
Kennesaw State University

Department of Information Technology

IT 4733 Big Data System Administration

Instructor	Ying Xie	
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Office	J -360	
Office Hours	TBD	
Credit Hours:	3-0-3	
Pre-requisites:	Grade of C or better in IT3703 Introduction to Data Analytics and Technologies	
Textbook:	None Instructor will design learning materials	
Course Description:	This course introduces contemporary distributed big data platforms and database systems. Topics include big data computing paradigms, big data platform architectures and administration, and big data database concepts and administration.	
Learning Outcomes:	The student will be able to: 1. Explain the contemporary big data computing paradigm. 2. Compare NoSQL database systems with traditional database systems. 3. Perform system administration on contemporary big data platforms	
Weekly work	Week	Learning Module
	1	Intro. to Big Data
	2	Intro. to Apache Hadoop
	3	HDFS Overview
	4	MapReduce Overview
	5	Set-up Hadoop Cluster
	6	Hadoop Cluster Administration
	7	Intro. to Apache Spark
	8	Spark Architecture
	9	Spark Administration
	10	Intro. to NoSQL
	11	Intro. to Apache Cassandra

	12	Cassandra Database System Administration
	13	Intro. to Mongo DB
	14	Mongo DB Administration
	15	Review, Exam and Project Presentation
Assessment:	Quizzes 10% Assignments 30% Course Project 30% Exam(s) 30% Total 100% ***Detailed grading criteria are available in D2L for how Discussions will be graded.***	
Grade Evaluation:	A 90% - 100% B 80% - 89% C 70% - 79% D 60% - 69% F 0% - 59%	
Class Format:	The class will be on-campus, hybrid or online	
Attendance:	Students are required to follow weekly study guide to study all the provided course materials including lectures and reading materials, and work on quizzes, assignments and projects.	
Assignment Grading Policy:	Successfully completed assignments, quizzes, projects and exams must satisfy the requirements outlined in the D2L module. The grade depends on the quality of the submission. All work submitted is individual. For all assignments, if a student consults any resource (other than the text and class notes) including another individual, this consultation must be documented on the submission. This documentation must include what (or who) was consulted and what information was obtained. Copying or plagiarizing from another source or failure to provide this documentation will be considered a violation of the Student Code of Conduct. Due dates for submissions will be specified on the specific assignments Submissions will be accepted up to 24 hours late for 50% credit. Submissions submitted more than 24 hours late will not be accepted for credit.	
Email Policy:	Students must use only their official KSU email account since emails from other accounts may not successfully reach the instructor.	
Withdrawal Policy:	Withdrawal from Classes Students may withdraw from one or more courses up to one week prior to the last day of class. Summer withdrawal dates vary according to the part of term in which the student is enrolled. 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 consolidation process between Kennesaw State University and Southern Polytechnic State University, 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.	

	<p>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.</p> <p>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 will receive refunds only when they withdraw from ALL their classes and only by the schedule outlined in the University System refund policy.</p> <p>Military Withdrawals</p> <p>Kennesaw State students who are called to active duty or who are deployed during the term may be eligible for a military withdrawal. Students who withdraw for military reasons will receive a WM grade in all courses and receive a refund of tuition and mandatory fees and a pro rata refund of other fees. Students who would like to withdraw for military reasons must submit a copy of their official orders to the Registrar's office. Military withdrawals do not count as part of the eight (maximum) allowed withdrawals.</p>
Classroom Behavior:	Students are reminded to conduct themselves in accordance with the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding the provision. Students who are in violation of KSU policy will be asked to leave the classroom and may be subject to disciplinary action by the University.
Diversity Statement:	All courses offered by the Computer Science department will adhere to the KSU policy that prohibits discrimination on the basis of race, religion, color, sex, age, disability, national origin, or sexual orientation.
Enrollment Policy:	Only those students who are enrolled in the class may attend lectures, receive assignments, take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class.
Electronic Devices & Copyright Law :	<p>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. This fear is unacceptable regardless of whether one is in an online, hybrid, or face-to-face classroom setting. Accordingly, no person shall make public any electronically recorded class discussion without the written permission of the instructor. This policy is not intended to discourage electronic recording in the classroom or the use of social media when such actions are performed with the written consent of the instructor, and others as appropriate. Note: Faculty accommodate all reasonable requests to electronically record a class discussion; these requests must be documented by the DisAbled Student Support Services available at: http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml</p> <p>Kennesaw State University adheres to USG's policy to respect the right of copyright. Holders and comply with copyright laws as set forth in the United States Copyright act. For more information, see the following link to USG's policy: http://www.usg.edu/copyright/</p>
Academic Integrity Statement:	<p>Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II 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 University Judiciary Program, 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.</p> <p>https://web.kennesaw.edu/scai/content/ksu-student-code-conduct</p> <p>Students are encouraged to study together and to work together on class assignments and lab exercises; however, the provisions of the STUDENT CONDUCT REGULATIONS, II.</p>

