

Course Syllabus

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Reminder -- Starting Monday 24 August,
we are going online for the first three weeks
of the semester.



Course Title: Cancer Biology

Course Number: BI435

Course credits: 3

Term: Fall 2020

Meeting Days: Monday, Wednesday, Friday

Meeting Hours: 9:10am - 10:10am

Meeting Location: Eiben Hall, Room 202

Instructor: Michael Dohm, PhD

Department: Biology, School of Natural Sciences and Mathematics, Chaminade University of Honolulu

Office: Wesselkamper Science Center (WSC) rm. 108

Office Hours: Tuesday, Wednesday, Thursday, 10am - 12pm or by appointment

Email: mdohm@chaminade.edu (<mailto:mdohm@chaminade.edu>) (current students: use [CANVAS Messaging](#))

Phone: 808-739-8543

Website: <https://letgen.org> [. \(https://letgen.org\)](https://letgen.org)

Course Overview

The study of Cancer Biology is a relatively new field which began with the discovery of oncogenes in 1975. Since then the field is rapidly expanding with new discoveries being made daily. As with any disorder/disease, knowledge is the key for prevention and treatment options. Therefore, this class will examine the basics of cancer biology: how a cell becomes cancerous and the changes that occur. Signaling within the cell may differ for different types of cancer (and subtypes) and we will investigate the similarities as well as the differences. This will be through cell biology, molecular biology, biochemistry and genetics. In addition to your required textbooks, we will also read primary scientific literature in order for you to begin to understand research papers. Our task: for you to gain a comprehensive knowledge (i.e., true, justified belief and understanding) about cancer and our modern approach to prevention and treatment.

University Course Catalog Description

This course provides students with knowledge of the fundamental principles of the molecular and cellular biology of cancer cells. Lectures and demonstrations explain the role of growth factors, oncogenes, tumor suppressor genes, angiogenesis, and signal transduction mechanisms in tumor formation. Discussion of aspects of cancer epidemiology, prevention, and principles of drug action in cancer management is part of the course.

Course Prerequisites

BI308/BI308L

Required Learning Materials

1. *The Biology of Cancer*, 2nd Edition, by Robert A Weinberg, ISBN 978-0815342205; [Chaminade University Bookstore](https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks) [_ \(https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks\)](https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks)
2. *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee, ISBN 978-1439170915; [Chaminade University Bookstore](https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks) [_ \(https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks\)](https://chaminade.bncollege.com/shop/chaminade/page/find-textbooks)

Technical Assistance for Canvas Users:

- Search (Google, Bing, etc.) 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

Assessment

Your grade for the course is based on three major elements: quizzes, Journal club participation, and a project. The project will include several required elements, including a proposal, a written paper (draft + final version), a brief visual & audio presentation, plus peer evaluation. Due dates for assignments are reported as month/day (mm/dd). In general, assignments are due by 8:59am HST on the date due. Details about each graded element are discussed in class with materials posted in Canvas.

Points available and weights for each graded element are listed in the table.

Item	How many?	Points	Weight
Quizzes	Ten	170	57%
Journal Club participation	Five	50	17%
Paper and presentation	Proposal	5	2%
	Draft	25	8%
	Final	25	8%
	Presentation	15	5%

	Peer evaluation	10	3%
Total		300	100%

Official grade records

Canvas provides a way for you to monitor your graded assignments. This is convenient, but students should be aware that the final word about grades depends on the Official Grade Book for the course. Thus, although the Canvas record will show your points for an assignment, be advised that your assigned grade is finalized by the official grade book, which is maintained by Dr Dohm. You may always inquire about your current standing in the course by sending a [message to Dr Dohm from within Canvas](#).

Grading Scale

Letter grades are given in all courses except those conducted on a credit/no credit basis. They are interpreted as follows:

A	92 - 100%	Outstanding scholarship and an unusual degree of intellectual initiative
B	80 - 89%	Superior work done in a consistent and intellectual manner
C	70 - 79%	Average grade indicating a competent grasp of subject matter
D	50 - 69%	Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work.
F	< 49%	Failed to grasp the minimum subject matter; no credit given

Course Schedule

The schedule is tentative and subject to change by the instructor.

Due dates for assignments are reported as month/day (mm/dd). In general, assignments are due by 8:59am HST on the date due.

