

# Biology 4370 –Microbial Communities

## Winter 2019

### SYLLABUS

The objective of the course is to introduce you to the concept of microbial communities and their roles in health and the environment. To meet this objective you will read popular science articles, reviews, study articles from the primary literature and discuss them in class, and work through problem sets and other activities. Your success at meeting the objectives will be evaluated by exams, homework, and in-class activities. The three topics of the semester will be biofilms in disease, microbial communities in the environment, and human/animal microbiota.

**Content Learning Objectives** Students will be able to:

1. describe the structure of a microbial biofilm and relate biofilm features to resistance properties and disease progression
2. describe the key regulatory pathways and microbial properties involved in biofilm formation
3. describe strategies used to limit or disperse biofilms
4. describe how microbial communities contribute to nutrient cycling, greenhouse gas emissions, and bioremediation
5. describe the role of microbiota in human health, animal health, and forensics
6. describe methodologies used to study biofilms, microbial communities in the environment and microbiota

**Skill Learning Objectives** Students will be able to:

1. **interpret and evaluate data** from primary literature, including describing the hypothesis, approach, results and conclusions of a set of experiments.
2. **evaluate popular science articles** and practice critical thinking by reference to relevant primary research articles
3. **design experiments** to address relevant questions related to mechanisms of assembly of biofilms, and activities and composition of environmental microbial communities and microbiota. Design appropriate controls for data interpretation.

**Prerequisites:** Completing Bio 2200 and Bio3070 with grades of C-minus or above is the prerequisite for this course.

**Instructor:** Dr. Penelope Higgs

**E-mail:** [pihiggs@wayne.edu](mailto:pihiggs@wayne.edu)

**Course website:** [www.canvas.wayne.edu](http://www.canvas.wayne.edu)

**Office:** 4115 Biological Sciences Building

**Office Phone:** 313-577-9241

**Office hours:** Tues 3-4 pm or arranged by e-mail at least 24 hours in advance.

**Lectures :** 2 sessions per week, 2 x 75 min lectures

**Textbook:** There is no required text book for this course- we will use review material and primary literature.

**Homework:** You will have assignments due in Canvas before certain lectures. The maximum number of homework points that will count towards your final grade is 100 points. You will be awarded all 100 points if you attain at least 85% of the total points, so if you miss one or two assignments for personal or technical reasons, you can still earn a perfect homework score. This system is **instead of** make-up opportunities for individual missed points.

**Participation:** There will be participation points available during most lecture sessions. Most points will be earned by handing in in-class assignments or contributing to group discussions during class. The maximum number of participation points that will count towards your final grade is 100 points. You will be awarded all 100 points if you attain at least 85% of the total points, so if you miss a day or two of points for personal reasons, you can still earn a perfect participation score. This system is **instead of** make-up opportunities for individual missed points.

**Exams:** The two in-class midterm exams will consist of short answer and/or essay questions. Active participation in class is the best way to do well on exams. There are no make-up exams. For the final exam, 2/3 of the questions will concern the microbiota unit, and 1/3 of the questions will be review from units 1 and 2.

Details of homework, participation, and other assignments will be announced or distributed in class or posted to Canvas through the semester.

<b>Grades:</b>	<b>Midterm</b> Unit Exams (100 points each)	200 points
	Final Exam	200
	Homework	150
	Participation	50
	Total	600 points

**Grading Policy:** Grades will be calculated on the following scale: (out of 600 points)

	A	92.5-100%	A-	90.0-92.4%	
B+	87.5-89.9%	B	82.5-87.4%	B-	80.0-82.4%
C+	77.5-79.9%	C	72.5-77.9%	C-	70.0-72.4%
D+	67.5-69.9%	D	62.5-67.4%	D-	60.0-62.4%
	F	0-59.9%			

I do not curve the grades. Everyone can earn an A, if they perform well.

