



School of Natural Sciences and Mathematics  
Department of Biology

## BI-410 Advanced Human Physiology I

WSC120 MWF 10:30A-11:20A

Credits: 3      Section: 01      Term: Fall 2024

### Instructor Information



**Instructor:** Michael Weichhaus  
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**Phone:** 808.440.4286  
**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

Physiology of energetic and metabolic processes and endocrine control of metabolism in both healthy and disease states. Biochemistry of metabolism and the role of macro- and micronutrients in maintenance of homeostasis are examined.

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

## Time Allocation

*How This Course (3 credits) Meets the Credit Hour Policy:*

- Seat time
  - 37.5h (50min MWF for 15 weeks)
- Time spent on key assessments, including study time:
  - Essays: 22.5h (3x7.5h)
  - Mid-term exams: 22.5h (3x7.5h)
  - Final exam: 15h
  - Presentation: 15h
- Additional time each week
  - Reading: 12.5h (50min per week)
  - Homework quizzes, discussions, and case studies: 12.5h (50min per week)

Total: 137.5h

## Required Materials

MindTap: Advanced Nutrition and Human Metabolism (ISBN: 9780357450017 )

Access through canvas; Go to Module 1 in canvas, click on “Knowledge check”; follow the prompts to create an account; then you can sign up for the Cengage product.

2nd version of the textbook available in the library (Catalog: QP141 .G76 1995)

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

You are enrolled in this course through canvas.

Website: <https://chaminade.instructure.com/courses/35944>

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, 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. 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 this course in Human Physiology the student will achieve the following

1. Distinguish between micro- and macronutrients and their role in the human organism
2. Describe the anatomical and biochemical process of nutrient processing
3. Explain the metabolism of macronutrients for energy, and body composition
4. Assess the regulatory processes of nutrient homeostasis in the human body
5. Analyze and evaluate the pathophysiology, etiology, and contemporary treatment approaches of various digestive and metabolic diseases such as celiac disease, liver disease, and eating disorders.

### 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** integrates the Marianist commitment to providing an integral, quality education by deeply exploring the essential aspects of human nutrition and metabolism. Through a combination of lectures, presentations, and collaborative learning activities, students engage in critical analysis and evaluation of complex physiological processes and contemporary treatment approaches for metabolic diseases. This rigorous academic environment fosters intellectual growth and prepares students to adapt to and address emerging challenges in health science, reflecting the Marianist value of educating for adaptation and change. By encouraging self-directed learning and peer-reviewed assignments, the course promotes a community of learners dedicated to the pursuit of knowledge and excellence, embodying the spirit of family and collective responsibility inherent in the Marianist tradition.

### 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	CLO 5
<b>Marianist Values</b>	2	2	2	2	2,4
<b>PLOs</b>	4, 5	4,	4	4, 6	4, 6
<b>Native Hawaiian Values</b>	2	2	2	2	2, 4

## Course Activities

### Lecture Presentation

- **Description:** Students are required to prepare and deliver a presentation on a selected topic related to human physiology, nutrition, or metabolism. The presentation should demonstrate a deep understanding of the subject, supported by current research and scientific literature.
- **Policies:** Presentations must be original and properly cited. Students are expected to collaborate with peers if assigned to groups and participate actively during other students' presentations.
- **Expectations:** Presenters should provide a clear, concise, and engaging presentation. Visual aids are encouraged. Students will be evaluated on content accuracy, presentation skills, and the ability to answer questions from the audience.

### 1st Lecture Exam

- **Description:** The first lecture exam covers the foundational concepts discussed in the early part of the course, including nutrient classification, anatomy, and biochemical processes of nutrient processing.
- **Policies:** Exams must be completed individually within the allotted time. No external resources (books, notes, electronic devices) are allowed unless otherwise specified.
- **Expectations:** Students should demonstrate a strong grasp of key concepts and the ability to apply this knowledge to problem-solving scenarios. The exam will include multiple-choice questions, short answers, and case-based questions.