BOC refers to pages in *Biology of Cancer* textbook; Emperor refers to pages in *The Emperor of All Maladies: A Biography of Cancer* book.

Date	Details	Readings	Assignments & date
Week 1	Introductions	BOC: Ch01 Emperor: Ch01, 02, 03	
Week 2	The nature of cancer	BOC: Ch02	Quiz 01 08/31

			Journal club 09/02
Week 3 Labor Day 7 September	Viruses and Oncogenes	BOC: Ch03 & 04	Quiz 02 09/09
Week 4	Growth factors, receptors, signaling circuits	BOC: Ch05 & 06	Quiz 03 09/14 Journal club 2 09/16
Week 5	Signaling circuits	BOC: Ch06	Quiz 04 09/21
Week 6	Tumor suppressor genes	BOC: Ch07, 08, 09	Quiz 05 09/28 Journal club 3 09/30
Week 7	pRb and p53	BOC: Ch08 & 09	Quiz 06 10/05
Week 8 Discoverer's Day 12 October	Immortalization and Tumorigenesis	BOC: Ch10 & 11	Quiz 07 10/14 Journal club 4 10/16
Week 9	Tumorigenesis	BOC: Ch11	Quiz 08 10/21
Week 10	Genomic integrity	BOC: Ch12	Draft due 10/26
Week 11 Veteran's Day 11 November	Dialogue replaces monologue	BOC: Ch13	Quiz 09 11/02 Journal club 5 11/06
Week 12	Metastasis	BOC: Ch14	Quiz 10 11/11
Week 13	Rational treatment	BOC: Ch15 & 16	Final paper due 11/16 Presentations due 11/18
Week 14	End of semester Last day 25 November		Peer evaluations due 11/25

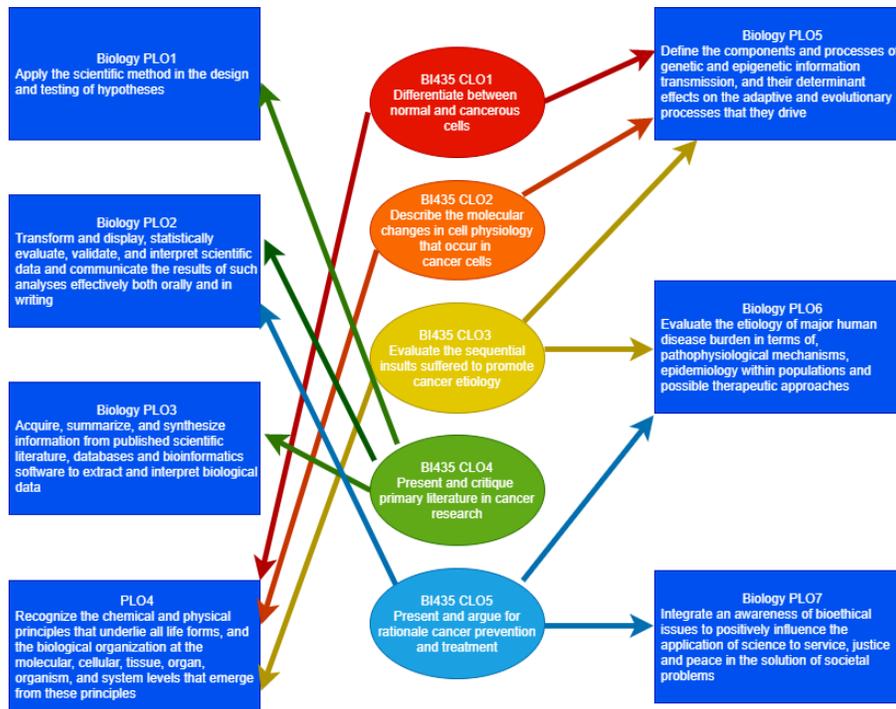
Student (Course) Learning Outcomes

1. Differentiate between normal and cancerous cells

2. Describe the molecular changes in cell physiology that occur in cancer cells
3. Evaluate the sequential insults suffered to promote cancer etiology
4. Present and critique primary literature in cancer research
5. Present and argue for rationale cancer prevention and treatment

Alignment of Course Learning Outcomes (CLO) to Biology Program Outcomes (PLO)

Course Learning Outcomes	Biology Program Learning Outcomes
1	4, 5
2	4, 5
3	4, 5, 6
4	1, 2, 3
5	2, 6, 7



Biology Program Learning Outcomes

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

5. Define the components and processes of genetic and epigenetic information transmission, and their determinants and effects on the adaptive and evolutionary processes that they drive
6. Evaluate the etiology of major human disease burden in terms of, pathophysiological mechanisms, epidemiology within populations and possible therapeutic approaches
7. Integrate an awareness of bioethical issues to positively influence the application of science to service, justice and peace in the solution of societal problems

University outcomes

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

Alignment of Natural Sciences Courses with Marianist and Hawaiian values of the University.

