

# CS 550: Advanced Operating Systems

## Objectives

- This course covers general issues of design and implementation of advanced modern operating systems.
- The focus is on issues that are critical to the applications of distributed systems and computer networks, which include interprocess communication, distributed processing, and sharing and replication of data and files.
- Approximately two-thirds of the course will be devoted to basic concepts and techniques, and the remaining third will be on assorted current topics in modern operating systems and distributed systems.

## Prerequisites

- CS 450.

## Syllabus

- Introduction to distributed systems
- Issues in communication
- Remote procedure call
- Remote method invocation
- Message- and stream-oriented communication
- Processes and threads
- Code migration and distributed scheduling
- Naming
- Clock synchronization
- Distributed mutual exclusion and distributed deadlocks
- Distributed transaction
- Consistency models
- Replication
- Fault tolerance
- Distributed commit and failure recovery
- Distributed file systems
- Case studies: NFS, AFS and coda
- Security in distributed systems
- Project presentations

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