



Chaminade
University
OF HONOLULU

Course Syllabus

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

3140 Waiālae Avenue - Honolulu, HI 96816

Course Number: BC/BI/CH360L-01/02

Course Title: Biochemistry I Lab

Department Name: Natural Sciences and Mathematics

College/School/Division Name: NSM, Division of Chemistry and Biochemistry

Term: Fall 2023

Course Credits: 1

Section 1 (BC/BI/CH360L-01):

Class Meeting Days: Monday

Class Meeting Hours: 6:30PM – 9:20PM

Class Location: Henry Lab 8

Section 2 (BC/BI/CH360L-01):

Class Meeting Days: Friday

Class Meeting Hours: 6:30PM – 9:20PM

Class Location: Henry Lab 8

Instructor Name: Seongjin Kim Ph D

Email: seongjin.kim@chaminade.edu

Phone: 808.739.____

Office Location:

Office Hours:

University Course Catalog Description

Students gain experience in the isolation, purification, identification, and quantification of biologically important molecules. Spectroscopic, chromatographic, as well as chemical modification techniques are used in identifying peptides and proteins. Enzyme kinetic studies are carried out for quantification purposes.

Course Overview

In this practical and hands-on laboratory experience, students will be introduced to the fundamental principles and models of isolation, purification, identification, and quantification of biologically important molecules. The experiments were chosen to improve experimental skills covering spectroscopic and chromatographic methods for the identification of peptides, proteins, and studying enzyme reaction kinetics. In addition, students will apply their skills and knowledge acquired from both General and Organic Chemistry lecture & laboratory courses. This will achieve through a combination of guided exercises, independent investigations, and collaborative group work.

Proper laboratory safety and etiquette will also be taught. This course is intended for chemistry, biochemistry, and other students on scientific or professional career paths.

Program Learning Outcomes

Chemistry Mission Statement

Chemistry has justifiably been labeled 'The Central Science'. Training in this discipline is therefore beneficial for all citizens of the modern world. All materials in the universe are made up of chemicals; a knowledge of chemistry is indeed a knowledge of ourselves.

The mission of this program is to:

- Promote molecular literacy (i.e., awareness of the importance of physical, chemical, and biological changes on the atomic and molecular scale)
- Provide hands-on laboratory training using modern chemical techniques and instrumentation
- Engage students in an undergraduate research program
- Enable students to integrate knowledge of the physical world
- Educate about the entry requirements, career pathways, and progression into advanced education in the chemical sciences

Program Learning Outcomes in Chemistry

Upon completion of the undergraduate program in Chemistry, students will be able to:

- Apply the scientific method as it is used in organic chemistry, inorganic chemistry, analytical chemistry, physical chemistry, and molecular sciences
- Recognize and explain chemical theory as it applies to the physical world
- Visualize, evaluate, validate, and interpret results of chemical analyses as part of an integral and quality education
- Solve problems using analytical reasoning, professional resources, professional conduct, and ethical behavior
- Communicate chemical information effectively in oral and written formats

Program Learning Outcomes in Chemistry

	CLO1	CLO2	CLO3	CLO4	CLO5
MVs	2, 4 and 5	2, 4 and 5	2, 3, 4 & 5	2, 4 and 5	2, 3, 4 & 5
NHVs	2, 4 and 5	2, 4 and 5	2, 3, 4 & 5	2, 4 and 5	2, 3, 4 & 5
PLOs	1, 2, 4 & 5	1, 2, 3, 4 & 5	1, 2, 3, 4 & 5	1, 2, 3, 4 & 5	1, 3, 4 & 5

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

Safety Requirements

Students are required to practice safety precautions while performing experiments, including wearing safety glasses, closed-toe full-coverage shoes, and lab coats. Long pants are recommended. In addition, it is recommended you tie it back away from your face if you have long hair. For your safety, food and drink including chewing gum or candy are not allowed in the lab.

Course Prerequisites

Prerequisites: BC 324L or CH 324L, EN 102, COM 101

Corequisite: BC 360

Required Learning Materials

- Laboratory coat
- scientific calculator.
- computer and/or smartphone with web/app online access.
- Your own personal safety specs (OPTIONAL as communal safety specs are available in the laboratory).

Course Website:

Section 1: <https://chaminade.instructure.com/courses/28902>

Section 2: <https://chaminade.instructure.com/courses/28903>

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 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](#) 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 or 808-739-8305.

