



Instructor

Dr. Chi Zhang, Associate Professor of IT, College of Computing and Software Engineering (CCSE)

Website: <http://facultyweb.kennesaw.edu/czhang4/index.php>

Email: chizhang@kennesaw.edu

Office: Marietta Campus J-370

Office Hours: By appointment for meeting in office, or by email anytime

Course Description

IT 6903 – Special Topics in Information Technology – Health Data Analytics

3 Class Hours 0 Laboratory Hours 3 Credit Hours

This course provides an overview of the data analytics with the focus on the key needs of health care. The role of health IT is shifting to putting that data and information to use to improve individual health and health care delivery. Data analytics has been defined as the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions. This course will explain gathering data, classifying, analyzing, and visualizing it within the context of health care settings. The topics of using software and statistics to provide data support, performing research, and improving information quality and accuracy are also discussed.

Course Objectives:

Upon successful completion of this course, students will be able to:

1. Describe different types of data generated in health care
2. Describe the applications of data analytics in clinical and patient-oriented settings
3. Analyze the process and select applications of data analyses for a specified purpose
4. Apply the application of explanatory and predictive modeling

Methods of Teaching and Learning:

The course will be presented through lectures slides and supplementary readings, both of which will be available in D2L.

Textbook:

A Practical Approach to Analyzing Healthcare Data, Susan White, 2016, AHIMA. ISBN: 978-1-58426-527-6

Reference book:

Calculating and Reporting Healthcare Statistics, Loretta A. Horton, 2012, AHIMA, ISBN: 978-1-58426-217-313

Course Outline

Below is a tentative outline of the content and activities in each week. Please note that this schedule is subject to change. Changes, if necessary, will be announced in class, posted in the D2L class announcements.

Week	Topics	Assignment
1	Introduction to the course, health data analyst, skills required, and CHDA certification	
2	Introduction to data analysis	Assignment 1
3	Data in healthcare	<i>*February 28: Last day to withdraw without academic penalty</i>
4	Tools for data organization, analysis, and presentation	Assignment 2
5	Analyzing categorical variables	
6	Analyzing continuous variables	Assignment 3
7	Mid-term exam	Exam 1
8	Analyzing the relationship between two variables	Assignment 4
9	Study design and sample selection	
10	Exploratory data application	Assignment 5
11	Benchmarking and analyzing externally reported data	
12	Introduction to R and RStudio	Assignment 6
13	Introduction to using R to analyze public datasets for healthcare	
14	Introduction to using R to analyze public datasets for healthcare - cont'd	Assignment 7
16	Wrap and review	
17	Final exam	Exam 2

Grading

Writing & Discussion Assignments	60%
Pop Quizzes	10%
Exam 1	10%
Exam 2	20%
Project	10%
Total	100%

Discussion:

Discussions will be good learning opportunities when participants are prepared for the discussion, and share their viewpoints after reflecting on the articles, presentations, personal knowledge, personal experiences and learning objectives of the discussion. Online discussion will be taken place in DISCUSSIONS in D2L.

Discussion Grading

- For each discussion assignment, post your own two days before the due date and respond to at least two others' posts by the due date, unless stated otherwise.
- Provide original, reasoned and clear viewpoints that you feel are constructive to the discussion.
- Provide appropriate reference to the sources (e.g., full references for the articles you have read, or URL for web sites you have visited).
- Show others courtesy and respect.

Writing Assignments:

The writing assignments throughout the semester are learning opportunities for you to understand in depth what is involved in health information technology. The write-up of the assignments must follow the template provided for the assignment. For APA format guide, please go to <http://owl.english.purdue.edu/owl/resource/560/01/>. For MLA format guide, please go to <https://owl.english.purdue.edu/owl/resource/747/01/>.

Late Assignments Policy:

With the exception of term project deliverables and assignments due in the final week, you may submit assignments late up until one week after the assignment due date. A penalty of 10% per day will be applied to the grade you achieved on the assignment submitted after the deadline.

Proctored exam:

Please note that all of the students (online or hybrid) may be required to take proctored exam for the final exam.

1. On campus students take the exam at a commonly scheduled time on campus. Online students are welcome to join the class.
2. Online students take the exam at a scheduled time at <http://www.proctoru.com/>. The University pays for this service by providing students voucher numbers. Note that student will be responsible for the registration with proctorU.com.
3. PLEASE CONTACT THE INSTRUCTOR ASAP IF YOU HAVE ANY QUESTIONS.

Turn-around time/feedback:

The assignments and exams will be graded by instructor and/or graduate assistant. The feedback will be returned in about a week after the submission due date.

Course Expectations

Class Rules:

1. You are responsible for all course announcements and assignments posted in D2L.
2. For this class, you should expect to spend two to three hours each week on average on coursework. Logging in at least three times a week is minimally necessary to be productive and to interact with your peers. Active participation in the course discussion is encouraged.
3. It is very important that you understand the student codes of conduct and academic integrity (details can be found in the next sections). Incidents of alleged academic misconduct will be handled:
 - 1) your assignment/quiz/exam grade could be zero
 - 2) your final grade could be reduced by a letter, or
 - 3) a formal hearing procedure will be followed per the University policy
4. If you must miss an announced quiz/exam due to illness, work, travel, or other valid reasons, you must make alternative arrangements with instructor PRIOR TO the quiz/exam date.
5. Your feedback to the course is very important. You are expected to complete the course survey at the end of the semester.

