

**CIS 4517/5517: Data-intensive and Cloud Computing
Fall 2024**

Course	Data-intensive and cloud computing
Description:	<p>Semester course; 3 credit hours. Prerequisite: CIS 2168 and (CIS 2166 or MATH 2101 or ENGR 2011 or MATH 3045).</p> <p>This course will expose students to recently emerged and fast moving technology of big data and cloud computing. It will cover a spectrum of topics from core techniques in data management and analysis to highly-scalable data processing using parallel database systems. Students will be introduced to big data ecosystems such as Hadoop, Spark, MapReduce; cloud technologies such as Amazon EC2, Microsoft Azure and Google Cloud; data management tailored to cloud and big data such as Google Big Table/Apache HBase, and introductory applications to Big Data and cloud environment.</p>
Instructors	<p>Dr. Xubin He</p> <p>Email: Xubin.he@temple.edu</p>
Course Hours:	Wednesday 5:30-8pm, in person, classroom: TTLMAN 302
Office Hours:	Wednesdays 1:00-3:00pm, room SERC 352, other hours available upon request via emails. Questions can also be mailed electronically any time and will be answered promptly.
Prerequisites by topics:	<p>CIS 2168 and (CIS 2166 or MATH 2101 or ENGR 2011 or MATH 3045).</p> <p>Basic Linux skills</p> <p>Programming skill in C or Java or Python</p> <p>Basic understanding of SQL database</p> <p>Basic familiarity with probability and statistics.</p>
Textbooks	Cloud Computing Solutions Architect: A Hands-on Approach, Bahga and Madiseti, 2019, ISBN: 978-0-9960255-9-1
References:	<p>Big Data: Principles and best practices of Scalable real-time data systems, Nathan Marz and James Warren, Manning Publications, 2015, ISBN: 978-1-617290-34-3</p> <p>Online resources on cloud computing such as manuals and documents from vendors.</p> <p>Research papers related to cloud computing.</p> <ul style="list-style-type: none">- Mining of Massive Datasets, by Jure Leskovec, Anand Rajaraman, Jeff Ullman- Data Science from Scratch, by Grus, from O'Reilly.- Python for Data Analysis, by McKinney, from O'Reilly.

Grading: Grades will be assigned on the following scale:

- 90++: A
- 80-89.99: B
- 70-79.99: C
- 60-69.99: D
- Below 60: F

The course grade will be determined based on homework and projects (45%), quizzes (20%), and the final exam (35%).

Attendance: It is expected that students will attend all classes unless otherwise arranged. It is your responsibility to learn any missed material. In-class quizzes cannot be made up. You are also expected to be present online at the specified class time; tardiness disturbs everyone.

Homework: The homework in the class is intended to give the students practice in data intensive and cloud computing and will primarily be in the form of design/analysis problems and programming. Students may work together for the purpose of *learning*. However, it is NOT permissible to copy another's homework or designs in any forms, including textbooks and Internet. Homework will be submitted electronically online via Canvas on the due date unless otherwise mentioned. Late homework, without the instructor's permission, *will not* be accepted. Homework that is not neat and legible will not be graded. Some homework might only be checked for completeness.

Project The course includes a small design and implementation project related to data-intensive and cloud computing. Requirements and the topic of the project will be discussed in class.

Exams and Quizzes There will be some in-class quizzes (~3 quizzes to be expected) and the final exam for this course. The final exam is cumulative.

ADA Statement: Any student who has a need for accommodation based on the impact of a documented disability, including special accommodations for access to technology resources and electronic instructional materials required for the course, should contact me privately to discuss the specific situation by the end of the second week of classes or as soon as practical. If you have not done so already, please contact Disability Resources and Services (DRS) at 215-204-1280 in 100 Ritter Annex to learn more about the resources available to you. We will work with DRS to coordinate reasonable accommodations for all students with documented disabilities.

Temple University is committed to the inclusion of students with disabilities and provides accessible instruction, including accessible technology and instructional materials. The process for requesting access and accommodations for this course is: (1) Advise me of the need for access or accommodations; (2) Contact Disability Resources and Services to request accommodations; (3) DRS will consult with me as needed about essential components of the program; (4) Present me with a DRS accommodation letter.

Note: For students registered for CIS5517, they will expect some additional questions in homework assignments, quizzes, and the final exam. Each student registered for CIS5517 will have an extra assignment to read a paper related to data-intensive and cloud computing and write a technical report.