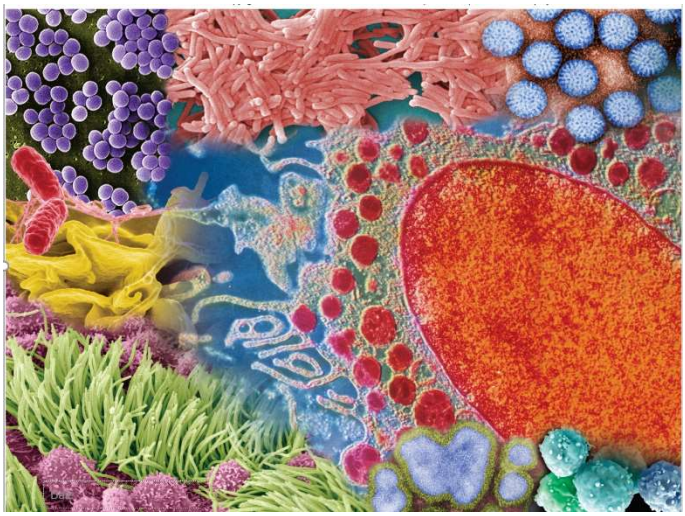
Course Syllabus
Chaminade University Honolulu
3140 Waialae Avenue - Honolulu, HI 96816
www.chaminade.edu



Course Number: BI-430L-01-1
Course Title: Microbiology Laboratory
Department Name: Biology
College/School/Division Name: NSM
Term: Spring 22
Course Credits: 1
Class Meeting Days: F
Class Meeting Hours: 02:30PM - 5:20PM,
Class Location: Lab 0
Instructor: Frederique Kandel, PhD.
Email: frederique.kandel@chaminade.edu
Phone: 808.739.8376
Office Location: Henry Hall 7
Office Hours: Monday 10am to 12:01pm and by appointment.

Catalog Description: BI 430L is the laboratory corresponding to BI 430. This laboratory is designed to allow the student to experience hands-on applications of the concepts explored in class.

Course values: As all courses at Chaminade, this class aims to provide an integral quality education, in family spirit and ultimately to educate for service, justice and peace.
Another characteristic of Marianist Education is to "Educate for adaptation and change". This is especially particularly appropriate and relevant for the study of any science and of biology in particular. Tools and technologies in microbiology have advanced, and continue to advance at an increasing pace, so is our understanding of microbes. For instance, because we do not know how to culture many bacteria, until recently only a small percentage could be studied. In the last forty years, DNA sequencing techniques allowed scientist to identify such "non-culturable" bacteria. This lead to the realization that microbial diversity had been grossly underestimated. New tools in genomics, metabolomics and concomitant advance in bioinformatics are also unveiling the crucial role microbes play in the biogeochemical processes of our environment and their contribution to our health. In this laboratory, along with the practice of classical staining culture techniques still relevant today, you will be introduced to modern bioinformatics tools. Using such tolls in a semester long project, we will seek to uncover what are the species of microorganisms found in Poi.
Finally, COVID19 is transforming our lives in many ways, thus giving the world a lesson in "adaptation and change". This lab and its associated class will offer opportunities to learn more about SARS-CoV-2 the virus causing the pandemic.

Marianist Values

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition in marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics in your education and development:

1. Education for formation in faith
2. Provide an integral, quality education
3. Educate in family spirit
4. Educate for service, justice and peace
5. Educate for adaptation and change

Native Hawaiian Values

Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the ʻOlelo Noʼeau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua (ʻŌlelo Noʻeau 364) May I live by God
2. Provide an Integral, Quality Education (Naʼauao) Lawe i ka maʻalea a kūʻonoʻono (ʻŌlelo Noʻeau 1957) Acquire skill and make it deep
3. Educate in Family Spirit (ʻOhana) ʻIke aku, ʻike mai, kōkua aku kōkua mai; pela iho la ka nohana ʻohana (ʻŌlelo Noʻeau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship
4. Educate for Service, Justice and Peace (Aloha) Ka lama kū o ka noʻeau (ʻŌlelo Noʻeau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) ʻAʻohe pau ka ʻike i ka hālau hoʻokahi (ʻŌlelo Noʻeau 203) All knowledge is not taught in the same school