Turnitin:

Students agree that by taking this course some required writing assignments may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use posted on the Turnitin.com site.

University Policies

KSU's Withdrawal from Classes:

Students may withdraw from one or more courses any time before the last week of the semester. Summer withdrawal dates vary according to the part of term in which the student is enrolled. However, as of fall 2004, students will be allowed a maximum of eight total withdrawals if they enter KSU as a freshman. Transfer students will be allowed one withdrawal per fifteen credit hours attempted, for a maximum of eight. Students who choose to pursue a second degree at KSU will be allowed two additional withdrawals. Students who entered KSU before fall 2004 will be allowed one withdrawal per fifteen credit hours attempted for a maximum of eight after the institution of this policy. As part of the Kennesaw State University and Southern Polytechnic State University Consolidation process, SPSU students will have eight withdrawals available beginning Fall Semester 2015.

Students who exceed the maximum number of withdrawals will receive a grade of "WF" for any subsequent withdrawals. To completely or partially withdraw from classes at KSU, a student must withdraw online through Owl Express.

Students who officially withdraw from courses before the last day to withdraw without academic penalty will receive a grade of "W" and receive no credit. Students who officially withdraw after the last day to withdraw without academic penalty and before the last week of classes during the semester or who have exceeded the maximum number of withdrawals will receive a grade of "WF," which will be counted as an "F" in the calculation of their grade point average.

The only exceptions to these withdrawal regulations will be for instances involving unusual circumstances, which must be fully documented. Students may appeal to the Academic Standing Committee for consideration of unusual circumstances. Exact withdrawal dates are published in the official academic calendar. Students who



simply stop attending classes without officially withdrawing usually are assigned failing grades. Students will receive refunds only when they withdraw from ALL their classes and only by the schedule outlined in the University System refund policy. See also

<http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2171#withdrawalfromclasses>

KSU's Statement on Academic Integrity:

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section 5c of the Student Code of Conduct addresses the university's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement. See also <https://web.kennesaw.edu/scai/content/ksu-student-code-conduct>.

KSU's Statement on Disruption of Campus Life:

It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the University disciplinary process.

KSU Student Codes of Conduct:

All students are responsible for knowing the information, policies and procedures outlined in this document. Kennesaw State University reserves the right to make changes to this code as necessary and once those changes are posted online, they are in effect. Students are encouraged to check online <https://web.kennesaw.edu/scai/content/ksu-student-code-conduct> for the updated versions of all policies.

Withdrawal from Courses

Please refer to the Office of the Registrar <http://www.kennesaw.edu/registrar/policies/withdrawl.php>.

Additional Legal Considerations with Web Links for Details

Copyright Law:

The Copyright Law of the United States (codified as Title 17 U.S.C.) governs the making of photocopies or other reproductions of copyright material. Teachers have latitude to copy materials, but within the "fair use" intent and should consider the effect of the copying on the sales of books and other materials. The Board of Regents provides comprehensive information on university policies and procedures with regard to copyright laws at: <http://www.usg.edu/copyright/>



Disability Accommodations:

Students with qualifying disabilities under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act who require “reasonable accommodation(s)” to complete the course may request those from Office of Student Disability Services. http://www.usg.edu/siteinfo/accessibility_tutorial/the_law

Student Privacy:

Students have certain rights to privacy. <http://registrar.kennesaw.edu/resources/ferpa.php>
The University’s online learning system and email system are designed to prevent unauthorized individuals from gaining access to sensitive information or information protected by federal or state law. We will communicate regarding course matters through the University’s designated technology learning system or Kennesaw state email system.

Electronic Recording & Social Media Policy (Pending):

Electronic recording performed without the consent of the people being recorded chills the free exchange of ideas. Academic freedom, free inquiry, and freedom of expression should not be limited by the fear that one’s brainstorming, polemic discourse, speculative inquiry, or any other kind of expressed curiosity made within the space of a university classroom will be made public without one’s consent. No person shall make public any electronically recorded class discussion without the written permission of the instructor.

Ethics Statement:

Respect religious, cultural, and gender differences. Kennesaw State University recognizes that an ethical, efficient, and effective work environment is essential to our continuing to successfully accomplish our mission. As a result, we have always placed a high priority on assuring that each member of our university community has the opportunity and means to convey any matter that could compromise that environment
<https://web.kennesaw.edu/hr/content/compliance-and-ethics-reporting-hotline>.

Netiquette: Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats <http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>.

Sexual Misconduct Policy:

Kennesaw State University does not condone and will not tolerate sexual misconduct or sexually exploitative or harassing behavior of any kind. Adhere to KSU’s policy prohibiting sexual misconduct both in and out of the classroom <https://policy.kennesaw.edu/content/sexual-misconduct-policy>

Web Accessibility:

Policies on the standards for all course materials posted online can be found at:
http://www.usg.edu/siteinfo/accessibility_tutorial/the_law

KSU Student Resources

For issues with technical difficulties, please contact the Student Helpdesk:

- Email: studenthelpdesk@kennesaw.edu; Call: 470-578-3555; Website: <https://uits.kennesaw.edu/>

Student Recourses and Technology Resources:

For more information and get support for the University Library, Tech Support, Student Support Resources, Tutoring & Academic Support, Advising, Bookstore Resource Guide, Online Courses, Desire2Learn, please go to <http://learnonline.kennesaw.edu/resources/tech.php>.