



School of Natural Sciences and Mathematics
Department of Biology

BI-410L Advanced Human Physiology I Lab

Henry Hall L3 M 2:30P-5:20P
Credits: 1 Section: 01 Term: Fall 2024

Instructor Information



Instructor: Michael Weichhaus
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Office Location: Wesselkamper Science Center room 107
Office Hours: Tu/Thu 9:00A-10:00A; 12:00P-1:00P
Wed 9:00A-10:00A; 1:30P-2:30P
Virtual Office: sign-up [here](#) for office hours
Virtual Office Hours: same as above

Communication

Instructions and updates will be given verbally during lectures and may also be distributed using the “announcement” feature in canvas. Questions for this course can be emailed to the instructor. Response to email can be expected within 24h but may take longer during weekends or holidays. Online and in person meetings are available during office hours and can be scheduled using this [link](#) to my calendar.

School & Department Information

School of Natural Sciences and Mathematics

Office Location: Wesselkamper Science Center, room 115
Phone: (808) 440-4204

If you have questions regarding the Department of Biology, reach out to your instructor or the School of Natural Sciences and Mathematics.

Course Description & Materials

Catalog Course Description

Laboratory.

Prerequisites: EN 102, COM 101, BI 307, BI 307L

Co-requisite: BI 410

Time Allocation

How This Course (1 credit) Meets the Credit Hour Policy:

Seat time:

- 36.8h (170min x 13 weeks (2x holidays))
- Time spent on key assessments (a significant amount of these are accomplished during seat time):
 - Discussions: 5h (5 discussions x 1h)
 - Group Presentation preparations: 15h
 - Project Final Report: 15h
 - PhysioEx labs and quizzes: 26h (2h x 13 weeks)
 - In-person activities reports: 8h (4 reports x 2h)
- Total:
 - 105.8h

Required Materials

PhysioEx 10.0, Pearson, Benjamin Cummings. (<http://physioex.com/login.html>)

Canvas (<https://chaminade.instructure.com>)

You are enrolled in this course through canvas.

Website: <https://chaminade.instructure.com/courses/35945>

Canvas student apps:

Apple: <http://apple.co/1wD5aok>

Android: <http://bit.ly/1ekgN4M>

Learning Outcomes

Program Learning Outcomes (PLOs)

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 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. Integrate an awareness of bioethical issues to positively influence the application of science to service, justice and peace in the solution of societal problems

Course Learning Outcomes (CLOs)

Upon completion of Advanced Human Physiology I Laboratory, the student will be able to:

1. Interpret physiological data and draw reasonable conclusions
2. Formulate testable hypotheses
3. Design scientifically valid methods and carry out scientific experimentation
4. Argue for scientific approaches to testing hypotheses and present conclusions in writing

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, and integrity of creation.
5. Educate for adaptation and change.

Advanced Human Physiology Laboratory aligns with the Marianist value of providing an integral, quality education by offering students hands-on experience in exploring the

physiological processes underlying human health. Through practical experiments and data analysis, students actively engage in the scientific method, deepening their understanding of complex concepts introduced in lectures. This experiential learning approach not only reinforces theoretical knowledge but also cultivates critical thinking and problem-solving skills. By working collaboratively in small groups, students develop a sense of community and shared responsibility, reflecting the Marianist family spirit and fostering an environment where collective learning and mutual support are paramount.

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

Alignment of Course Learning Outcomes

	CLO 1	CLO 2	CLO 3	CLO 4
Marianist Values	2; 4	2	2; 4	2; 4
PLOs	1; 2; 3; 6		1; 2; 3; 4; 6	1; 2; 3; 4; 6
Native Hawaiian Values	2; 4	2	2; 4	2; 4

Course Activities

1. Virtual Laboratory Exercises

- **Description:** Students will participate in ten virtual laboratory exercises that simulate various physiological processes, including muscle physiology, cardiac physiology, and lung physiology. These simulations allow students to explore complex physiological functions that are difficult to replicate in a traditional lab setting.
- **Policies:** Students must complete each virtual lab exercise by the specified deadline. Active engagement with the simulations and accompanying questions is required. All data and results must be accurately recorded and submitted according to the instructions provided.
- **Expectations:** Students are expected to approach each virtual lab with the same rigor as a physical lab. They should critically analyze the results, draw connections to lecture content, and be prepared to discuss their findings in class. The exercises are designed to enhance understanding of physiological principles through interactive, hands-on learning.

