repeat Status Schedule Type
 Prereq/coreq Restrictions Grade Mode Other: _____

College/School: Department:
 Submitted by: Ext: Email:

Subject Code: Number: Effective Term: Fall Spring Summer
 (Do not list multiple codes or numbers. Each course proposal must have a separate form.) Year

Title: Current
 Banner (30 characters max w/ spaces)
 New **Fulfills Mason Core Req?** (undergrad only)
 Currently fulfills requirement
 Submission in progress

Credits: (check one) Fixed → to or Variable → Lec + Lab/Rct → **Repeat Status:** (check one) Not Repeatable (NR) Repeatable within degree (RD) → Repeatable within term (RT) → Max credits allowed:

Grade Mode: (check one) Regular (A, B, C, etc.) Satisfactory/No Credit Special (A, B, C, etc. +IP) **Schedule Type:** (check one) Lecture (LEC) Lab (LAB) Recitation (RCT) Internship (INT) Independent Study (IND) Seminar (SEM) Studio (STU)
LEC can include LAB or RCT if linked sections will be offered

Prerequisite(s) (NOTE: hard-coding requires separate Prereq Checking form; see above website): **Corequisite(s):**

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code(s).
Equivalencies (check only as applicable): YES, course is 100% equivalent to _____
 YES, course renumbered to or replaces _____

Catalog Copy (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
This course is a discovery-based undergraduate research course where students purify phage from soil, use a variety of microbiology techniques, annotate phage genomes and use bioinformatics analyses.	

Indicate number of contact hours: Hours of Lecture or Seminar per week: Hours of Lab or Studio:
 When Offered: (check all that apply) Fall Summer Spring

Approval Signatures

Department Approval _____ Date _____ College/School Approval _____ Date _____

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

Undergraduate or Graduate Council Approval

UGC or GC Council Member _____ Provost's Office _____ UGC or GC Approval Date _____

Course Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference. Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL COURSES (required)

Course Number and Title: BIOL 401

Date of Departmental Approval: September 14, 2016

FOR INACTIVATED/REINSTATED COURSES (required if inactivating/reinstating a course)

- Reason for Inactivating/Reinstating:

FOR MODIFIED COURSES (required if modifying a course)

- Summary of the Modification:

FOR NEW COURSES (required if creating a new course)

- Reason for the New Course:
This is one of two new courses that have been developed to support the new Concentration in Bionformatics within the BS Degree in Biology and to promote student research.
 - Relationship to Existing Programs:
None
 - Relationship to Existing Courses:
None
 - Semester of Initial Offering:
Summer 2017
 - Proposed Instructors:
Dr. Anne Scherer
 - Insert Tentative Syllabus Below
-

BIOL 401 – Phage Discovery
Summer 2017 – Session C (5 Weeks)
MTWRF, 9:30am-1:00pm, Exploratory Hall Room 1603
Credits: 3

Instructor: Dr. Anne E. Scherer
Office: Exploratory Hall 1217
Office hours: by appointment

E-Mail: aschere2@gmu.edu
Phone: 703.993.4530

Graduate Teaching Assistant: Jennifer Jones E-Mail: jjones26@gmu.edu

Course Description

This class is designated as a Students as Scholars Research and Scholarship (RS) Intensive Course, which means that you are given the opportunity to actively participate in the process of scholarship and will make a significant contribution to the creation of a disciplinary-appropriate product. To learn more about Students as Scholars, visit oscar.gmu.edu.

This course is part of the SEA-PHAGES program - a HHMI Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science program. SEA-PHAGES (Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science) is a discovery-based undergraduate research course where students purify phage from soil, use a variety of microbiology techniques (including electron microscopy and isolation of genomic material for nucleic acid sequencing) to eventually annotate phage genomes and use bioinformatics analyses. This course aims to increase undergraduate interest in research by finding their own bacteriophages and developing a sense of project ownership.

Course Objectives

1. Students will isolate their own bacteriophages, and in the process gain a mastery of wet lab microbiological techniques.
2. Students will be able to describe bacterial viruses, their ecological importance, life cycle, and the purification process.
3. Students will record, analyze and communicate their scientific findings.

Course Assignments and Grades

Your grade will be determined by a combination of attendance and participation, mastery of molecular and microbiological skills and written and oral presentations.

Attendance/Class participation (10 points per lab period)	250 points
Lab notebook	50 points
Skills tests	50 points
Quizzes	50 points
Oral presentation	50 points
<u>Final Paper</u>	<u>50 points</u>
Total	500 points

Grades will be distributed in the following manner:

A+	97-100	B	83-86	D	60-69
A	93-96	B-	80-82	F	59 or less
A-	90-92	C+	77-79		
B+	87-89	C	70-76		

Tentative Course Schedule

Students will be working at their own pace – being aware of the following deadlines. Some procedures will take longer and will need several repetitions depending on their phage.