Assessment

Service Learning: You may provide a proposal to your professor a project for [service learning](#) assignments. If the project is accepted by your professor, additional bonus points may be applied to your final score.

Laboratory reports. You are required to write-up in a formal scientific format your experiments and turn them in at the beginning of the next laboratory class for grading. You must write your experimental write-up in a numbered composition notebook (you may number the pages manually) and in black ink pen (optionally, you may printout your report from a computer document that you have prepared). You must include the following sections in chronological order for each experiment:

- 1 Title
- 2 Name(s) of Scientist
- 3 Date Experiment Performed
- 4 Objective(s)
- 5 Introduction
- 6 Experimental Procedures
- 7 Data and Calculations
- 8 Results
- 9 Discussion
- 10 Conclusion
- 11 References

Quizzes: You may have quizzes at the beginning of labs from topics related to the previous laboratory experiment AND prelab which will cover the material of the current lab found in the handout and assigned reading (when it is available in advance). Students who arrive late will not be allowed to take the quiz and no makeup quiz will be available; however, students will be allowed to drop their lowest quiz grade.

Final Exam: There is no final exam for this laboratory course.

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

The course grades will be based on the following point total and scale.
Any changes will be announced in class.

Attendance and Participation	10 %
Lab Reports	50 %
Quizzes	<u>40 %</u>
Total	100 %

GRADE	PERCENTAGE
A	90-100 %
B	80-89 %
C	65-79 %
D	45-64 %
Fail	below 45 %

Credit Hours: Based on 5 Experiments

2.5 hours per laboratory experiment every other week	(Subtotal = 20)
1 hour review/repeat review/memorization per class lab expt.	(Subtotal = 5)
2 hour laboratory report with literature research	(Subtotal = 10)
2 hour quiz preparation/practice per quiz (5 quizzes)	(Subtotal = 10)

Total Hours = 45

TENTATIVE Schedule:

(The instructor may modify elements of this syllabus according to the operational needs of the class)

Dates (M, F)	Laboratory Experiment
8/21, 8/25	Check-In
8/28, 9/1	Buffers & UV Spectroscopy
<u>9/4</u>	No lab (<u>Sec 1</u>)
9/11, 9/8	Buffers & UV Spectroscopy – Continued

9/18, 9/15	Analysis of Amino Acids
9/25, 9/22	Peptide Synthesis
10/2, 9/29	Peptide Synthesis – Continued
<u>10/9, 10/6</u>	No lab (<u>Sec 1 and Sec 2</u>)
10/16, 10/13	Peptide Synthesis – Continued
10/23, 10/20	Ion Exchange & Size Exclusion Chromatography
10/30, 10/27	Enzyme Kinetics (Dry Lab)
11/6, 11/3	Benzoin Condensation (Or Trypsin Assay)
<u>Nov 10</u>	No Lab (<u>Sec 2</u>)
11/13, 11/17	Benzoin Condensation (Literature Investigation) (Or Trypsin Assay – Continued)
<u>11/20, 11/24</u>	No Labs – Thanksgiving Holiday
11/27, 12/1	Check-Out

Course Policies

Late Work Policy

All overdue assignment not completed or anticipated to be late must have approval from the instructor along with a valid excuse.

Grades of "Incomplete"

Students and instructors may negotiate an incomplete grade when there are specific justifying circumstances. 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 may not be extended.

Writing Policy

Plagiarism will not be tolerated and will be checked.

Instructor and Student Communication

Questions for this course can be emailed to the instructor at seongjin.kim@chaminade.edu. Online, in-person and phone conferences can be arranged. Response time will take place up to [number of hours or days].

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).

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. 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.

Student Conduct Policy

Campus life is a unique situation requiring the full cooperation of each individual. For many, Chaminade is not only a school, but a home and a place of work as well. That makes it a community environment in which the actions of one student may directly affect other students. Therefore, each person must exercise a high degree of responsibility. Any community must have standards of conduct and rules 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 under Student Life.

For further information, [please refer to the Chaminade Catalogue](#).

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 a minimum of 45 hours of engagement, regardless of varying credits, duration, modality, or degree level. 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. Terms that have alternative lengths, such as 10 week terms, should have an equivalent amount of faculty instruction and out-of-class student work to meet each credit hour. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit. The number of engagement hours may be higher, as needed to meet specific learning outcomes.

Specific Credit Situations

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.