



## Course Syllabus

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

3140 Waialae Avenue - Honolulu, HI 96816

**Course Number:** BI 330

**Course Title:**

## Immunology: The body's battlefield

**Department Name:** Biology

**College/School/Division Name:** Natural Sciences and Mathematics

**Term:** Fall 2025 Individualized Study

**Course Credits:** 3

**Class Meeting Days:** Online

**Class Meeting Hours:** Online

**Class Location:** Online



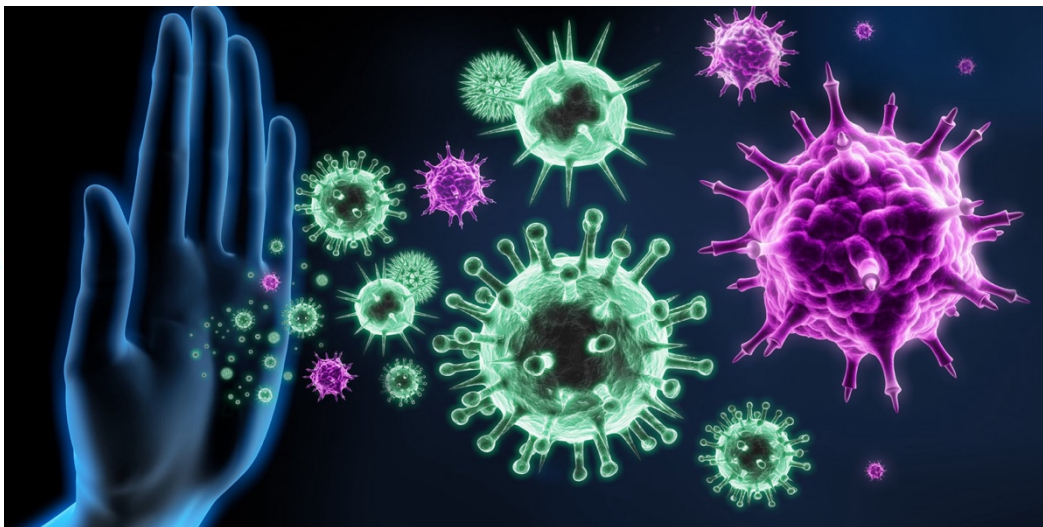
**Instructor Name:** Dr. Helen Turner

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

**Phone:** 808 778 8920 (texting OK – please mention name and **BI 330** in your text)

**Office Location:** CTCC 255 (snacks generally available)

**Office Hours:** by appointment (email me)



## 1. University Course Catalog Description

### BI330 (3) Immunology

Immunology offers a comprehensive exploration of the immune system. Covering key topics identified by the American Association for Immunologists, students will delve into innate and adaptive immunity, antigen recognition, lymphocyte development, immune response regulation, and immune system disorders. The course also addresses immunological techniques, transplantation, tumor immunology, and immune interactions with pathogens and vaccines. With an emphasis on real-world application, students will develop a thorough understanding of immunological principles, preparing them for careers in medicine, research, and related fields. Fulfills the major elective requirement for biology majors.

Pre-requisites: Senior standing

## 2. Course Overview

This course will introduce upper-division undergraduates to the fascinating world of immunology by drawing parallels with armies and military strategies. Students will explore the intricacies of the immune system's defense mechanisms and how they protect the body from invading pathogens. The course provides basic introduction into the field of immunology. Key topics identified by the American Association for Immunologists will be addressed, which includes solid foundational understanding of the immune system and immune responses in humans. Immune anatomy and physiology will be described, including the cellular, tissue and organismal composition and organization of the immune system. Types of immunity and immune responses will be studied and compared, including barriers, humoral, and innate immunity. Case studies in adaptive immunity and active immunization, autoimmune diseases, and transplant rejection will be introduced. The student will gain a broad understanding of immunology that can be applied to healthcare, medical school or research careers.

## 3. 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

## 4. 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 ('Ōlelo 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 ('Ōlelo 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 ('Ōlelo 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 ('Ōlelo 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 ('Ōlelo No'eau 203) All knowledge is not taught in the same school

## 5. Learning Outcomes

1. **Foundational Immunological Knowledge:** Upon completing this course, students will possess a thorough understanding of the immune system's components, mechanisms, and functions, including innate and adaptive immunity, antigen recognition, and immune cell interactions.
2. **Understanding of Immune Responses:** Students will demonstrate proficiency in explaining and differentiating between immune responses, including humoral and cell-mediated responses, cytokine signaling, and immune memory.
3. **Pathogen-Host Interactions:** Students will analyze and describe the strategies employed by pathogens to evade immune defenses and the corresponding immune countermeasures, providing insight into host-pathogen interactions.
4. **Immunological Disorders:** Through case studies and discussions, students will identify and analyze various immunological disorders, such as autoimmune diseases, allergies, and immunodeficiencies, gaining insights into their causes and potential treatments.
5. **Vaccines and Immunotherapy:** Students will evaluate the mechanisms of vaccines and immunotherapies, including monoclonal antibodies and checkpoint inhibitors, and assess their contributions to disease prevention and treatment.
6. **Evolution and Immunology:** Students will explore the evolutionary aspects of immunology, including the coevolution of pathogens and the immune system, and discuss how these insights impact our understanding of immunological processes.