Week	Laboratory Activities	Deadlines
1	<ul style="list-style-type: none">• Learn basic lab techniques• Collect soil samples• Direct and enrichment plating	<ul style="list-style-type: none">• Identification of phage plaques
2	<ul style="list-style-type: none">• Plaque isolation• Plaque purification and titer	<ul style="list-style-type: none">• Purification of phage
3	<ul style="list-style-type: none">• DNA isolation and purification• DNA restriction digest and QC gel	<ul style="list-style-type: none">• High Titer Lysate collected• DNA Purification and Quantification• DNA Quality Control Gel and Restriction Digest
4	<ul style="list-style-type: none">• Electron microscopy• Archiving Samples• Inventory of Samples	<ul style="list-style-type: none">• Upload all phage information to Phagesdb.org
5	<ul style="list-style-type: none">• Papers• Oral Presentations	<ul style="list-style-type: none">• Final Paper Due

Required Texts

There are no required texts for this course. All materials will be provided through Blackboard. Log in at <http://mymason.gmu.edu>.

Attendance and Late Work Policy

Regular attendance and participation are expected. Attendance and grades are highly correlated in any class. Except in the very rare case of last minute emergencies (e.g.: you were hit by a car as you were walking to class and were taken to the emergency room), you should let me know about any excused absences and make arrangements for making up any missed work in advance. I do not consider work-related absences, work in other classes, oversleeping, or meetings with other professors a personal emergency.

Unless otherwise announced, all assignments are due at the beginning of class on the day that they are due. You should NOT expect to be allowed to turn in assignments later in the day for full credit. Late work will not be accepted except in the case of a documented personal emergency or excused absence. You will not be allowed to make up in-class assignments or exams unless you have a documented, excused absence. It is your responsibility to provide written documentation from a third party of your emergency or university-excused absence

Academic Integrity

The integrity of the University community is affected by the individual choices made by each of us. GMU has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me. For more information about the honor code, please see <http://oai.gmu.edu/>.

Class Etiquette

You will be expected to come to lab on time and participate while you are in lab. You will be in charge of your own progress and must meet the benchmarks specified in the syllabus. Failure to meet these benchmarks will lead to loss of class participation points. Make best use of your time in lab. During incubation periods, start thinking about your next experiment. Before you leave lab you must have an instructor/TA check your lab notebook and fill out the supply request form for the reagents you will need during the next lab period. When you are done with your experiments for the day and you have checked out, you may leave. Please do not bring your cell phones or laptops to class for sanitation reasons. Talking on your cell phone or texting will automatically lead to loss of participation points.

Disability Accommodations

If you have a learning or physical difference that may affect your academic work, you will need to furnish appropriate documentation to the Office of Disability Services. If you qualify for accommodation, the ODS staff will give you a form detailing appropriate accommodations for your instructor. In addition to providing your professors with the appropriate form, please take the initiative to discuss accommodation with them at the beginning of the semester and as needed during the term. Because of the range of learning differences, faculty members need to learn from you the most effective ways to assist you. If you have contacted the Office of Disability Services and are waiting to hear from a counselor, please let your instructor know.

Diversity

George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected.

The reflection of Mason's commitment to diversity and inclusion goes beyond policies and procedures to focus on behavior at the individual, group and organizational level. The implementation of this commitment to diversity and inclusion is found in all settings, including individual work units and groups, student organizations and groups, and classroom settings; it is also found with the delivery of services and activities, including, but not limited to, curriculum, teaching, events, advising, research, service, and community outreach.

Acknowledging that the attainment of diversity and inclusion are dynamic and continuous processes, and that the larger societal setting has an evolving socio-cultural understanding of diversity and inclusion, Mason seeks to continuously improve its environment. To this end, the University promotes continuous monitoring and self-assessment regarding diversity. The aim is to incorporate diversity and inclusion within the philosophies and actions of the individual, group and organization, and to make improvements as needed.

Privacy

Student privacy is governed by the Family Educational Rights and Privacy Act (FERPA) and is an essential aspect of any course. Your instructor cannot discuss your educational record with your parents, your friends, or anyone except for you. Because your GMU email is the only one that we can explicitly identify as belonging to you, your instructor will only communicate with you via email using your GMU address, and your instructor will not discuss grades via email. Students must use their MasonLive email account to receive important

University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.