

King Fahd University of Petroleum and Minerals

Department of Mathematics and Statistics

STAT-503: Probability and Statistics for Data Science (Term 201)

Instructor: Dr. Nasir Abbas

Office: 5-333

Phone: 013-860-4485

E-mail: nasirabbas@kfupm.edu.sa

Office Hours: will be announced later

Course Description: Selected topics from Probability theory, Statistical Inference, and Information Theory for Data Science with an emphasis on the implementation using statistical software, toolboxes, and libraries like R, NumPy, SciPy, Pandas, and Statsmodels. Topics include Probability; Conditional Probability; Bayes' Theorem; Random variables; Discrete and Continuous Distributions; Central Limit Theorem; Point Estimation MLE and MAP; Confidence Interval Estimation; Hypothesis Testing; Non-parametric Statistics; Synthetic Data; Entropy, Mutual Information; Information Gain.

Textbook: Matloff, N. Probability and Statistics for Data Science Math + R + Data, CRC Press 2019

Assessment*

Activity	Weight
Classwork (home works, assignments, attendance, bonuses, etc.)	5%
Quizzes	10%
Online Assessment 1	15%
Midterm Exam	15%
Online Assessment 2	15%
Project	20%
Final Exam (Comprehensive)	20%

Important Notes:

Virtual Class: All the classes will be held on Microsoft Teams. Before the start of semester, all registered students will be given access (with their KFUPM email ID) to a team corresponding to their section. It is student's responsibility to install Microsoft Teams and keep it ready to use before the start of every class.

Internet Connection: You are required to have an excellent internet connection for attending virtual classes and attempting assessments. No makeup exams or attendance excuses will be given based on internet connection failure.

Webcam: You are required to have a computer with webcam. During all assessments, you must keep your webcam turned on and the proctor will monitor you time to time.

Attendance: If your name is called during the class and you do not respond, that would be considered absence from the class. No excuse for such absence will be accepted.

Quizzes: Every class there will be short pop-up quizzes. The quiz will cover the material of ongoing or pervious classes. Any student who misses the quiz will be considered absent from the class.

Excuse: Only an excuse issued by [Deanship of Student Affairs](#) will be accepted for not attending a class, a quiz or an exam.

Blackboard: All contacts or announcements between the instructor and the students are supposed to be through Blackboard, so the student must check his Blackboard at least once a day.

Academic Integrity: All KFUPM policies regarding ethics and academic honesty apply to this course.

Cheating and Plagiarism: This course is composed of individual assignments. It is important that your individual assignment be completed with your own efforts instead of copying it from your fellow student. KFUPM instructors follow “*zero tolerance*” approach with regard to cheating and plagiarism. During examinations (quizzes, major exams, lab tests) cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a *grade of F* in the course along with reporting the incident to the higher university administration.

Important Notes:

- In accordance with University rules, 20% unexcused absences will automatically result in a grade of DN.
- Attendance on time is very important. Mostly, attendance will be checked within the first five minutes of the class. Entering the class after that, is considered as one late, and every two times late equals to one absence.