## 7. Required Learning Materials

Reading materials are assigned per week and provided on Canvas

## 8. Course Website:

Canvas BI330

Section	Topic	Activity	Assignments	POINTS
MODULE 1  Week 1	Introduction to the course	1.1. Watch faculty introduction video	1.1. Discussion post: your interest in the course, what you hope to learn	25
	Boot Camp – Introduction to Immunity	1.2. The Immune System: Our Body's Defense Force	1.2. Worksheet:	50
		1.3. Immunology Basics: Soldiers and Generals	1.3. Worksheet:	25
MODULE 2  Week 2	The Frontline - Innate Immunity	2.1. Innate Immune Cells: The First Responders	2.1. Participate in class discussion. What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		2.2. Innate Immune Weapons: The Barriers and Patrols	2.2. Worksheet: Choose an ailment (it could be one you have experienced). Tell us how you think it would have been diagnosed and treated 50 years ago, 100 years ago, 1000 years ago, 10 000 years ago. Tell us what treatment you think you would get for this ailment here in Hawai'i today, or in China, or in Sudan.	50
MODULE 3  WEEK 3	Reconnaissance - Antigen Recognition	3.1. Antigen Recognition: Spies and Intelligence	3.1. Participate in class discussion. What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		3.2. Pattern Recognition Receptors: Recognizing the Enemy	3.2. Worksheet: Post a brief reflection on this paper. What surprised or interested you most in this paper? What questions and thoughts do you have after reading?	25
MODULE 4  WEEK 4	Command and Control – Adaptive Immunity	4.1. Adaptive Immune Cells: Special Ops	4.1. MAJOR ASSIGNMENT 1: Create a Powerpoint video of your case study, using the provided template. Post your completed video Powerpoint.	
		4.2. B Cells and Antibodies: The Artillery	4.2. Class discussion: Post comments or questions on 5 other Powerpoints from the class.	25
			4.3. INTRO TO CAPSTONE ASSIGNMENT: Office hours and planning for Research Paper	

<b>MODULE 5</b>  <b>WEEK 5</b>	<b>Special Forces - T Cell Immunity</b>	<b>5.1. T Cells: The Elite Fighters</b>	<b>5.1. Participate in class discussion.</b> What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		<b>5.2. Major Histocompatibility Complex (MHC): Target Identification</b>	<b>5.2. Response posts: post a brief reflection on this paper.</b> What surprised or interested you most in this paper? What questions and thoughts do you have after reading?	25
<b>MODULE 6</b>  <b>WEEK 6</b>	<b>Strategy and Tactics - Immune Responses</b>	<b>6.1. Immune Responses: Offensive and Defensive Strategies</b>	<b>6.1. Participate in class discussion.</b> What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		<b>6.2. Immunological Memory: Lessons Learned</b>	<b>6.2. Worksheet:</b> Start building reflection worksheet that compares and contrasts what you know so far of Western and Asian (Chinese, Japanese, Korean) medical systems. How are they similar, how do they differ?	
<b>MODULE 7</b>  <b>WEEK 7</b>	<b>The Siege - Immune Disorders</b>	<b>7.1. Autoimmunity: Friendly Fire</b>	<b>7.1. Participate in class discussion.</b> What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		<b>7.2. Immunodeficiency: Weakened Defenses</b>	<b>7.2. Worksheet.</b> Continue building reflection worksheet that compares and contrasts Indian medicine with what you know so far of Western and Asian (Chinese, Japanese, Korean) medical systems. How are they similar, how do they differ?	
<b>MODULE 8</b>  <b>WEEK 8</b>	<b>Vaccination - Training the Troops</b>	<b>8.1. Vaccines: Boot Camp for the Immune System</b>	<b>8.1. Participate in class discussion.</b> What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		<b>8.2. Herd Immunity: Protecting the Community</b>	<b>8.2. Worksheet.</b> Continue building reflection worksheet that compares and contrasts African and Unani medicine with what you know so far of Western and Asian (Chinese, Japanese, Korean), Indian medical systems. How are they similar, how do they differ?	
<b>MODULE 9</b>  <b>WEEK 9</b>  <b>Oct 16</b>	<b>The Traitors - Immune Evasion</b>	<b>9.1. Pathogens' Strategies: Sabotaging the Immune System</b>	<b>9.1. Participate in class discussion.</b> What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
		<b>9.2. Virulence Factors: Inside the Enemy's Arsenal</b>	<b>9.2. Worksheet.</b> Continue building reflection worksheet that compares and contrasts Indigenous/oceanic medicine with what you know so far of Western, Asian (Chinese, Japanese, Korean), Indian and African medical systems. How are they similar, how do they differ?	
<b>Where we are on major assignments:</b>			<b>MAJOR ASSIGNMENT 2: Complete your reflection work sheet that compares and contrasts the Western and TCI medical systems discussed in this course. Polish and submit by end of semester</b>	<b>200</b>
			<b>CAPSTONE ASSIGNMENT: Office hours and mentoring for Research Paper</b>	<b>500</b>

