



College of Business, Innovation and Technology
Computer Science

CS 204

Hybrid | Credits: 3 | Section: 1 | Term: Fall 2026

Instructor Information

Instructor	<i>Kelly Gaither</i>  <i>Brief Intro: I am an Adjunct Professor in the Computer Science and the Data Science, Analytics, and Visualization Department at Chaminade University of Honolulu. I am also the Deputy Director and the Director of Visualization at the Texas Advanced Computing Center and an Associate Professor in the Department of Women's Health at the Dell Medical School at The University of Texas at Austin. My research applies computational methods and data analytics to grand challenge problems at large scales.</i>
Email	kelly.gaither@chaminade.edu , kelly@tacc.utexas.edu
Phone	512-775-1537
Office Location	Data Science Center
Virtual Office	https://utexas.zoom.us/j/5041849659?pwd=ZGNKcDBjZVBVYlhpcUJmN1IDOXJnZz09
Virtual Office Hours	By appointment

Communication Email, slack or text. I will respond within 24/48 business hours.

School & Department

School	College of Business, Innovation, and Technology
Location	Kieffer Hall, Room 12
Phone	(808) 739-8369
Questions?	Contact your instructor or the College of Business, Innovation and Technology

Course Description & Materials

Catalog Description

This course is a visualization and analytics class. This course will include lectures, discussions, assignments, hands-on experiences, and a project. The goal of the course, it will primarily focus on visualization and analytics of data science by providing and preparing students with the necessary knowledge, techniques, skills, and a data science mindset. Students in this course will use both R and Python, and will learn the planning, development, evaluation, and interpretation process of various graphs with different levels of development difficulty.

CS 201 or CS 202.

Course Snapshot

Modality	Hybrid In-Person/Online
Time Commitment	This is a three-credit hour course requiring 135 clock hours of student engagement, per the official CUH Credit Hour Policy. Over the 15 weeks of this course, students will spend 37.5 hours in class, 60 hours programming the final project over the course of the semester, and 20 hours designing and prototyping visualizations. There will be an additional 17.5 hours of work required beyond what is listed here (course readings, homework assignments, etc.), averaging 1.2 hours each week.
Required Materials	<i>No textbook is required. Relevant reading materials will be provided prior to each class meeting</i>
Canvas	This course is delivered through Canvas (chaminade.instructure.com). <i>Canvas is Chaminade University of Honolulu's official learning management system, designed to enhance teaching and learning. It's a versatile platform suitable for instructional formats, including online, hybrid, and hybrid, and traditional face-to-face classes. Canvas empowers educators to create engaging learning experiences with its rich set of tools for content creation, assignments, assessments, and communication. Its user-friendly interface and mobile compatibility ensure accessibility and convenience, elevating the overall educational quality at Chaminade University. We will use canvas in a variety of ways, primarily through modules. For easy access, you can bookmark the bitly link at https://bit.ly/CUHCanvasLinks to an external site, or type "bit.ly/CUHCanvas" in your browser's address bar to log in directly to CUH Canvas, streamlining your online learning experience.</i>

Learning Outcomes

Program Learning Outcomes (PLOs)

Upon completion of Computer Science Degree, the student will be able to:

1. Describe foundational computer organization, architecture, computing resources, and system.
2. Describe foundational mathematical concepts and operations towards design, development, and analysis of applications.
3. Apply programming language towards application development.
4. Integrate an awareness of ethical issues and collective standards to positively influence the application of computer science to service, justice, and peace in working towards solutions for societal problems and opportunities.

Course Learning Outcomes (CLOs)

Upon completion of CS 204, the student will be able to:

1. Apply a structured design process to create effective visualizations
2. Critique visualizations and identify suggestions for refinement and improvement
3. Construct visualization designs using design guidelines
4. Apply principles of human perception, cognition and storytelling to visualization design
5. Create interactive visualizations on TACC's supercomputers using Jupyter notebooks, Python plotly, panel, and dash
6. Create dashboards for interactive visualizations using UI/UX principles, visualization design and storytelling

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.

This course will provide a collaborative environment for instruction that fosters and teaches concepts from the standpoint of service, justice and peace, and integrity of creation. Additionally, this course will provide instruction that integrates concepts of adaptation and change.

Native Hawaiian Values

Education is central to both Marianist and Native Hawaiian culture — both seek transformative, value-centered learning that serves the marginalized. This is reflected in the ‘Ōlelo No’eau (Hawaiian proverbs) below:

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 (‘Ōlelo No’eau 1200) — Recognize others, be recognized, help others, be helped.
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.

Alignment of Course Learning Outcomes

	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5
Marianist Values	2,4	5	2,5	2,4,5	2,4,5
PLOs	2	2	2,3	2,4	1,3
Native Hawaiian Values	2,5	3,5	2,5	2,4,5	2,4,5
Gen Ed Outcomes(if applicable)					

Participation & Regular and Substantive Interaction (RSI)

Student Participation Expectations

This hybrid online/in-person course requires consistent, meaningful engagement with content, peers, and the instructor each week.

