University of Wisconsin-Stevens Point
College of Letters and Science
Department of Computing and New Media Technologies
Computer Information Systems
Networking Track

CIS464:
Wireless Networks and Devices

Dr. Patrick Seeling, Ph. D.
Science Building, Room B243
pseeling@uwsp.edu

Course Description

As we move further into the 21st century, wireless becomes the new paradigm for user-centric networking. Today, laptops, PDAs, smartphones, and sensor networks are used to connect to data networks anytime, anywhere, mobile. This course will introduce you to the fundamental concepts at the bottom of the different wireless networks, how mobility of users is incorporated, and what the special characteristics and requirements of mobile devices are. Instructor-guided lab units and student projects that target different areas of wireless networking will give deeper insights into different content areas.

The course is structured into modules, with each module covering a part of the overall course content

- **Prerequisites: CIS360 or instructor approval**
- **Rental course text: Olenewa /Ciampa, Wireless# Guide to Wireless Communications, 2nd Edition, CENGAGE Course Technology, 2007.**
- **Helpful: Some knowledge in programming for the student project, depending on the chosen topic.**

Gathered data from student activities in this course will be part of an anonymous evaluation for research purposes. Please contact the instructor if you do not wish to have your data included.

Course Goals

At the end of the course, you will have a broad understanding of current wireless technology fundamentals and how these are implemented in today's wireless networks. In addition, the course will have prepared you to get certified in wireless technologies, should you choose to do so.

Course Outline

First Lecture

This module serves as a general introduction and overview of the course. It will provide guidelines on how to successfully complete the course.

The First Part of the Semester

In the first part of the semester, we will work through the material covered in the course book. It is important for you to read the book, with exceptions being announced in class, so that you are prepared for the lectures. The first part will cover the theory and standards that drive today's wirelessly interconnected world.

We will follow the course textbook (in a modular manner), whereby typically one chapter is the equivalent of one module in class (and their related quizzes), with potential exceptions announced in class. In addition to the theoretic foundations, we will have several instructor-guided lab units where we apply the theory. These labs will be pass/fail.

The Second Part of the Semester

As you work through the instructor-guided labs, try to identify areas that are of interest to you and a peer. After we worked through these lab modules, you have to pick from one of the semester projects that the instructor suggests – or you can suggest your own in an area that is of interest to you. Example projects are:

- Design and implement a sensor network application
- Design and implement a mobile phone application
- Design and implement a Bluetooth/WLAN application

Course Activities

Reading

You will need to perform a large amount of reading in the first part of the course, as outlined before. Make sure that you keep up with reading assignments and come prepared to class.

Labs

Several instructor-guided labs will be prepared for you to get a hands-on experience in this course. Several of these labs will require you to perform additional preparation steps or read material prior to the lab.

Student Projects

Different student projects will be offered, some of them require you to have lab access and others can be performed completely at home (you may have to install required software). Student projects are group-based and you are to work as a team – every team member has to know what and how the project goals were achieved. Questions will be asked from each team member.
Equipment will be available for you to check out and work on outside of the lab in your group.

> ***You are encouraged to develop your own ideas for projects!***

Online Discussions and Chats

The course will utilize online discussions/forums and chats during the course and especially for the student projects. Please limit your discussions to the appropriate sections. You are to solemnly use the online discussion and/or chat to communicate for your projects using the assigned project spaces in the discussion/chat areas of D2L.

> ***The instructor will monitor conversations for appropriate content and reserves the right to delete inappropriate postings.***

Professional Responsibilities

Upon graduation, you will be the amongst less than 30% of Americans that hold an academic degree. It is part of the responsibilities and duties of that degree to uphold high ethical and moral standards in society.

You should follow the outlined reading, class activities, and homework assignments, and be prepared for class. You are solely responsible for class attendance and participation and you are responsible for anything you missed. No make-up examinations will be given unless approved before the scheduled date or for validated medical or personal emergencies.

All assignments, quizzes, and lab sheets have a due date. You will typically have several days for their completion. If you do not complete items by the assigned due date, you have 2 days to submit late, but with reduced grade, see below.

Please see the University of Wisconsin-Stevens Point Student Academic Standards document for an overview of the university's policies and requirements. Also, refer to the professional societies of our area for definitions and how to properly cite other people's work:

- The IEEE: The Five Levels Of Plagiarism
- The ACM: ACM Policy and Procedures on Plagiarism

Written assignments will be checked for plagiarism and collaboration. Unless noted, you are to complete your assignments individually.

> ***If you use other people's work, you have to clearly point this out in any submitted work. Cheating and plagiarism will not be tolerated.***

Assessment, Points, and Grading

Each section (or module) of the course will have one online quiz, which you are required to take in the allotted time frame, a maximum of 20 minutes. By their nature, online quizzes are open-book, which means that you are assumed to have fulfilled all reading assignments, know the content and have asked questions you might have. Each quiz will be made available online at the end of a module and is worth 10 points, for a total of 120 points. The quizzes will be available for multiple days; no submissions are allowed after the due date without any exception.

There will be several hands-on experiences allowing you to use your theoretical knowledge in a practical context. Each of these instructor-guided labs has additional questions and/or exercises. Each lab will be pass/fail and you will have several days after the lab to complete the questions; no submissions are allowed after the due date without any exception. You may only miss one of the labs. If you miss more than one lab, 4% of your overall points will be deducted for each additionally missed lab.

Student projects will allow you to explore one of the content areas covered in this course in greater depth. The student project will be worth 50 points.

There is a comprehensive final exam, which will be completely online and cover the entire material of the course, including any assignments and labs. The final will be worth 80 points.

Mapping to Letter Grade

Your final letter grade will be awarded according to the following mapping scheme, based on the percentage of points that you have earned during the course.

When mapped to letter grades, the following fixed mapping scheme will be applied.

Letter Grade	*Percent of Points*
A	>= 94
A-	>= 90
B+	>= 87
B	>= 84
B-	>= 80
C+	>= 77
C	>= 74
C-	>= 70
D+	>= 67
D	>= 60
F	< 60