

Syllabus

Instructor: Dr. Michael Weichhaus
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Office Hours: Mon: 12:00 - 15:00 and Wed: 11:30 - 14:30
Class Hours: Wed: 17:30 - 18:20 and by appointment

Aims of the course: 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.

Learning Objectives:

Course Learning Outcomes	Program Learning Outcomes	Level
1. Perform biological research using the scientific method.	1, 2, 7	M
2. Complete a library search of scientific literature	3	M
3. Ability to interact with senior scientist and perform independent experiments	7	D/M
4. Critically analyze data	2	M
5. Develop competency in using biological techniques and instruments	1	M

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 above 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.

Papers. 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.

Type of paper	Focus	Elements	Word limit
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.	Title page Text body	<500
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.	Title page Abstract Introduction Text body (include headers) Conclusions References	<2000

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

Departmental and University Policies:

1. Disability Access

Pursuant to several federal and state laws, including the Americans with Disabilities Act of 1990, as amended by the ADA Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973, all qualified students with disabilities are protected from discrimination on basis of disability and are eligible for reasonable accommodations or modifications in the academic environment to enable them to enjoy equal access to academic programs, services, or activities. If a student would like to determine if they meet the criteria for accommodations, they should contact the Counseling Center at 808-735-4845 for further information.

2. 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. Should you want to speak to a confidential source you may contact the following:

- a. Chaminade Counseling Center 808 735-4845.
- b. Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

3. Attendance Policy

Students are expected to attend regularly all courses for which they are registered. You are responsible to familiarize yourself on all topics/material covered during your absence. 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.

4. Academic Conduct Policy

Academic honesty is an essential aspect of all learning, scholarship, and research. It is one of the values regarded most highly by academic communities throughout the world. Violations of the principle of academic honesty are extremely serious and will not be tolerated.

Students are responsible for promoting academic honesty at Chaminade by not participating in any act of dishonesty and by reporting any incidence of academic dishonesty to an instructor or to a University official. Academic dishonesty may include theft of records or examinations, alteration of grades, and plagiarism, in addition to more obvious dishonesty.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Dean of the Academic Division. Punishment for academic dishonesty will be determined by the instructor and the Dean of Academic Division and may include an "F" grade for the work in question, an "F" grade for the course, suspension, or dismissal from the University.

Detailed policies on Academic Conduct can be found in the Student [Handbook](#) and University [catalogue](#). The success of the Honor Code is made possible only with the acceptance and cooperation of every student. Each student is expected to maintain the principles of the Code.

Violations of Academic Honesty: Violations of the principle include, but are not limited to:

- Cheating: Intentionally using or attempting to use unauthorized materials, information, notes, study aids, or other devices in any academic exercise.

- Fabrication and Falsification: Intentional and unauthorized alteration or invention of any information or citation in an academic exercise. Falsification is a matter of inventing or counterfeiting information for use in any academic exercise.
- Multiple Submissions: The submission of substantial portions of the same academic work for credit (including oral reports) more than once without authorization.
- Abuse of Academic Materials: Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource materials.
- Complicity in Academic Dishonesty: Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
- Plagiarism: Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source) Examples include, but are not limited to:
 - Copying or borrowing liberally from someone else's work without his/her knowledge or permission; or with his/her knowledge or permission and turning it in as your own work.
 - Copying off someone else's exam or paper.
 - Allowing someone to turn in your work as his or her own. DO NOT provide your work to someone else for reference.
 - Not providing adequate references for cited work.
 - Copying and pasting large quotes or passages without properly citing them.

On-Campus Tutoring

- Retention, Advising, and Career Preparation offers free, one-on-one tutoring for all undergraduate students at Chaminade. Subjects tutored include, but are not limited to: biology, chemistry, math, nursing, English, etc. The tutoring corps consists of trained Peer and Professional Tutors.
- Tutoring is available by appointment only. Tutoring takes place in either the Student Support Services building during the hours of 8:30 a.m. to 4:30 p.m., Monday to Friday.
- In order to receive tutoring, a student can visit the Student Support Services building and complete an information form. After submitting this form, a staff member will assist the student in creating
 - an online account that allows him/her to book a tutoring appointment through the online system.
- All appointments must be made two days prior to the desired appointment. Cancellations must be made 24 hours in advance.

Online Tutoring through Smarthinking

- All CUH students are eligible to use Smarthinking, an online tutoring system. Students are able to access Smarthinking via their canvas account.
- Through Smarthinking, students are able to connect in real-time with an expert educator in a variety of subjects using a virtual whiteboard technology. Students also have an option to schedule a 30-minute appointment with a tutor of their choice. The Online Writing Lab provides students with the ability to receive a detailed, personalized critique of any written assignment through a formal critique process.
- All sessions are archived and available for students to review at any time for studying or test preparation.

For any questions related to tutoring services, please contact Amanda Lunday, Tutor Coordinator, at amanda.lunday@chaminade.edu

Class schedule, tentative

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, May 1st 2019, NSM Symposium,