Students are expected to:

- Attend class regularly and participate in class discussion and coding
- Complete assigned readings, lectures, and activities within designated timeframes.
- Log in regularly to review module instructions, announcements, deadlines, feedback, and grades.
- Demonstrate preparation, reflection, and critical thinking in all interactive components.
- Meet established deadlines to support collaborative learning and remain on track with the weekly sequence.

Regular and Substantive Interaction (RSI) — Instructor Commitments

- **Weekly Communication:** Weekly announcements and/or module overviews clarifying objectives, key concepts, and assignment expectations.
- **Substantive Engagement:** Instructor-facilitated discussion engagement — prompting analysis, clarifying misunderstandings, connecting posts to course concepts, summarizing takeaways.
- **Timely Feedback:** Clear grading criteria and substantive feedback on all graded work.
 - Email inquiries: response by [X] (see Communication policy above)
 - Weekly graded work (discussions, assignments): within [X] school days of the due date
 - Major assessments/projects: within [X] school days of the due date
- **Monitoring & Outreach:** Active monitoring of Canvas engagement with proactive outreach and referrals for students who miss deadlines or fall behind.

Course Policies

Attendance	<i>Attendance will be taken for this class and will factor into the class participation grade. We will be discussing new concepts and conducting activities during class and attendance is an important part of mastering the subject matter. Lectures will be recorded and saved on instructor's google drive for access outside of class for the duration of the course.</i>
Late Work	<i>Late work will be accepted up to one week after the deadline. A penalty of 5% for late work will be assessed. This does not apply to work that is late due to circumstances with appropriate documentation. If work is late due to excused circumstances, student will work with faculty to determine appropriate and fair timeline for completion.</i>
Extra Credit	<i>Extra credit work may be given during the course semester. This work is intended to enhance learning of topic areas and students will be asked to adhere to documented instructions. Late extra credit work will not be accepted without appropriate documentation.</i>
Incomplete Grade	<i>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.</i>
Syllabus Changes	<i>The instructor reserves the right to modify this syllabus. Changes will be communicated via Canvas announcements.</i>

Final Grades

Final grades are submitted to Self-Service (selfservice.chaminade.edu):

Grade	Range
A	90% and above
B	80–89%
C	70–79%
D	60–69%
F	59% and below

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, plagiarism, **and unauthorized and/or undisclosed AI usage**, in addition to more obvious dishonesty. See catalog section *Student Use of Artificial Intelligence in Academic Work* for further information.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Director of the Academic College. Punishment for academic dishonesty will be determined by the instructor, Director, and the Dean of Academic College and may include an “F” grade for the work in question, an “F” grade for the course, academic notice, or dismissal from the University.

AI (Artificial Intelligence) Statement

Chaminade University recognizes the increasing role of artificial intelligence (AI) technologies in academic and professional environments. AI encompasses, but is not limited to, generative AI platforms, automated writing or content generation software, coding assistants, and similar tools. Students must ensure all submitted work genuinely reflects their knowledge and effort. Using AI to produce or significantly complete graded assignments, exams or other academic tasks – defined as use that substitutes for or substantially replaces a student’s own analysis, reasoning or written expression – without explicit instructor approval is considered academic misconduct and will be dealt with according to the University’s Academic Honesty Policy.

If an instructor has reasonable grounds to question whether submitted work genuinely reflects a student’s own knowledge, authorship, or mastery of course material — or whether it meets the course’s expectations for AI use — the instructor may require the student to provide additional or alternative evidence of authorship and content mastery. Such evidence may include drafts, notes, revision history, source materials, process explanations, oral discussion, in class work, or completion of an alternative assessment. A student’s refusal or inability to provide such evidence may be considered, along with other available information, in evaluating whether the work meets course requirements and stated learning outcomes. Instructors will not rely solely on AI detection software or other automated tools in making grading or academic integrity determinations. Such determinations will be based on the totality of the available information and handled in accordance with applicable University policies and procedures. See the catalog section *Student Use of Artificial Intelligence in Academic Work* for further information.

Title IX and Nondiscrimination

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. For pregnant and parenting students, I am also obligated to provide you with similar resources for support and protections available to you. My goal is to make sure that you are aware of the range of options available to you and have access to the resources and support you need.

Contact information and reporting options: chaminade.edu/titleix/nondiscrimination/. File a report via the [Campus Incident Report Form](#).

Nondiscrimination Policy and Notice of Nondiscrimination

The university is committed to comply with all State and Federal statutes, rules, and regulations which prohibit discrimination. The university is committed to a policy of nondiscrimination on the basis of race, sex, gender identity and expression, age, religion, color, national origin (including shared ancestry and ethnic characteristics), ancestry, citizenship, disability, genetic information, marital status, breastfeeding, arrest and court record (except as permissible under State law), sexual orientation, or status as a covered veteran. Inquiries about Title IX or general Civil Rights concerns 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 [HERE](#). *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](#).