### 2nd Lecture Exam

- **Description:** The second lecture exam assesses knowledge acquired in the middle portion of the course, focusing on metabolism, energy production, and nutrient homeostasis.
- **Policies:** Similar to the first exam, this is a closed-book assessment, and academic integrity must be maintained.
- **Expectations:** Students are expected to integrate and apply knowledge from lectures and readings. The exam will test critical thinking and understanding of metabolic pathways and their regulation.

### 3rd Lecture Exam

- **Description:** The third lecture exam evaluates students' understanding of advanced topics such as pathophysiology, etiology, and treatment approaches for digestive and metabolic diseases.
- **Policies:** This exam follows the same rules as previous exams, with strict adherence to academic integrity.

- **Expectations:** Students should exhibit a comprehensive understanding of disease mechanisms and treatment strategies, with the ability to critically analyze case studies and apply theoretical knowledge to real-world scenarios.

### Combined Essay Grade

- **Description:** Students are required to submit essays on assigned topics, which may include analyzing specific metabolic disorders, evaluating nutritional interventions, or exploring emerging research in physiology.
- **Policies:** Essays must be original, well-researched, and properly referenced. Plagiarism is strictly prohibited, and essays must be submitted by the deadline.
- **Expectations:** Essays should be coherent, well-structured, and demonstrate critical thinking. Students are expected to provide insightful analysis supported by scientific evidence, with a clear argument and logical conclusions.

### MindTap Quizzes

- **Description:** MindTap quizzes are online assessments that reinforce weekly lecture content, providing students with regular feedback on their understanding of key concepts.
- **Policies:** Quizzes are to be completed individually within the set time frame. Multiple attempts may be allowed depending on the quiz settings, but academic integrity is expected.
- **Expectations:** Students should complete quizzes on time and use them as a tool for self-assessment and reinforcement of learning. Quizzes are designed to assess both foundational knowledge and the application of concepts.

### MindTap Case Studies

- **Description:** MindTap case studies involve the application of physiological knowledge to real-world scenarios, requiring students to analyze and solve complex problems related to human health and metabolism.
- **Policies:** Case studies must be completed individually or in assigned groups, depending on the specific case. Responses should be well-reasoned and supported by course content.
- **Expectations:** Students are expected to engage deeply with the material, demonstrating their ability to apply theoretical knowledge to practical situations. Critical thinking and problem-solving skills are key to success in these assignments.

### Final Exam

- **Description:** The final exam is a comprehensive assessment covering all course content, with the main focus being on the yet unassessed parts of the course. It will include questions on all major topics, including nutrient processing, metabolism, homeostasis, and disease.

- **Policies:** The final exam is a closed-book, timed assessment. Students must adhere to the academic integrity policy and complete the exam within the scheduled time.
- **Expectations:** Students are expected to demonstrate a thorough understanding of the entire course content. The exam will test their ability to synthesize and apply knowledge in a variety of question formats, including multiple-choice, short answer, and case-based questions.

## Course Policies

### Attendance

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.

### Late Work

**Exams:** Make-up exams are not allowed unless a documented physician's note is provided as evidence for a legitimate medical reason that prevented attendance during the exam. It is the

student's responsibility to communicate with the instructor as soon as possible regarding any illness or medical emergencies.

**Lecture Presentations:** Missed lecture presentations cannot be made up under any circumstances. It is vital to plan accordingly to ensure attendance and participation in all scheduled presentations.

**Essays:** Essays submitted after the deadline will incur a late penalty.

- *Up to 24 hours late:* A half-letter grade deduction (e.g., A becomes A-, B+ becomes B, etc.).
- *Between 24 hours and 7 days late:* A full-letter grade deduction (e.g., A becomes B, B+ becomes C+, etc.).
- *Over 7 days late:* Essays submitted more than seven days past the deadline will not be accepted and will receive a grade of zero.