2. Research Project Development

- **Description:** Building on the foundation laid in BI300, students will conceptualize and develop a research project related to human physiology. This project should integrate the knowledge and skills acquired throughout the course, culminating in a comprehensive research proposal or report.
- **Policies:** The research project must be original, well-researched, and adhere to ethical guidelines. Students are expected to submit project proposals for approval before proceeding with data collection or analysis. Regular progress reports may be required to ensure the project stays on track.
- **Expectations:** Students are expected to demonstrate creativity, scientific rigor, and critical thinking in their research. The project should reflect a deep understanding of the course material and contribute new insights or perspectives on a relevant physiological topic. Successful projects will be thorough, well-organized, and supported by credible scientific evidence.

3. Physiological Measurements on Your Own Body

- **Description:** Students will conduct a series of physiological measurements on their own bodies, such as monitoring heart rate, respiratory rate, or muscle activity. These measurements will provide practical experience in applying theoretical concepts discussed in lectures.
- **Policies:** All measurements must be conducted safely and responsibly, following the guidelines provided. Students must obtain necessary permissions and ensure they understand the correct procedures before beginning any self-assessment. Data collected should be accurately recorded and analyzed.

- **Expectations:** Students are expected to approach this component with professionalism and care. The goal is to gain a deeper understanding of physiological processes by directly experiencing them. Students should be prepared to share their findings and reflect on how these personal measurements relate to broader physiological principles.

Course Policies

Attendance

Students are expected to attend regularly all courses for which they are registered. Students 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.

Late Work

- **PhysioEx Quizzes:** Students are afforded a one-week grace period for PhysioEx quizzes without penalty.
- **Lab Reports (Write-Up for 'Wet' lab activities):** Lab reports submitted up to 24 hours late will incur a 5% grade penalty, and those submitted between 24 hours and 7 days late will incur a 10% penalty.

- **Group Presentations:** No late accommodation will be made for group presentations, except in the case of illness documented by a physician.
- **Discussions:** Due to the necessity of facilitating decision-making during lab time, no late accommodation will be provided for discussions.
- **Final Project Report:** Due to the deadline coinciding with the end of the semester, a 5% grade penalty will be applied if the Final Project Report is submitted up to 24 hours late. A 10% penalty will apply if submitted between 24 and 48 hours late.

Changes to the Syllabus

While the provisions of this syllabus are as accurate and complete as possible, your instructor reserves the right to change any provision herein at any time. Every effort will be made to keep you advised of such changes, and information about such changes will be available from your instructor.

Grades of Incomplete

Students and instructors may negotiate an incomplete grade when there are specific justifying circumstances. An Incomplete Contract (available from the Divisional Secretary and the Portal) must be completed. When submitting a grade, the “I” will be accompanied by the alternative grade that will automatically be assigned after 90 days. These include IB, IC, ID, and IF. If only an “I” is submitted the default grade is F. The completion of the work, evaluation, and reporting of the final grade is due within 90 days after the end of the semester or term. This limit is unlikely to be extended.

Final Grades

Final grades are submitted to [Self-Service](#):

PhysioEx Activities	25 percent
Lab Reports	25 percent
Project presentation	20 percent
Project Discussions	10 percent
Project Final Report	<u>20 percent</u>
	100 percent

Grading Scale

Letter grades are given in all courses except those conducted on a credit/no credit basis. Grades are calculated from the assessments indicated above. The canvas gradebook will display your current grade. They are interpreted as follows:

- A: Outstanding Scholarship and an Unusual Degree of Intellectual Initiative**
Reflects a mastery of the course material and an exceptional ability to synthesize and apply knowledge creatively. Demonstrates critical thinking, originality, and precision in argument and interpretation. Work at this level goes beyond mere accuracy and skillfulness, exhibiting intellectual curiosity and insight.
- B: Superior Work Done in a Consistent and Intellectual Manner**
Represents strong understanding and application of course concepts, theories, and principles. Work is consistently thorough and well-organized, demonstrating analytical abilities and clear communication. Although not as inventive or insightful as an 'A' grade, 'B' level work shows commitment, engagement, and clear mastery of complex ideas.
- C: Average Grade Indicating a Competent Grasp of Subject Matter**
Denotes a satisfactory comprehension of the material with the ability to apply key concepts but may lack depth in understanding or application. Work at this level meets the basic course requirements and demonstrates a reasonable effort, but may lack creativity, precision, or engagement with more complex ideas.
- D: Inferior Work of the Lowest Passing Grade, Not Satisfactory for Fulfillment of Prerequisite Course Work**
Reflects limited understanding of the course material and minimal engagement with the key concepts. Work is often incomplete, superficial, or lacks cohesion. While it may meet the minimum criteria for passing, it falls short of the standards required for progression in sequential or related courses.
- F: Failed to Grasp the Minimum Subject Matter; No Credit Given**
Signifies a lack of basic comprehension of the course content and an inability to apply or articulate fundamental concepts. Work at this level is characterized by significant inaccuracies, misconceptions, or omissions, and does not meet the minimum requirements for passing the course. Students receiving an 'F' must re-take the course or an equivalent to obtain credit.