Student with Disabilities Statement

Kōkua 'Ike

Accessibility Services recognizes disability as a valued aspect of diversity and ensures equal access to the educational environment in accordance with Section 504 of the Rehabilitation Act; the Americans with Disabilities Act, as amended; and the principles and professional standards of the Association on Higher Education and Disability. Access is supported through reasonable accommodations and referrals to campus and community resources.

Appointments with the Accessibility Services Coordinator are available through Stellic at <https://chaminade.stellic.com> and may be held virtually or in person. Drop-in appointments are also welcome.

Students seeking support must meet with the Accessibility Services Coordinator as early as possible, even if they are unsure whether they have appropriate documentation of their disability or its impacts. The Accessibility Services Coordinator prioritizes listening to students' experiences and will discuss any documentation needs during the initial intake meeting. Students may seek support at any time. Learn more at <https://chaminade.edu/ada-accommodations>. Learn more at <https://chaminade.edu/career-services>.

Assessment of Student Work

Chaminade University may use student work anonymously to assess achievement of course, program, and institutional learning outcomes as part of ongoing quality improvement efforts.

Campus Resources & Support Services

The following resources are available to all Chaminade students. Reach out early — these services exist to support your success.

Resource	Description	Contact / Website
Accessibility Services (Kōkua 'Ike)	Accommodations under Section 504 and ADA. Contact early — appointments via Stellic, virtual or in person.	ada@chaminade.edu chaminade.edu/ada-accommodations Accessibility Services Sign up
Tutoring & Academic Coaching (Kōkua 'Ike)	Tutoring and Academic Coaching Services support students' progression toward their academic, personal, and professional goals with clarity and intention. Services include individualized support in English, math, nursing, sciences, and social sciences, as well as guidance in developing goals and study strategies.	https://chaminade.edu/tutoring-academic-coaching-services
Career Services	Career Services supports students throughout their career journeys. Services include individualized job search strategy coaching, resume reviews, job interview coaching, and access to career-related resources and opportunities.	chaminade.edu/career-services
Basic Needs Resources	Support for food insecurity, housing instability, and other basic needs.	chaminade.edu/basic-needs/
Title IX / Nondiscrimination	Reporting and support for sex discrimination and gender-based violence. Campus Incident Report Form available online.	chaminade.edu/titleix/resources-and-support/
Hazing Prevention	Confidential support, crisis intervention, and reporting for any type of abuse including hazing.	hazingpreventionnetwork.org/athlete-helpline/
CUH Alert Emergency Notification	Emergency text system. Register your cell number via the Chaminade portal and confirm the text to complete enrollment.	chaminade.edu
Campus Safety/ SafeSwords	A program for students, faculty and staff, who may feel uncomfortable or unsafe walking alone on campus, at any time of the day. Call security, and a security professional will meet you at your location on campus. The security professional will escort you to your residence hall, car, etc. Students may utilize this when	SafeSwords Webpage

Resource	Description	Contact / Website
	walking to and from night classes around campus or after late night events	

Grading and Assessment

Assessments	Points
Communication and Class Participation	5
Programming Assignment 1	10
Programming Assignment 2	20
Programming Assignment 3	20
Final Project	30
Final Project Presentation	15

Weekly Course Schedule

Note: Instructor reserves the right to modify this schedule. Changes will be communicated through Canvas announcements.

Week of	Theme	Due Dates
8/18	- Syllabus Review - TACC Accounts and Jupyter Notebooks	
8/25	- Python Programming Review - The Art of Debugging (Programming Assignment 1 Overview)	
9/1	- Why We Visualize - Making Our First Visualization	
9/8	- Vision and Color Perception - Data Abstractions and Data Types	Programming Assignment 1 Due (9/11 11:59 PM)
9/15	- Methodology - What are Marks and Channels? (Programming Assignment 2 Overview)	
9/22	- Task Abstraction - Design Guidelines	
9/29	- Graphs - Trees	
10/6	- Color Mapping - Maps	Programming Assignment 2 Due (10/9 11:59 PM)
10/13	Dashboarding	

Week of	Theme	Due Dates
	Adding Visualizations (Programming Assignment 3 Overview)	
10/20	- Adding User Interaction - Manipulative View/Multiple Views	
10/27	- When Just a Table Will Do - Dimensionality	
11/3	- Scientific Visualization (Part 1) - Scientific Visualization (Part 2)	Programming Assignment 3 Due (11/6 11:59 PM)
11/10	- Evaluation - The Ethics of Visual Representation	
11/17	SC 26 (Work on Projects)	
11/24	- Work on Final Project - Thanksgiving Holiday (University Holiday – No Class)	
12/1	- Final Project Presentations (Part 1) - Final Project Presentations (Part 2)	Final Project Due (12/4 11:59 PM)