



**Chaminade**  
**University**  
OF HONOLULU

## **Course Syllabus**

[Chaminade University Honolulu](https://www.chaminade.edu/)

3140 Waialae Avenue - Honolulu, HI 96816

<b>Course Number:</b>	BI 495
<b>Course Title:</b>	Research
<b>Department Name:</b>	Biology
<b>College/School/Division Name:</b>	Natural Sciences and Mathematics
<b>Term:</b>	Fall 2020
<b>Course Credits:</b>	3
<b>Class Meeting Days:</b>	Monday
<b>Class Meeting Hours:</b>	5:20pm - 6:20pm
<b>Class Location:</b>	Ching Hall, Room 254
<b>Instructor Name:</b>	
<b>Email:</b>	<a href="mailto:michael.weichhaus@chaminade.edu">michael.weichhaus@chaminade.edu</a>
<b>Phone:</b>	808.440.4286
<b>Office Location:</b>	Wesselkamper Science Center room 107
<b>Office Hours:</b>	Tue, Wed, Fri 3pm-5pm

### **University Course Catalog Description [first.lastname@chaminade.edu](mailto:first.lastname@chaminade.edu)**

Weekly seminar course accompanying research project (approximately 10 hours per week) performed in Chaminade or other research laboratory under supervision of a practicing research scientist.

### **Course Overview**

Directed Senior Research is a culmination of the course of study in biology. The steps that you follow here are quite similar to steps taken by biologists in a wide variety of research labs, from generating ideas and research proposals to collection and analysis of data and finally to the presentation of results to other scientists (including those at granting agencies) through a written publication and or a public presentation. You will work in a laboratory with a lab mentor; the BI495 instructor serves as facilitator for your experience learning and conducting research. The weekly meetings with the facilitator will be used to review project progress and to perform exercises that aim to increase your knowledge of topical issues in the realms of biological discovery, scientific ethics and recent technical advances.

## **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'alea 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**

Upon completion the program in Biology, a graduating student will demonstrate the following competencies:

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, summarize, and synthesize 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

By the end of our course, students will be able to:

1. Apply the scientific method in the development of scientific experimentation
2. Evaluate the current scientific literature
3. Critically analyze data
4. Master the use of biological techniques and instruments

## Alignment of Learning Outcomes

	CLO 1	CLO 2	CLO 3	CLO4
Marianist Values	2	2	2	2
Program Learning Outcomes	1	3	2	1,2

## Required Learning Materials

None

## Course Website:

<https://chaminade.instructure.com/courses/12874>

## 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

The course has four components:

### 1. Hands-on Laboratory Research Project

You may complete this on or off-campus. Off-campus research internships are typically during the summer prior to your registration in BI495. If you wish to perform on campus research you must be accepted by a research mentor from the list below by the end of week 2 of the semester. You should aim to spend at least 10 hours per week on your research project. Be aware that “10 hours per week” is a minimum; the nature of scientific inquiry means that it can sometimes be time-consuming and the demands on you can be unpredictable. Stay in

communication with the BI495 faculty, work with your research mentor about expectations and discuss how you will be able to meet the expectations of both your research laboratory responsibilities and the requirements to complete this course

## **2. Written Assignments: (1) Research snapshot and (2) a Mini review.**

Students will write two papers. Required elements of the Mini-review paper and the Research snapshot paper will be discussed during the semester. See the course's canvas page for due dates.

Research snapshot: A one page summary that describes why your study was done, key findings, and implications for practice and policy, presented in plain language. (max. 500 words)

Mini-review: Summarizes the background and important concepts relevant to the research topic. Includes discussion of fundamental concepts, perspectives and or controversies; current knowledge and any research gaps. (max. 2000 words)

## **3. Peer evaluation and editing of student papers, posters.**

Although subjective and far from perfect, the peer review process is regarded as an essential component of doing science. Thus, students will learn how to conduct reviews of each other's work. In addition, some students will be asked to help with editing duties – those students who have already completed their research through participation in summer research will assist the instructor with improving all written materials produced in the class.

Peer evaluation and/or editing must be completed by week 10 for Research snapshots and by week 12 for Mini-reviews. We will utilize anonymous peer review principles – only the instructor will know names of student authors and the names of students who reviewed the work of others. Similarly, names of student authors will not be disclosed to student editors.

## **4. Poster presentation to faculty and staff in week 15 of the semester.**

*Posters:* You will create and present a poster documenting your research project at our minisymposium. A single sheet poster will be required. The poster will include title, authors and affiliations, abstract, background, methods, results and data, discussion, literature cited and acknowledgements. Powerpoint templates for poster design are recommended and will be provided on request by the instructor. Your poster will be printed for you, provided you meet the deadline (week 11).

*The mini-symposium:* At the mandatory poster presentation session you should be prepared to give a brief oral presentation of your poster and answer questions from faculty and your peers. Faculty will complete an evaluation of your presentation and this element will be included as part of your score for this graded element of the course. This will be held on campus in week 13 of the semester. The room location and date of this symposium will be announced in class.

## **CUH research mentors\***

Dr. Wright	Reproductive health	claire.wright [at] chaminade.edu
Dr. Carter	Forensic taphonomy	david.carter [at] chmainade.edu
Dr. Turner	Obesity and immunology	hturner [at] chaminade.edu
Dr. Kawakami	Cancer drug design	jkawakam [at] chaminade.edu
Dr. Perrault	Forensic & bioanalytical chemistry	katelynn.perrault [at]chaminade.edu
Dr. Dohm	Genetics & environmental toxicology	mdohm [at] chaminade.edu
Dr. Weichhaus	Cancer & metabolism	michael.weichhaus [at]chaminade.edu

\* Research mentors may or may not be able to accommodate new students in their research for the current semester

## **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**

### **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. Students should notify their instructors when illness or other extenuating circumstances prevent 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 37.5 hours of engagement. For example, in a one credit hour traditional face to face course, students spend 50 minutes in class per week for 15 weeks, resulting in a minimum of 12.5 instructional hours for the semester. Students are expected to engage in reading and other assignments outside of class for at least 2 additional hours per week, which equals an additional 25 hours. These two sums result in total student engagement time of 37.5 hours for the course, the total engagement time expected for each one credit course at Chaminade.

The minimum 37.5 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

Week 1	Class introductions
Week 2	What is research; meet with research facilitators
Week 3	Discussion of How do we know what we know?
Week 4	Research hypothesis and experimental plan discussion.
Week 5	What makes a good project? A good mini-review?
Week 6	Role of peer review, editor.
Week 7	Review of Research Progress.
Week 8	Research Ethics
Week 9	Review of Research Progress.
Week 10	Review of Research Progress. submit research snapshot
Week 11	project Research snapshot, outline mini-review, Poster
Week 12	No class meeting; finalize lab experiments; individual appointments, submit mini-review
Week 13	No class meeting; finalize lab experiments; individual appointments
Week 14	How to present; mini-review peer evaluations due
Week 15	(tentative) 4:30 – 5:30PM, November 23rd 2020, NSM Symposium