



# Chaminade University

OF HONOLULU

## Course Syllabus

[Chaminade University Honolulu](#)

3140 Waialae Avenue - Honolulu, HI 96816

[www.chaminade.edu](#)

**Course Number:** BI-162-01-1

**Course Title:** General Microbiology

**Department Name:** Biology

**College/School/Division Name:** NSM

**Term:** Spring

**Course Credits:** 3

**Class Meeting Days:** Mo-We-Fr

**Class Meeting Hours:** 01:30PM - 2:20PM,

**Class Location:** Wesselkamper 120

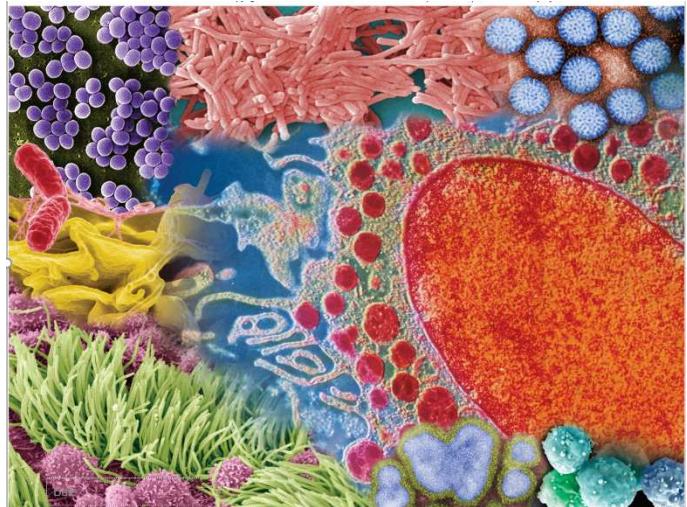
**Instructor:** Frederique Kandel, PhD.

**Email:** [frederique.kandel@chaminade.edu](mailto:frederique.kandel@chaminade.edu)

**Phone:** 808.739.8376

**Office Location:** Henry Hall 7

**Office Hours:** Monday 11am to 12:01pm and by appointment.



## University Course Catalog Description

An introduction to microbiology, with special emphasis on human health. Topics covered include basic metabolism and microbial growth, sterilization and disinfection, host-microorganism interactions, the immune response, and a survey of pathogenic microorganisms and their mode of action. Concurrent registration in BI 162L required.

## Course Overview

The current pandemic reinforces the narrative that microbes are simply enemies to combat. Although this certainly remains true for numerous pathogens, we now understand that humans live in symbiosis with a microbiome also capable of contributing positively to our health. Technical advances are currently revealing the presence of a staggering number of previously unknown microorganisms present in our environment. In addition, we have the capability of using microorganisms to produce drugs, human hormones or to remediate pollution. A greater understanding of our complex relationship with the microbial world is now emerging. This class will provide an introduction to microbiology in this context, while also placing an emphasis on clinical approach relevant to future health professionals. As nursing students, the material studied in BI-162 is directly relevant to your professional goals. We will follow and discuss the COVID 19 situation during the course of the entire

semester. The laboratory taken concomitantly with the lecture will offer opportunities for hands-on projects and experiments to reinforce your understanding and provide training in aseptic techniques.

## **Marianist Values**

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition is 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 'Olelo No'eau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua ('Olelo No'eau 364) May I live by God
2. Provide an Integral, Quality Education (Na'auao) Lawe i ka ma'a'lea a kū'ono'ono ('Olelo No'eau 1957) Acquire skill and make it deep
3. Educate in Family Spirit ('Ohana) 'Ike aku, 'ike mai, kōkua aku kōkua mai; pela iho la ka nohana 'ohana ('Olelo No'eau 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 no'eau ('Olelo No'eau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) 'A'ohe pau ka 'ike i ka hālau ho'okahi ('Olelo No'eau 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 162 learning outcomes**

| <i>Upon Completion of this course, students will be able to:</i> |                                                                                                                                   | 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: priority will be given to students accepted in the CUH Nursing Major.

## Required Learning Materials

The material required for the class BI162 is an access to McGraw-Hill “Connect” with the text Microbiology Fundamentals: A Clinical Approach. 3rd Edition. ISBN-13: 978-1260163520 ISBN-10: 1260163520. Additional material will be supplied as needed using canvas.

## Course Website:

<https://chaminade.instructure.com/courses/15994>

## 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](mailto: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](mailto:tutoring@chaminade.edu) or 808-739-8305.