The Natural Sciences Division provides an integral, quality education: sophisticated integrative course content taught by experienced, dedicated, and well-educated instructors.

- We educate in the family spirit – every classroom is an Ohana and you can expect to be respected yet challenged in an environment that is supportive, inclusively by instructors who take the time to personally get to know and care for you.
- We educate for service, justice and peace, since many of the most pressing global issues (climate change, health inequity, poverty, justice) are those which science and technology investigate, establish ethical

health inequality, poverty, justice, are those which science and technology investigate, establish critical parameters for, and offer solutions to.

- We educate for adaptation and change. In science and technology, the only constant is change. Data, techniques, technologies, questions, interpretations and ethical landscapes are constantly evolving, and we teach students to thrive on this dynamic uncertainty.

The study of science and technology can be formative, exploring human creativity and potential in the development of technologies and scientific solutions, the opportunity to engage in the stewardship of the natural world, and the opportunity to promote social justice. We provide opportunities to engage with the problems that face Hawai'i and the Pacific region through the Natural Sciences curriculum, in particular, those centered around severe challenges in health, poverty, environmental resilience, and erosion of traditional culture. The Marianist Educational Values relate to Native Hawaiian ideas of mana, na'auao, ohana, aloha and aina. We intend for our Natural Sciences programs to be culturally-sustaining, rooted in our Hawaiian place, and centered on core values of Maiau, be neat, prepared, careful in all we do; Makawalu, demonstrate foresight and planning; `Ai, sustain mind and body; Pa`a Na`au, learn deeply.

Course policies

Instructor and Student Communication

Questions for this course can be posted to the instructor via CANVAS. Online, in-person and phone conferences can be arranged. Most messages to Canvas will be replied within 24 hours. Email to instructor's chaminade.edu e-mail may take up to 3 days for response.

Accessibility and Accommodations

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 the Counseling Center 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 Counseling Center at (808) 735-4845 for further information (counselingcenter@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 [Chaminade University Undergraduate Catalog \(https://catalog.chaminade.edu/generalinformation/academicaffairs/policies/attendance\)](https://catalog.chaminade.edu/generalinformation/academicaffairs/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

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 ADA 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.

Online Attendance

During the first three weeks (subject to change), this course is primarily online. Attendance for this course during the online phase is based on the (1) timely submission of assignments and/or (2) logging onto the course at least once per week. Students will receive credit for 'attending' the class each time a weekly assignment is submitted and/or each time student signs on to the course and navigate to at least one page or module removed from the home page within the Canvas system for the course. Some weekly lessons require the submission of one assignment, some require two. Each lesson will indicate when it is complete. The student is responsible for pressing the 'submit' button each time he or she has completed an assignment. If the page indicating that the assignment has been submitted does not appear, then the assignment has not been submitted.

Late Work Policy

There are no make-ups for quizzes, unless a physician's note documents your absence during quizzes. Journal article presentations CANNOT be made-up. Quizzes and assignments are due by 8:59am HST on the assigned date. Up to 10% grade reduction will be assessed for each 12 hour late assignment. All quizzes and assignments close by 3 days post the due date.

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 may not be extended.

Writing Policy

Instructions for the writing assignments are detailed for each individual assignment on the canvas course page.

Potential resources for writing assignments:

- Google Scholar
- Pubmed
- Sullivan Library

Cell phones, tablets, and laptops

Music Devices and Cellular Phones: Unless specifically permitted by your instructor, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes, as it is discourteous and may lead to suspicion of academic misconduct. Students unable to comply will be asked to leave class. 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.

Academic Conduct Policy

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. Example of Honor Code violations include, but are not limited to: • Giving or receiving information from another student during an examination; • Using unauthorized sources for answers during an examination; • Illegally obtained test questions before the test; • Any and all forms of plagiarism – submit all or part of someone else’s work or ideas as your own; • The destruction and/or confiscation of school and/or personal property.