Important Information

Academic Honesty

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.

For the most up to date information, please refer to the [Academic Honesty Policy](#) on the Chaminade University Catalog website.

[Title IX and Nondiscrimination Statement](#)

Chaminade University of Honolulu is committed to providing a learning, working and living environment that promotes the dignity of all people, inclusivity and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator.

[Nondiscrimination Policy & Notice of Nondiscrimination](#)

Chaminade University of Honolulu does not discriminate on the basis of sex and prohibits sex discrimination in any education program or activity that it operates, as required by Title IX and its regulations, including in admission and employment. Inquiries about Title IX may be referred to the University’s Title IX Coordinator, the U.S. Department of Education’s Office for Civil Rights, or both and contact information may be found at the [Chaminade University Title IX Office Contact Information and Confidential Resources website](#). On-campus Confidential Resources may also be found here at [CAMPUS CONFIDENTIAL RESOURCES](#).

The University’s Nondiscrimination Policy and Grievance Procedures can be located on the University webpage at: <https://chaminade.edu/compliance/title-ix-nondiscrimination-policies-procedures/>.

To report information about conduct that may constitute sex discrimination or make a complaint of sex discrimination under Title IX, please refer to the [Campus Incident Report form](#). Chaminade University of Honolulu prohibits sex discrimination in any education program or activity that it operates. The NOTICE of NONDISCRIMINATION can be found here: [Notice of Nondiscrimination](#).

CUH Alert Emergency Notification

To get the latest emergency communication from Chaminade University, students' cell numbers will be connected to Chaminade's emergency notification text system. When you log in to the Chaminade portal, you will be asked to provide some emergency contact information. If you provide a cellphone number, you will receive a text from our emergency notification system asking you to confirm your number. You must respond to that message to complete your registration and get emergency notifications on your phone.

Assessment for Student Work

With the goal of continuing to improve the quality of educational services offered to students, Chaminade University conducts assessments of student achievement of course, program, and institutional learning outcomes. Student work is used anonymously as the basis of these assessments, and the work you do in this course may be used in these assessment efforts.

Student with Disabilities Statement

Chaminade University of Honolulu offers accommodations for all actively enrolled students with disabilities in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act (2008).

Students are responsible for contacting Kokua Ike: Center for Student Learning to schedule an appointment. Verification of their disability will be requested through appropriate documentation and once received it will take up to approximately 2–3 weeks to review them. Appropriate paperwork will be completed by the student before notification will be sent out to their instructors. Accommodation paperwork will not be automatically sent out to instructors each semester, as the student is responsible to notify Kokua Ike via email at ada@chaminade.edu each semester if changes or notifications are needed.

Kōkua 'Ike: Tutoring & Learning 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 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 on Account > TutorMe. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

Readings & Due Dates

Week	Physio-Ex virtual labs	Project work	Wet lab activities
1	Intro to physio-ex	Topic Discussion	Lab rules/Lab safety
2	Cell Transport Mechanisms and Permeability	Literature Review Discussion	
3	Labor Day holiday		
4	Skeletal Muscle Physiology	Hypothesis Refinement and Experimental Design	
5	Neurophysiology of Nerve Impulses	Anticipated Challenges Discussion	
6	Endocrine System Physiology	Project Impact	
7	Cardiovascular Dynamics	Group Presentation	
8	Columbus Day holiday		
9	Cardiovascular Physiology		Pig Dissection
10	Respiratory System Mechanics		Oral Glucose Tolerance Test
11	Chemical and Physical Processes of Digestion	Data Generation	Urine Acid Measurement
12	Renal System Physiology		BMR and RER measurements
13	Acid-Base Balance		

14	Blood Analysis		
15	Serological Testing	Submit final project report	