	<p>Academic Honesty, KSC Undergraduate Catalog will be strictly enforced in this class. Frequently students will be provided with “take-home” exams or exercises. It is the student’s responsibility to ensure they fully understand to what extent they may collaborate or discuss content with other students. No exam work may be performed with the assistance of others or outside material unless specifically instructed as permissible. If an exam or assignment is designated “no outside assistance” this includes, but is not limited to, peers, books, publications, the Internet and the WWW. If a student is instructed to provide citations for sources, proper use of citation support is expected.</p>
<p>Disruption of Campus Life Statement:</p>	<p>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.</p>
<p>Faculty Availability Statement:</p>	<p>KSU is proud of its reputation of faculty being available to students and colleagues outside of class time. To ensure this positive reputation continues, KSU expects its faculty to use a variety of means to be available for student questions or conferences as well as consultation with colleagues, including both in person and electronically. Departments must establish some minimum number of hours during each week that faculty should be available on campus beyond scheduled classes. The number of hours should reflect factors such as the number and size of sections, the nature of those classes, and the number of advisees. Although faculties are not required to establish specific availability, they should be flexible in making appointments with students and colleagues. As a professional courtesy, faculty should reply to phone calls, e-mails, and bulletin board questions from students in a timely manner.</p>
<p>Reasonable Accommodations</p>	<p>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. Students requiring such accommodations are required to work with the University’s Office of Student Disability Services not individual faculty members or academic departments. A student anticipating a need for accommodation, must submit documentation requesting an accommodation in a timely fashion to permit time for a determination prior to submitting assignments or taking course quizzes or exams. Students may not request retroactive accommodation. Students should contact the office as soon as possible in the term for which they are seeking accommodations. Student Disability Services is located in the Carmichael Student Center in Suite 267.</p> <p>http://catalog.kennesaw.edu/content.php?catoid=27&navoid=2263&hl=FERPA&returnto=search#ADA</p> <p>For more information, please call 470-578-2666 or visit the Student Disabilities Services websites at http://sds.kennesaw.edu/</p>
<p>Student Privacy (FERPA)</p>	<p>Kennesaw State University adheres to the Family Educational Rights and Privacy Act of 1974. 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.</p> <p>http://catalog.kennesaw.edu/content.php?catoid=27&navoid=2263&hl=FERPA&returnto=search#rightsofstudentrecords http://www.usg.edu/information_technology_handbook/section9/tech/9.5_privacy_and_security</p>
<p>KSU Sexual Misconduct Policy & Ethics Statement</p>	<p>KSU will not tolerate sexual misconduct or sexually exploitative or harassing behavior of any kind. You are expected to respect religious, cultural, and gender differences. http://scai.kennesaw.edu/codes.php https://scai.kennesaw.edu/procedures/sexual-misconduct.php</p>

**KSU Student
Resources**

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

- Email: studenthelpdesk@kennesaw.edu
- Call: 470-578-3555
- * **Additional Technology Resources**
- Student Service Desk and Help Center: "<http://its.kennesaw.edu/students/index.html>"
- USG Desire2Learn: Help Center "<https://d2lhelp.view.usg.edu/>"

* **Academic Resources**

- Academic Tutoring Services "http://www.kennesaw.edu/stu_dev/alp/academic.shtml"
- Library "<http://www.kennesaw.edu/library>"

* **Student Support and Wellness Resources**

The Writing Center: <http://writingcenter.kennesaw.edu/>,
Academic & Student Support Services: <https://studentaffairs.kennesaw.edu/departments/index.php>
Student Disability Services: <https://sds.kennesaw.edu/index.php>
ESL Study and Tutorial Center:
http://uc.kennesaw.edu/academicinitiatives/docs/Guide_to_the_ESL_Center.pdf
Department of Career Planning & Development <http://careers.kennesaw.edu/>
Counseling and Psychological Services <https://counseling.kennesaw.edu/>
Center for Health Promotion and Wellness <https://wellness.kennesaw.edu/index.php>
Student Health Services <https://studenthealth.kennesaw.edu/index.php>