### **General Policies:**

**1) Anyone caught cheating or plagiarizing will automatically receive a failing grade for the exam, assignment or class, and may be expelled from the University.**

Because our goal is to help you learn how to not plagiarize, information on how to avoid plagiarism will be provided in class and on canvas. If you do not understand how to avoid plagiarism, please ask for help from Professor Higgs in office hours. **For discussions of cheating see the “Student Code of Conduct,” which is available at <http://doso.wayne.edu/assets/codeofconduct.pdf>**

Homework assignments must be individually completed. You may not turn in assignments that contain text which is the same as another student’s in the class. You may not turn in assignments with identical wording to ANY other work from the web or journal articles without proper citation. This is considered plagiarism. Each assignment will be subjected to SafeAssign which uses text matching algorithms that will detect matching text between student homework assignments and to research papers and web source materials. Submissions are compared against several databases. **If you are caught submitting matching text on questions that are supposed to be done on your own, you will both earn a zero for that assignment.**

**2) Email guidelines:** Email conversations are an important aspect of professional life. To encourage students to develop a sense of professionalism and personal responsibility for success, the following criteria will be enforced:

I will not reply to emails when the answer can be found in the syllabus or on Canvas.

You must email me from your WSU account for privacy reasons and for professionalism.

I will respond to most emails within two business days. After two business days, you may email me again.

I expect emails to be in a professional style, with your course number and information about what the issue is in the subject, e.g. “BIO 4370: Question on Biofilm methods”, a proper greeting, e.g. “Dear Dr. Higgs,” a proper salutation, e.g. “Sincerely, Chris Smith,” correct punctuation including capitalization and no texting abbreviations. Emails that do not follow these rules may take longer get a reply, may be returned for correction, or ignored.

If I cannot figure out what you want, I cannot help you. Following these guidelines will improve your success at WSU and beyond.

I do not answer questions by email if they require a discussion. This includes questions on content and study or writing strategies. Please come talk to me during office hours to discuss these issues. This may require planning ahead so that you can get your answers before assignment deadlines or exams.

3) If you cannot come to office hours because you have conflicts with classes, you need to set up an appointment by email.

4) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to the attention of the instructor by Sept. 15, 2016 or as soon as possible as the situation arises. If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Please let me know of all disabilities that I can help you with as soon as possible. I cannot always accommodate on short notice, and I cannot accommodate issues I do not know about. Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students: <http://studentdisability.wayne.edu/>

5) Problems and challenges regarding the grading of any assignment or exam must be sent to Professor Higgs as an email explaining the issue. For challenges to multiple-choice questions, you need to convince me that your answer was the best answer, given reasonable assumptions that you explain. For short answers, you need to convince me there was an error in the grading, not simply that you want more points. I will regrade exams from my scanned copy of the graded exam.

6) **Professional behavior** is expected in lecture, which includes respecting your classmates by

- arriving prepared and on time
- actively contributing to your group or the whole class
- not interrupting or talking when others are talking
- turning off cell phones and
- not eating or drinking during class

All students must show respect in language and attitude towards the instructor and their fellow students. Disrespectful students will be asked to leave the lecture, and will lose their opportunity to turn in any missed assignments.

7) **Withdrawals:** Friday Jan. 18, 2019 is the last day you can drop the class and get your tuition refunded. The last day to drop this course is Sunday March 24. If you withdraw between Jan. 19 and March 24, inclusive, you will receive a WN on your transcript if you never completed any assignment; a WP if you have greater than 60% of the points possible at the time of your request

on exams, homework, quizzes and class participation; or a WF if you have less than 60% of the points possible at the time of your request. No exams or other grades are dropped in this calculation. You initiate a withdrawal request in Pipeline by selecting "Withdraw from a Class" on the Student Self Service Menu.

9) For any and all issues not covered in this syllabus, refer to the "Student Code of Conduct", which can be found at <http://doso.wayne.edu/assets/codeofconduct.pdf>

10) University closures will be publicized through:

- the University Newsline (313) 577-5345\*,
- WSU Homepage ([www.wayne.edu](http://www.wayne.edu))\*,
- WSU Pipeline ([www.pipeline.wayne.edu](http://www.pipeline.wayne.edu))\*,
- WDET-FM (Public Radio 101.9) and
- by other local radio and television stations.

\* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations.

If an hourly exam is scheduled on a day when the University or lecture room is officially closed during class, the exam will be held during the next scheduled meeting of lecture that occurs when the University and room are open, or as indicated on the class Canvas site.

If the University is officially closed, any assignment that was due that day is then due at the next scheduled meeting of lecture that occurs when the University is open, or as indicated on the Canvas site.

11) Updates and corrections to this syllabus will be described in class and/or posted on the course Canvas site. You are responsible for checking Canvas announcements and your University email account. I recommend checking at least once each business day of a semester in which you are enrolled.

I will post a detailed schedule for lectures, reading, assignments, homework, and exams on Canvas after the first day of class.