EE232B - Queueing Systems and Intelligent Transportation Networks: OUTLINE and Syllabus

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Part 1: Stochastic Processes, Traffic Engineering and Regenerative Queueing Models

- Overview of discrete-time Markov Chains
- Overview of traffic processes and renewal theory
- Continuous time Markov Chains
- Queueing Systems: Definitions
- Queueing Systems: Properties and Regenerative Queueing Processes
- Illustrative applications:
  - switching systems
  - computer communications networks, wireless networks, Internet, IOT networks.
  - Intelligent autonomous transportation networked systems
Part 2: Analysis and Design of Queueing Systems and Traffic Management Networks

- Markovian Queueing Systems
- Non Markovian Queueing Systems
  - The M/G/1 queueing system
  - The GI/M/m queueing system
  - GI/G/1 queueing system
- Priority Queueing
- Queueing Networks
- Applications
  - Traffic management for autonomous transportation systems
  - Resource allocations
HWs, Exams, Texts and Grading

**HWs**
- Generally Weekly.
- Typically due the following week

**Exams**
- Midterm (2 hours)
- Final (3 hours)

**Texts**
- Copies of Class Lectures (uploaded progressively to class website)
- Reference (optional) text by Gross and Harris (independent reading by students in accordance with covered class material):

**Grading**
- HW assignments = 25%
- Midterm = 25%
- Final = 49%
- Survey = 1%