<b>MODULE 10</b>	Allies and Alliances - Immunotherapies	10.1. Immunotherapy: Calling in Reinforcements	10.1. Participate in class discussion. What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
<b>WEEK 10</b>		10.2. Monoclonal Antibodies: Precision Weapons		
<b>MODULE 11</b>	The Battlefield Evolves - Evolution of Immunity	11.1. Evolution of the Immune System: An Arms Race	11.1. Participate in class discussion. What surprised or interested you most in this lecture? What questions and thoughts do you have after listening?	25
<b>WEEK 11</b>		11.2. Coevolution of Pathogens: Changing Tactics		
<b>MODULE 12</b>	Victory and Beyond - Future of Immunology	12.1. Triumphs of Immunology: Historical Battles		
<b>WEEK 12</b>		12.2. Frontiers of Immunology: Uncharted Territory		
<b>WEEKS 12-15</b>	These weeks are dedicated to the writing of your capstone paper and finishing up other major assignments.		<p><b>CAPSTONE ASSIGNMENT: Office hours and mentoring for Research Paper</b></p> <p>Post weekly paper updates into discussion board Submit drafts for review directly to Dr T by email in Word.</p> <p><b>FINAL DEADLINES: MAJOR ASSIGNMENTS 1, 2 and CAPSTONE DUE by 4PM on FRIDAY DEC 1<sup>st</sup> 2023.</b></p>	

## 10. Assignments and Grading

Here's how your grade breaks down:

	<b>POINTS</b>	<b>% of grade</b>
Discussion/Participation Pnts	275	13.75
Assignments	225	11.25
Major Assignment 1	200	10
Major Assignment 2	500	25
Capstone Paper	800	40
total	<b>2000</b>	<b>100</b>

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:

<b>A</b>	900 points or greater	Outstanding scholarship and an unusual degree of intellectual initiative
<b>B</b>	800-899 points	Superior work done in a consistent and intellectual manner
<b>C</b>	700-799 points	Average grade indicating a competent grasp of subject matter
<b>D</b>	600-699 points	Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
<b>F</b>	599 points or fewer	Failed to grasp the minimum subject matter; no credit given

## 11. Policies, Guidance and Assistance

### 11.1. 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

### 11.2. 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.

### **11.3. Late Work Policy**

Requests for extensions due to extenuating circumstances (documented computer or medical problems, for example) will be considered but in general work received after the deadline will not be graded (i.e., will receive a score of zero).

### **11.4. Grades of "Incomplete"**

Should you encounter a significant medical or personal event that prohibits you from completing the course requirements within the time that is allocated for this course, an incomplete grade can be given. Issuance is not automatic, and is at the discretion of the faculty member. An incomplete grade may be assigned to a student who has successfully completed with at least a passing grade the majority of the work of the course, and who has an unavoidable and compelling reason why the remainder of the work cannot be completed on schedule.

### **11.5. Writing Policy**

Guidance on written assignment formatting and citation style will be provided in class.

### **11.5. Instructor and Student Communication**

Questions for this course can be emailed to the instructors. Online, in-person and phone conferences can be arranged. Response time will take place up to 24 hours..

### **11.6. 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)).

### **11.7. 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.

### **11.8. Attendance Policy**

The following attendance policy is from the Academic Catalog: 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.

### **11.9. 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>

### **11.10. 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. 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.

This is a three-credit hour course requiring 135 clock hours of student engagement, per the official CUH Credit Hour Policy. Students enrolled in this course are anticipated to spend 135 hours working on the class:

- 1 hour each for 9 video lectures (~10 hours total)
- 35 hours in total on discussions and response/reflection assignments
- 15 hours researching and writing Major assignment 1
- 40 hours researching and writing Major assignment 2
- 40 hours researching and writing Capstone Research paper