

CpE 6440/CS 6602: Network Performance Analysis and Modeling
Fall 2018 Syllabus
Revised March 9, 2018

Class Time and Venue: MWF, 2 to 2:50 pm, in 213 Butler-Carlton Hall (Civil Engineering).

Instructor

Dr. Sahra Sedigh Sarvestani

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Phone: (573) 341-7505

Office: EECH 135

Administrative assistant: Ms. Carol Lay, (573) 341-4509, layc@mst.edu, EECH 143.

Office hours

TBD

Do not hesitate to ask for help outside of office hours, but do check to confirm my availability.

Course Objective and Topics

The objective of this course is to introduce the student to analytical and computational methods for modeling and performance analysis of computer communication networks.

Topics include:

- Discrete and continuous random variables
- Stochastic processes
- Markov/Poisson/renewal random processes
- Basic queuing theory
- Statistical inference
- Performance analysis tools

Prerequisites

A course on Probability and Statistics (Stat 3117 or 5643), or equivalent) AND a course on Computer Networks (CpE 5410, or equivalent), or consent of instructor. Basic implementation skills in a high-level programming language and familiarity with Matlab are highly recommended.

Required Text

Probability and Statistics with Reliability, Queuing, and Computer Science Applications, 2nd edition, Kishor S. Trivedi, John Wiley and Sons, 2001, ISBN: 978-0-471-33341-8.

See Canvas for a list of recommended supplements and additional reading material. The textbook will be supplemented with readings from current conferences and journals.

Course Web Site

Notes from each class, course handout materials, and homework assignments will be available on the Missouri S&T Canvas system at <http://canvas.mst.edu>.

Class Attendance

On-campus students are expected to attend all classes. If you must miss a class, you are responsible for procuring any information, handouts, or announcements that you missed. Attendance will be recorded for randomly selected class sessions.

Classroom Courtesy

This class has a distance education component, which implies that it will be webcast and recorded for distance students. **It is even more important than usual to avoid any actions that could be disruptive to your classmates, whether on- or off-campus.** Sounds are amplified and become disruptive.

While in class, laptops, tablets, phones, and other portable electronic devices should be used only for access to and annotation of course slides or taking notes.

You are welcome to leave the class if you urgently need to use your devices for other purposes, or if you need to carry on a conversation with someone else in the class.

Feedback

Your comments are appreciated and welcome throughout the semester. Your feedback is critical to my success as an instructor.

In addition to the end-of-semester evaluations required by the department, I will periodically solicit your feedback, which can be provided anonymously.

The earlier you give me feedback, the more time I have to implement changes that could improve the class.

Homework

- Slides for each class will be posted on Blackboard prior to presentation in class. You are expected to download these notes and bring them to class on the day the lecture is to be presented.
- Homework problems will be posted on Blackboard. You will have approximately six assignments, not including lab exercises.
- Assignments are due at the beginning of class. On-campus students should submit a hard copy, in class. Off-campus students should submit through Blackboard.
- Late homework will receive 50% of the possible score if submitted within 24 hours of the time it is due. Late assignments will not be accepted after 24 hours of the original deadline.
- While you are expected to complete all homework assignments, only a subset of the problems or assignments may be graded.

You may work together to solve the homework problems, but each student should prepare the final submission individually. Copying from anyone else's solution is detrimental to your integrity and will deprive you of the opportunity to learn the material and to assess your knowledge. If submissions from two students are found to be effectively identical, both students

will receive zero as the grade for the quiz, assignment, or exam in question. If you cannot explain your answer to a particular question at a later date, no credit will be given, even if the solution originally submitted was correct.

Quizzes

Unannounced quizzes will be given on a regular basis. Off-campus students should submit each quiz by Blackboard within 48 hours of the class in which it is given. A score of zero will be given for any missed quizzes. No makeup quizzes will be given.

Off-campus students should contact me to schedule their exam. Barring extenuating circumstances, they should take the exam within 24 hours after it is given in class.

Unless there is an excuse deemed acceptable by me, failure to appear at an exam will result in a grade of zero for on-campus students. Makeup exams will be scheduled on a case-by-case basis, based on evidence of scheduling conflicts or other extenuating circumstances.

Special Accommodations for Students with Documented Disabilities

It is the policy and practice of Missouri University of Science and Technology to promote inclusive learning environments. If you have a documented disability you may be eligible for reasonable accommodations in compliance with university policy, the Americans with Disabilities Act of 1990, the Americans with Disabilities Amendment Act (ADAAA) of 2008, and Section 504 of the Rehabilitation Act of 1973. Please note, students are not encouraged to negotiate accommodations directly with professors.

To request accommodations or assistance, please self-identify with Disability Support Services (DSS), 203 Norwood Hall. For more information or to register for services, contact DSS at (573) 341-6655 or by email at dss@mst.edu.

You will need to request that the Disability Support Services staff send a letter to me verifying your disability and specifying the accommodation you will need.

Please make your requests for special accommodations at least two weeks in advance of the date on which they are needed.

Grading

Class participation (attendance, interaction, improvement):	2%
Homework:	10%
Quizzes:	12%
Project/Paper:	26%
Midterm exam (Date TBD):	19%
Comprehensive final exam (as announced by Registrar):	31%

Partial Credit and Regrades

Homework or exam problems are rarely graded as all-or-none. Emphasis is placed first upon the understanding of the concept, followed by proper application of the concepts, and lastly on the correct answer. Show your work. You will not be severely penalized for minor mistakes, but answers without explanations may not be given full credit.

If you feel you deserve more credit on a problem than you were given, you may submit a written (preferably email) request for additional credit, clearly stating why you believe you deserve additional credit. Regrade requests will not be accepted until 24 hours after an assignment or exam is returned, and should be in the form of a memo or letter used when communicating between professionals on the job. Requests should be submitted within five days of receiving the assignment or exam. No such requests will be honored after the deadline has passed.

Academic Honesty

We expect every member of the Missouri S&T community to practice honorable, respectful, and ethical behavior inside and outside of the classroom. I strongly encourage you to read the Honor Code developed and endorsed by the Missouri S&T Student Council, which is available at: <http://stuco.mst.edu/honor-code/>.

Any action that might unfairly improve a student's score on homework, quizzes, or examinations will be considered cheating, and will not be tolerated. A few examples of are:

- Submitting work that is not your own. This includes the use of solutions available online.
- **Use of solution manuals. This one is especially egregious and offensive.**
- Sharing results or notes during quizzes or exams.
- Bringing notes, in hard copy or electronic form, to an exam where they are not allowed. This includes improper use of a programmable calculator.
- Requesting a regrade on an exam or homework problem that has been altered after grading.

Page 30 of the Student Academic Regulations handbook describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage (<http://registrar.mst.edu/academicregs/index.html>). Other informational resources for students regarding ethics and integrity can be found online at <http://ugs.mst.edu/academicintegrity/studentresources-ai>.

If you are unsure of whether a certain act is considered dishonest, please ask me.

ANY INFORMATION PROVIDED BY THE INSTRUCTOR ON LATER DATES, IN WRITTEN OR ORAL FORM, WILL SUPERSEDE THIS DOCUMENT.