CEE 6232 Syllabus

Stochastic Hydrology CEE 6232, 3 Credits
Spring 2027

Instructor Information

Instructor Email
Jingfeng Wang jingfeng.wang@ce.gatech.edu

General Course Information

Fundamentals of stochastic processes, random process analysis, optimal estimation and Kalman filter, Bayesian analysis, information entropy and Maximum Entropy Principle, Bayesian parameter estimation, Bayesian linear regression analysis.

Course Learning Outcomes

Learn basic concepts and fundamental theories of random processes for simulation and forecast of hydrological processes.
Learn fundamentals of Bayesian probability and statistics and their applications in hydrological science and engineering

Recommended Course Materials

Random Functions and Hydrology, R. L. Bras, available at Amazon.com
Bayesian Logical Data Analysis for the Physical Sciences, P. Gregory, available at Georgia Tech library
Probability Theory – The Logic of Science, E. T. Jaynes, available at Georgia Tech library

Grading Policy

Mid-term Exam 30%; Term Paper 30%; Homework 40%.
A ≥ 80; B ≥ 70; C ≥ 60; D ≥ 50

- Homework: 10%×4 problem sets

Description of Graded Components

The exam is in class and close book. Formula sheets and calculators are allowed.

USG Required Course Policies

Attendance and/or Participation

This will be an active classroom, where you will be expected to participate. I have noticed a drastic

difference in the exam performance between students who regularly attend class and those who don't. Therefore, class attendance is counted in determining your final grade.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Not applicable

Additional Georgia Tech Required Policies

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404) 894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. To schedule exams using Disability Testing facilities, contact 404-385-2325 or dstesting@gatech.edu. Please also e-mail me as soon as possible to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Course Expectations, Policies, and Resources

Pre- &/or Co-Requisites

Civil and Environmental Engineering 3040 Prerequisite

Collaboration, Group Work, and Use of Generative AI

All homework must be completed independently. No generative AI tool is allowed for homework,

quizzes and exams. DeepSeek is prohibited for use at Georgia Tech. Official Guidance on Generative AI Use can be found at https://oit.gatech.edu/ai/guidance. All in-class tests and exams will be closed book and notes, but formula sheets are allowed.