



Course Syllabus

DS 401: HEALTHCARE INFORMATICS AND ANALYTICS (3)

Course Number: Data Science 401

Course Title: Science Writing

Department Name: Data Science Analytics and Visualization

College/School/Division Name: Natural Sciences and Mathematics

Term: Fall 2019

Course Credits: 3

Class Meeting Days: Mondays

Class Meeting Hours: 12:30 – 1:20 pm

Class Location: DSC – Tredtin Hall

Instructor Name: Helen Turner, Ph.D.

Email: hturner@chaminade.edu

Phone: 808.778 8920 (cell phone for texting)

Office Location: WSC 116

Office Hours: By appointment only (contact Janine.kurosawa@chaminade.edu)

Instructor Website: None

Other Professional Contact Information: None

1. University Course Catalog Description

This course examines foundations of health informatics including in terms of its context within the modern health care system and also an understanding of the competencies in relation to health informatics project management. Topics covered include the role of health informatics and analytics in relation to the Affordable Care Act, accountable care organizations, value-based care and population health. This course provides students with an overview of various clinical and administrative information systems and critical functions used in health care (electronic health records, computerized provider order entry, decision support, prescribing, telemedicine/telehealth, and revenue cycle).

2. Course Overview

This course will comprise weekly, one hour, highly interactive lecture/discussion classes focused around the topics listed. The required course product is a group-designed map of the healthcare data ecosystem for Hawai'i and the US-affiliated Pacific region.

3. Program learning outcomes

Upon completing the B.S. degree program in Data Science Analytics and Visualization the student will demonstrate the following:

1. Source, describe and curate large data sets ('big data') that may not be amenable to conventional statistical analysis, including domain and file specific metadata
2. Demonstrate understanding of foundational mathematical and statistical concepts and operations that underlie data management, analysis and interpretation
3. Apply computational approaches and tools such as R, SQL and Python languages to problems associated with data management, analysis and interpretation
4. Explain and identify the concepts of "Big Data" storage structures, specifically NoSQL DBs and the tools built around Map/Reduce that allow data scientists to use them
5. Apply basic data modeling, identifying and applying predictive models to support decision-making
6. Analyze and apply an ethical framework and collective standards in which data scientists must operate, considering data confidence and context in the design of systems or practices that ensure equity, validity, confidence and privacy of data
7. Plan and execute data science tasks within multidisciplinary teams
8. Develop and implement approaches to effective data translation, dissemination and communication between domains, stakeholders and the public
9. Perform a domain-specific capstone project addressing a stakeholder-generated use case

4. Course Learning Outcomes and Linkage to Program Learning Outcomes

Students who successfully complete this course will be able to:

1. Describe and map the healthcare data ecosystem using a visualization software approach.
2. Analyze the Hawaii and Pacific regional healthcare data ecosystems for gaps and annotate the ecosystem map with regional data sources.
3. Integrate several data sets from the regional healthcare ecosystem to develop a data product that test a specific hypothesis related to public health, healthcare economics or health inequity in the Pacific.

5. Course Prerequisites

6. Required Learning Materials

7. Course Website:

Details will be provided in class

8. Technical Assistance for Canvas Users

N/A

9. Assessment

Class participation	500 points
Final data product and presentation	500 points
Total	1000 points

There will be opportunities for extra credit – take them!!!

10. Grading Scale

The nature of the final data product and presentation will be decided collectively by the group during the first few weeks of class.

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

A: 90-100%	900 points or more
B: 80-89%	800-899 points
C: 70-79%	700-799 points
D: 60-69%	600-699 points
F <60%	599 points or less

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

11. Course Schedule

Weekly discussion and activity meetings focused on the project described in the learning outcomes.

12. 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 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 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.

13. 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.

14. 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.

15. Writing Policy

Written assignments should be produced in Microsoft Word (not Notes or Pages). Working on Google Drive then exporting to Word is OK. All drafts should be provided to me in Word and you should utilize spell check, grammar check and be familiar with the track changes and review functions. Please let me know on the first day of class if you do not have these word processing resources.

Written assignments should be formatted as follows:

- Arial, 10 point font. 1 inch margins.
- References should use the style guide for the journal Nature.
 - *Authors should be listed surname first, followed by a comma and initials of given names.*
 - *Titles of all cited articles are required. Titles of articles cited in reference lists should be in upright, not italic text; the first word of the title is capitalized, the title written exactly as it appears in the work cited, ending with a full stop. Book titles are italic with all main words capitalized. Journal titles are italic and abbreviated according to common usage. Volume numbers are bold. The publisher and city of publication are required for books cited. (Refer to published papers in Nature for details.)*

16. Instructor and Student Communication

Questions for this course can be emailed to the instructor at [hturner@chaminade.edu]. Online, in-person and phone conferences can be arranged. Response time will take place up to 3 days.

17. 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.

18. 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 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).

19. 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.

20. Attendance Policy

The following attendance policy is from the 2018-2019 Academic Catalog (p. 57-58): 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 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.

21. Academic Conduct Policy

See the 2018-2019 Undergraduate Academic Catalog (p. 42).

<https://studentaffairs.chaminade.edu/wp-content/uploads/sites/28/2018-19-NEW-STUDENT-HANDBOOK.pdf>