

## **PROPOSED (2002) COURSE SYLLABUS**

**Course Number: COMP 6360**

**Course Title: Wireless and Mobile Networks**

**Credit Hours: 3 hrs. lecture, 0 hrs. lab**

**Prerequisites: COMP 4320 or departmental approval**

**Corequisite:**

### I. Course Content/Objectives:

#### 1. Objectives

The purpose of this course is to develop advanced network building skills and to study performance issues in advanced wireless and mobile networks. It covers current topics in wireless and mobile networks, including wireless media access control protocols, wireless network routing, congestion control, location management, mobile transport protocols and quality of service in wireless networks. It also investigate other areas important in the design of wireless and mobile networks required for supporting mobile distributed application, including mobile middleware and object architecture, mobile transaction, remote execution and mobile RPC, cache strategies for wireless networks. Other recent areas that are increasingly important are wireless ATMs and multimedia communication support.

#### 2. Tentative Schedule and Outline of Course Content.

A. Introduction to wireless and mobile networks (1 class)

B. Applications (2 classes)

- Issues, problems, types and characteristics
- Mobile wireless applications and fundamental issues
- Performance requirements

C. Wireless network technology (1 class)

D. Global System for Mobile Communication (GSM) (2 classes)

E. Wireless media access control protocols; Wireless LAN (5 classes)

- TDMA, PRMA, CDMA, etc.

F. Routing in wireless networks (5 classes)

G. Location management (2 classes)

H. Transport protocols in mobile environments (5 classes)

- I-TCP, snooping protocols, etc.
- Multicast transport services

I. Services in wireless networks (5 classes)

- Quality of service
- Delays, error and packet loss
- Error control schemes

J. Mobile distributed application support (5 classes)

- Operating system support
- Mobile middleware and object architecture
- Mobile transaction
- Remote execution and mobile RPC
- Cache strategies for wireless networks

K. Wireless ATM (4 classes)

L. Wireless multimedia communication (2 classes)

M. Performance Issues (5 classes)

3. Textbook or assigned readings

The reading list consists of classic and recent journal and conference papers. A recommended reference book is *Mobile Computing*, edited by T. Imielinski and H.F. Korth, Kluwer Academic Publishers, 1996.

II. Grading and Evaluation Procedures:

1,2. Courses requirements: papers, quizzes, examinations, participation, etc. Grading system and percentages for course requirements

Presentation	10 % of grade
Mid-term Exam	15 % of grade
Reports (2)	10 % of grade each
Term Programming Project	30 % of grade
Final Exam	25 % of grade

Grading scale:

A:  $\geq 90$ , B:  $\geq 80$ , C:  $\geq 70$ , D:  $\geq 60$ , F:  $< 60$

Class Attendance will not affect grade.

III. Statement related to policies on unannounced quizzes and class attendance and participation.

There will be no unannounced quizzes.

IV. Special Accommodations for Students with Disabilities:

Students who need special accommodations should make an appointment to discuss the Accommodation Memo during my office hours as soon as possible. If scheduled office hours conflict with classes, please make an appointment. If you do not have an Accommodation Memo, but need special accommodations, contact The Program for Students with Disabilities in 1244 Haley Center (844-2096 V/TTY).

V. Academic Honesty:

All portions of the Auburn University Honesty Code (Title XXII) found in the Tiger Cub apply in this class.

VI. Justification for graduate credits:

This is an intense advanced course that develops advanced network building and performance evaluation skills in advanced wireless and mobile networks. The students are required to develop analytical knowledge and skill to understand and utilize wireless network protocols and concepts, including wireless media access control protocols, wireless network routing, congestion control, location management, mobile transport protocols and quality of service in wireless networks. Students will also develop understanding and skills in other areas important in the design of wireless and mobile networks required for supporting mobile distributed application, including mobile middleware and object architecture, mobile transaction, remote execution and mobile RPC, cache strategies for wireless networks.