Violations of Academic Integrity: 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 an 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.
- Plagiarism: Intentionally or knowingly presenting the work of another as one’s own (i.e., without proper acknowledgment of the source).
- 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 includes, but is not limited to:

- Complete or partial copying directly from a published or unpublished source without proper acknowledgement to the author. Minor changes in wording or syntax are not sufficient to avoid charges of plagiarism. Proper acknowledgement of the source of a text is always mandatory.
- Paraphrasing the work of another without proper author acknowledgement.
- Submitting as one’s own original work, however freely given or purchased, the original exam, research paper, manuscript, report, computer file, or other assignment that has been prepared by another individual.

Consequences of academic honesty violations:

From the [Chaminade University catalog](#)

(<https://catalog.chaminade.edu/generalinformation/academicaffairs/policies/academichonesty>): 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

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.

Additional information on student conduct can be found in the student handbook.

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 Smarthinking. Smarthinking can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – Smarthinking. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

Online Tutoring through Smarthinking

- All CUH students are eligible to use Smarthinking, an online tutoring system. Students can access Smarthinking via their Canvas account.
- Through Smarthinking, students can 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.

Course Summary:

Date	Details	
Tue Aug 25, 2020	 First Assignment (https://chaminade.instructure.com/courses/12897/assignments/138087)	due by 11:59pm
Mon Aug 31, 2020	 Quiz01 (https://chaminade.instructure.com/courses/12897/assignments/137990)	due by 8:59am
Wed Sep 2, 2020	 Journal Club 1 (https://chaminade.instructure.com/courses/12897/assignments/137974)	due by 8:59am
Wed Sep 9, 2020	 Quiz02 (https://chaminade.instructure.com/courses/12897/assignments/137991)	due by 8:59am
Mon Sep 14, 2020	 Quiz03 (https://chaminade.instructure.com/courses/12897/assignments/137992)	due by 8:59am

Date	Details	
Wed Sep 16, 2020	 Journal Club 2 (https://chaminade.instructure.com/courses/12897/assignments/137975)	due by 8:59am
Fri Sep 18, 2020	 Proposal (https://chaminade.instructure.com/courses/12897/assignments/137982)	due by 8:59am
Mon Sep 21, 2020	 Quiz04 (https://chaminade.instructure.com/courses/12897/assignments/137993)	due by 8:59am
Mon Sep 28, 2020	 Quiz05 (https://chaminade.instructure.com/courses/12897/assignments/137994)	due by 8:59am
Wed Sep 30, 2020	 Journal Club 3 (https://chaminade.instructure.com/courses/12897/assignments/137976)	due by 8:59am
Mon Oct 5, 2020	 Quiz06 (https://chaminade.instructure.com/courses/12897/assignments/137995)	due by 8:59am
Wed Oct 14, 2020	 Quiz07 (https://chaminade.instructure.com/courses/12897/assignments/137996)	due by 8:59am
Fri Oct 16, 2020	 Journal Club 4 (https://chaminade.instructure.com/courses/12897/assignments/137977)	due by 8:59am
Wed Oct 21, 2020	 Quiz08 (https://chaminade.instructure.com/courses/12897/assignments/137997)	due by 8:59am
Mon Oct 26, 2020	 Draft of paper (https://chaminade.instructure.com/courses/12897/assignments/137987)	due by 8:59am
Mon Nov 2, 2020	 Quiz09 (https://chaminade.instructure.com/courses/12897/assignments/138001)	due by 8:59am
Fri Nov 6, 2020	 Journal Club 5 (https://chaminade.instructure.com/courses/12897/assignments/137978)	due by 8:59am
Wed Nov 11, 2020	 Quiz10 (https://chaminade.instructure.com/courses/12897/assignments/138002)	due by 8:59am
Mon Nov 16, 2020	 Final paper (https://chaminade.instructure.com/courses/12897/assignments/137986)	due by 8:59am
Wed Nov 18, 2020	 Presentation (https://chaminade.instructure.com/courses/12897/assignments/137984)	due by 8:59am

Date**Details**

Wed Nov 25, 2020

 **[Project Peer evaluation](https://chaminade.instructure.com/courses/12897/assignments/137983)**
[\(<https://chaminade.instructure.com/courses/12897/assignments/137983>\)](https://chaminade.instructure.com/courses/12897/assignments/137983)due by 8:59am