**Additional Guidelines regarding timeliness:**

*Communication:* If you anticipate needing an extension, it is your responsibility to communicate this need as soon as possible. Failure to communicate will result in the late penalties being applied.

*Responsibility:* Meeting deadlines is an essential skill and a professional expectation. Planning and time management are critical to your success in this course.

*Exceptions:* In extraordinary circumstances, additional considerations may be made at the discretion of the instructor. Please communicate your situation honestly and promptly.

### 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](#):

Assignment	Percent of grade
Lecture Presentation	15 percent
1 <sup>st</sup> Lecture Exam	15 percent



2 <sup>nd</sup> Lecture Exam	15 percent
3 <sup>rd</sup> Lecture Exam	15 percent
Combined Essay grade	10 percent
MindTap quizzes	5 percent
MindTap case studies	5 percent
Final exam	<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](mailto: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](mailto:tutoring@chaminade.edu) or 808-739-8305.

## Readings & Due Dates

Week	Date	Lecture	Chapter	Comments
1	8/19	Syllabus of course, Course overview, Cellular Recap	Chapter 1	
	8/21	GI tract overview	Chapter 2	
	8/23	GI tract anatomy and physiology		
2	8/26	Digestive and absorptive processes	Chapter 2	
	8/28	Hormonal Regulation of digestion		
	8/30	Types of carbohydrates	Chapter 3	
3	9/02	Labor Day Holiday – No class		
	9/04	Carbohydrate digestion and metabolism I: Glycolysis	Chapter 3	
	9/06	Carbohydrate digestion and metabolism II: Tricarboxylic Acid Cycle		<b>Essay 1 due</b>
9/09	Carbohydrate digestion and metabolism III: ETC and Oxidative Phosphorylation			
4	9/11	Hormonal Regulation of glucose homeostasis		
	9/13	Digestion of dietary fiber and health implications	Chapter 4	
5	9/16	<b>EXAM #1</b>		
	9/18	Types of lipids	Chapter 5	
	9/20	Lipids: Digestion and absorption		
9/23	Lipids: Transport and metabolism			
6	9/25	Lipids: Disease risk and Ethanol		

	9/27	Protein: Amino Acid structure/Digestion and absorption		
7	9/30	Amino Acid metabolism	Chapter 6	
	10/02	Protein: Functional role		<b>Essay 2 due</b>
	10/04	Nitrogen containing non-proteins		
	10/07	Columbus Day Holiday – No class		
8	10/09	<b>EXAM #2</b>		
	10/11	Regulation of metabolism I	Chapter 7	
9	10/14	Regulation of metabolism II		
	10/16	Measuring body composition and energy regulation I	Chapter 8	
	10/18	Measuring body composition and energy regulation II		
10	10/21	Vitamin C, Thiamine	Chapter 9	<b>Student presentations</b>
	10/23	Riboflavin, Niacin,		
	10/25	Vitamin B5, Vitamin B6,		
11	10/28	Folate, Biotin	Chapter 10	
	10/30	Vitamin B12, Vitamin A	Chapter 10/11	
	11/01	Vitamin D, Vitamin E	Chapter 11	
12	11/04	Vitamin K, Calcium	Chapter 12/13	
	11/06	Magnesium, Iron		
	11/08	Veterans Day Holiday – No class		

13	11/11	Zinc, Iodine	Chapter 13/14	<b>Student presentations</b>
	11/13	Selenium, Chromium	Chapter 11	
	11/15	<b>EXAM #3</b>		
14	11/18	Water and Electrolytes	Chapter 9	
	11/20	Vitamins I	Chapter 10	<b>Essay 3 due</b>
	11/22	Vitamins II	Chapter 12	
15	11/25	Minerals I	Chapter 13	
	11/27	Minerals II	Chapter 14	
	11/29	Thanksgiving Recess – No class		