

# CDA 6508 Ad Hoc Networks

## ● Course Description

Ad Hoc Networks. Credit 3. A comprehensive approach to fundamentals of ad hoc networks including media access protocols, routing protocols, implementation and communication performance. Prerequisite: Discrete Mathematics, MAD 2104 and Introduction to Data Communications, CDA 4500.

## ● Textbook:

J. Wu, Handbook on Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless, and Peer-to-Peer Networks, CRC Press, 2005.

Classnotes and handouts

## ● References:

S. Basagni, M. Conti, S. Giordano, and I. Stojmenovic, Mobile Ad Hoc Networking, IEEE Press & Wiley Inter-Science, 2004

M. Ilyas, The Handbook of Ad Hoc Wireless Networks, CRC Press, 2002.

I. Stojmenovic, Handbook of Wireless Networks and Mobile Computing, John Wiley & Sons, 2002

C.E. Perkins, Ad Hoc Networking, Addison Wesley, 2001.

D. P. Agrawal and Q.-A. Zeng, Introduction to Wireless and Mobile Systems, Thomson Brooks/Cole, 2003.

## ● Instructor:

Jie Wu, Professor of Computer Science and Engineering, Florida Atlantic University.

Room 401, Science and Engineering Building, × 73941,  
[jie@cse.fau.edu](mailto:jie@cse.fau.edu)

## ● Office Hours:

Tuesday and Thursday: 9:00 am - 11:00 am

● **Goals:**

An understanding of basic of the ad hoc wireless networking. Covers media access, routing, data management, power optimization, transport protocol, and much more. Current and future developments in the field.

● **Prerequisites by Topic:**

1. Basic graph theory
2. Fundamentals of computer networks

● **Topics:**

1. Introduction to Wireless Networks
2. Ad Hoc Wireless Networks and Their Origins
3. Topics in Infrastructured Networks (cellular architecture)
  - Handoffs
  - Location Management (Mobile IP)
  - Channel Assignment
4. Topics in Infrastructurless Networks (MANETs)
  - Wireless Media Access Protocols
  - Ad Hoc Routing Protocols
  - Multicasting and Broadcasting
  - Reliability and QoS
  - Power Optimization
  - Security
5. Applications
  - Sensor Networks and Indoor Wireless Environments
  - Pervasive Computing
  - Peer-to-Peer Networks
6. Sample On-going Projects