Learning Outcomes

Biology program learning outcome

1. Apply the scientific method in the design and testing of hypotheses
2. Transform and display, statistically evaluate, validate, and interpret scientific data and communicate the results of such analyses effectively both orally and in writing.
3.. Acquire and comprehend information from published scientific literature, databases and bioinformatics software to extract and interpret biological data
4. Recognize the chemical and physical principles that underlie all life forms, and the biological organization at the molecular, cellular, tissue, organ, organism, and system levels that emerge from these principles
5. Define the components and processes of genetic and epigenetic information transmission, and their determinant effects on the adaptive and evolutionary processes that they drive
6. Evaluate the etiology of major human disease burden in terms of, pathophysiological mechanisms, epidemiology within populations and possible therapeutic approaches
7. Integrate an awareness of bioethical issues to positively influence the application of science to service, justice and peace in the solution of societal problems

BI 430 learning outcomes

Upon Completion of this course, students will be able to:		Program outcome	Marianist and Hawaiian values
1	List and explain the steps of the scientific method	1	2,3,4,5
2	Compare and contrast prokaryotes, eukaryotic microbes and viruses.	1, 3, 4, 6	2,3,4,5
3	Classify microorganisms according to current understanding of taxonomy.	1, 3, 4, 6	2,3,4,5
4	Discuss the importance of microorganisms both in term of benefit and threat to humans and other animals' health.	6, 7	2,3,4,5
5	Explain the basic principles microbial metabolism and microbial genetics and assess the benefit and risks of genetic engineering.	1,3, 5, 7	2,3,4,5
6	Summarize the structure and function of the immune system and compare and contrast nonspecific and acquired immunity.	1, 5 , 6, 7	2,3,4,5
7	List and explain current strategies used to prevent, diagnose and treat infections	1, 3, 4, 5, 6, 7	2,3,4,5
8	Illustrate how human health and environmental conditions interact.	1, 3, 4, 5, 6,7	2,3,4,5

Course Prerequisites

Prerequisites: EN 102, COM 101, BI 307, BI 307L Co-requisites: BI 430L

Required Learning Materials

Text: ISBN-13: 978-0-13-460518-0 Microbiology: An Introduction, By Gerard J. Tortora, Berdell R. Funke, Christine L. Case, Derek Weber, 13th edition.
If you have the previous edition it can be used instead but the access to Mastering Microbiology you will use for homework corresponds to the 13th edition.
Alternatively, you can obtain a digital edition of the book with mastering access ISBN-13: 978-0-13-472935-0. Supplemental material will be supplied as needed using canvas posts

Course Website:

https://chaminade.instructure.com/courses/15938

Technical Assistance for Canvas Users:

- Search for help on specific topics or get tips in Canvas Students
- Live chat with Canvas Support for students
- Canvas Support Hotline for students: +1-833-209-6111
- Watch this video to get you started
- Online tutorials: click on "Students" role to access tutorials
- Contact the Chaminade IT Helpdesk for technical issues: helpdesk@chaminade.edu or call (808) 735-4855

Tutoring and Writing Services

Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'Ike: Center for Student Learning in a variety of subjects (including, but are not limited to: biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua 'Ike's website (https://chaminade.edu/advising/kokua-ike/) for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. Tutor Me can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – TutorMe. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

Assessment

	% Of Grade	Due Date
Assignments/Quizzes	30	Weekly
Midterm	30	10/14/2021 (Tentative date)
Final	30	12/2/2021
Attendance	10	Ongoing
Total	***100***	

Grading Scale

Letter grades are given in all courses except those conducted on a credit/no credit basis. Grades are calculated from the student's daily work, class participation, quizzes, tests, term papers, reports and the final examination. They are interpreted as follows:

A Outstanding scholarship and an unusual degree of intellectual initiative
B Superior work done in a consistent and intellectual manner
C Average grade indicating a competent grasp of subject matter
D Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
F Failed to grasp the minimum subject matter; no credit given

Course Policies

Late Work Policy

Assignments must be submitted by the due date. In case of issues, contact the instructor as soon as possible.