## Assessment

|                                   | <u>% Of Grade</u> | <u>Due Date</u>                              |
|-----------------------------------|-------------------|----------------------------------------------|
| Assignments/Quizzes/presentations | 30                | Weekly quizzes                               |
| Midterm                           | 30                | 10/04/2021 (Tentative date)                  |
| Final                             | 30                | 12/7/2021 from 11am to 1pm. (Tentative date) |
| Attendance/discussions            | 10                | Ongoing evaluation                           |
| <b>Total</b>                      | <b>100</b>        |                                              |

## **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 'Ike: 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 'Ike Coordinator at (808) 739-8305 for further information ([ada@chaminade.edu](mailto: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).**

|           |            | Subject                                                           | Chapter |
|-----------|------------|-------------------------------------------------------------------|---------|
| Monday    | 8/23/2021  | Introduction to course and to Microbes and Their Building Blocks. | 1       |
| Wednesday | 8/25/2021  | Introduction to Microbes and Their Building Blocks.               | 1       |
| Friday    | 8/27/2021  | Viral Structure and Life Cycles                                   | 5       |
| Monday    | 8/30/2021  | Viral Structure and Life Cycles                                   | 5       |
| Wednesday | 9/1/2021   | Viral Structure and Life Cycles                                   | 5       |
| Friday    | 9/3/2021   | Viral Structure and Life Cycles                                   | 5       |
| Monday    | 9/6/2021   | labor day, No class                                               |         |
| Wednesday | 9/8/2021   | Tools/Methods for the Culturing and observation of Microorganisms | 2       |
| Friday    | 9/10/2021  | Tools/Methods for the Culturing and observation of Microorganisms | 2       |
| Monday    | 9/13/2021  | Bacteria and Archaea Eukaryotic Cells and Microorganisms          | 3       |
| Wednesday | 9/15/2021  | Bacteria and Archaea Eukaryotic Cells and Microorganisms          | 3       |
| Friday    | 9/17/2021  | Bacteria and Archaea Eukaryotic Cells and Microorganisms          | 3       |
| Monday    | 9/20/2021  | Eukaryotes                                                        | 4       |
| Wednesday | 9/22/2021  | Eukaryotes                                                        | 4       |
| Friday    | 9/24/2021  | Eukaryotes                                                        | 4       |
| Monday    | 9/27/2021  | Microbial Nutrition and Growth                                    | 6       |
| Wednesday | 9/29/2021  | Microbial Nutrition and Growth                                    | 6       |
| Friday    | 10/1/2021  | Microbial Nutrition and Growth                                    | 6       |
| Monday    | 10/4/2021  | <b>MIDTERM</b>                                                    |         |
| Wednesday | 10/6/2021  | Microbial Metabolism                                              | 7       |
| Friday    | 10/8/2021  | Microbial Metabolism                                              | 7       |
| Monday    | 10/11/2021 | Discoverer's Day holiday. No Class                                |         |
| Wednesday | 10/13/2021 | Microbial Metabolism                                              | 7       |
| Friday    | 10/15/2021 | Microbial Genetics and Genetic Engineering                        | 8       |
| Monday    | 10/18/2021 | Microbial Genetics and Genetic Engineering                        | 8       |
| Wednesday | 10/20/2021 | Microbial Genetics and Genetic Engineering                        | 8       |
| Friday    | 10/22/2021 | Physical and Chemical Control of Microbes                         | 9       |
| Monday    | 10/25/2021 | Physical and Chemical Control of Microbes                         | 9       |
| Wednesday | 10/27/2021 | Antimicrobial Treatment                                           | 10      |
| Friday    | 10/29/2021 | Antimicrobial Treatment                                           | 10      |
| Monday    | 11/1/2021  | Antimicrobial Treatment                                           | 10      |
| Wednesday | 11/3/2021  | Interactions between microbes and humans                          | 11      |
| Friday    | 11/5/2021  | Interactions between microbes and humans                          | 11      |
| Monday    | 11/8/2021  | Interactions between microbes and humans                          | 11      |
| Wednesday | 11/10/2021 | Host defense I-overview and non-specific defense                  | 12      |
| Friday    | 11/12/2021 | Host defense I-overview and non-specific defense                  | 12      |
| Monday    | 11/15/2021 | Host defense I-overview and non-specific defense                  | 12      |

|           |            |                                                    |    |
|-----------|------------|----------------------------------------------------|----|
| Wednesday | 11/17/2021 | Host defense II-Specific immunity and immunization | 13 |
| Friday    | 11/19/2021 | Host defense II-Specific immunity and immunization | 13 |
| Monday    | 11/22/2021 | Host defense II-Specific immunity and immunization | 13 |
| Wednesday | 11/24/2021 | Host defense II-Specific immunity and immunization | 13 |
| Friday    | 11/26/2021 | Thanksgiving No class                              |    |
| Monday    | 11/29/2021 | Student presentation                               |    |
| Wednesday | 12/1/2021  | Student presentation                               |    |
| Friday    | 12/3/2021  | Student presentation                               |    |

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