Grades of "Incomplete"

As per catalog policy, under exceptional circumstances the instructor can grant an incomplete grade. The work will have to be completed within 90 days.

Instructor and Student Communication

Please use your Chaminade email or canvas to communicate with the instructor via email outside the class. Response time will be within four business days. In-person and Zoom conferences can be arranged.

Cell phones, tablets, and laptops

Out of consideration for your classmates, please set your cell phone to silent mode during class. Students are encouraged to bring laptops or tablets to class as the instructor will assign online activities and readings that will require the use of a laptop or tablet. Laptops and tablets should not be misused, such as checking distracting websites. Use your best judgment and respect your classmates and instructor.

Disability Access

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from Kōkua ʻIke: Center for Student Learning by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet

the criteria for accommodations, they should contact the Kōkua ʻIke Coordinator at (808) 739-8305 for further information (ada@chaminade.edu).

Title IX Compliance

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

Attendance Policy

The following attendance policy is from the 2019-2020 Academic Catalog (p. 54-55). Faculty members should also check with their divisions for division-specific guidelines.

Students are expected to attend regularly all courses for which they are registered. Student should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension, or by leaving a message with the instructor's division office. It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially withdrawing may receive a failing grade.

Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being withdrawn from the course by the instructor, although the instructor is not required to withdraw students in that scenario. Repeated absences put students at risk of failing grades.

Students with disabilities who have obtained accommodations from the Chaminade University of Honolulu Tutor Coordinator may be considered for an exception when the accommodation does not materially alter the attainment of the learning outcomes.
Federal regulations require continued attendance for continuing payment of financial aid. When illness or personal reasons necessitate continued absence, the student should communicate first with the instructor to review the options. Anyone who stops attending a course without official withdrawal may receive a failing grade or be withdrawn by the instructor at the instructor's discretion.

Academic Conduct Policy

From the 2019-2020 Undergraduate Academic Catalog (p. 39):
Any community must have a set of rules and standards of conduct by which it operates. At Chaminade, these standards are outlined so as to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values.

Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook for more details. A copy of the Student Handbook is available on the Chaminade website.

For further information, please refer to the Student Handbook: https://chaminade.edu/wp-content/uploads/2019/08/NEW-STUDENT-HANDBOOK-19-20-Final-8.20.19.pdf

Credit Hour Policy

The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in 45 hours of engagement. This equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester, 10 week term, or equivalent amount of work over a different amount of time. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit.

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

Schedule (tentative).

1/14/2022	Lab safety/ introduction
1/21/2022	virus an introduction
1/28/2022	SARS-CoV2/
2/4/2022	Microscopy/Staining: simple and gram stain/ Project poi starts?
2/11/2022	Differential and selective media part 1/Eukaryotic microorganisms observation and culture 1
2/18/2022	Differential and selective media results/Eukaryotic microorganisms observation and culture 2
2/25/2022	Eukaryotic microorganisms observation and culture 3
3/4/2022	MIDTERM EXAM/
3/11/2022	Experiment setup: Bacterial enumeration / Antibiotic testing
3/18/2022	Bacterial enumeration results/ Antibiotic testing results
3/25/2022	Spring Recess (no classes)
4/1/2022	biochemical testing/pluriemterotubes
4/8/2022	biochemical testing/pluriemterotubes results/ Introduction to bioinformatics
4/15/2022	Good Friday- Liturgy of the Lord's Passion, 3:00pm (no classes)
4/22/2022	Poi project results
4/29/2022	Final exam

The instructor may modify elements of this syllabus according to the operational needs of the class.