

Course Syllabus
Computer Seminar: CS401
Fall 2017

Course Description:

The nature of a seminar course is to explore areas of interest common to both the students and the instructor. The explorations are designed to help the students grow toward specific goals. Computer Seminar is an advanced level computer science course designed to allow students to explore advanced topics.

This semester, the course will introduce students to the following: Cyber Security, and Android App Development. Students will learn the foundations of security, basic procedures of security, desktop, network, and information security, administering windows security, security threats and attacks, incident response, secure Internet access and working securely on the Internet as well as using VMWare tools. For their next topic, they will be introduced to programming in the Android environment. They will examine the basic components and concepts that define the Android platform, and then move on to cover the specific structure that comprises an Android application. Students will get an overview of the most common tools and techniques for writing Android applications.

Students' learning will take place through exploration and presentations.

INSTRUCTOR(S):

- Name(s): Namrata Pandya
- Office Number(s) (When and where you are available for help.): A157
9:00 am – 10:00 am
- Telephone number(s): 630-907-5965
- Email address(es): npandya@imsa.edu

Meeting Days, Time and Room(s)

12:20pm – 1:15pm in IN2/A133 on A – D days

Text(s) / Materials:

There is no required text for this course. A number of online resources will be used extensively and handouts will be provided for reading material.

Teaching and Learning Methodology and Philosophy:

The teaching and learning philosophy in this course is to expose students to a variety of concepts, ideas and problem-solving strategies, which are developed and extended through reading, class discussion and interactive exploration. The course is intended to prepare students to work independently on advanced projects. Much of the learning is expected to take place

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through class exercises, students creating and delivering lessons which act as stepping stones to concept development and subsequent growth in computer science.

Student Expectations:

All students are expected to

- be involved in class discussions and explorations, both large and small group.
- attend all the classes and be on time.
- complete all daily assignments, and projects in a timely manner.
- take responsibility for learning certain basic skills and relationships.
- take responsibility for seeking additional help as it is needed.
- collaborate with each other and contribute to each other's learning
- follow the guidelines of Students Handbook about ethical behavior and plagiarism.

Student Outcomes/Objectives:

At the end of this course, students will be expected to be able to:

Android App Development:

- Use the development tools in the Android development environment
- Use the major components of Android API set to develop their own apps
- Describe the life cycles of Activities, Applications and Fragments
- Use the Java programming language to build Android apps
- Make UI-rich apps using all the major UI components
- Learn UI best-practices
- Be familiar with new UI components like Fragments and the Action Bar

Cyber Security:

- define essential terminology for cyber security and be able to identify cyber crime
- know security procedures to secure a desktop, or a network
- recognize various threats and attacks
- restrict site access and identify secure sites
- install and work with VMWare tools

Topics to be covered: (subject to change)

Week 1-2: Fundamentals of Security, Some security history, How to harden security, Creating strong passwords, Computer security, Information security, Network security

Week 3-4: Various threats and attacks, web attacks and Internet vulnerabilities, incident Response, working with forensics tools

Week 5-6: Restrict site access, deal with cookies, unable content advisor, security settings for a

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wireless network access point, Setting up VMWare and using various tools.

Week 7: Work on cyber security challenge

Week 8-9: Introduction to Android, Setting up Android Development Environment, OOP concepts, Java Basics

Week 10-11: Android User Interface, Android User Input, Variables, and Operations

Week 12-13: Icons and Decision-Making Controls, Android Lists, and Arrays

Week 14: Implementing Audio in Android Apps, building simple app

Week 15-16: Final Project

Quarterly grades will be averaged using the following weighting:

Projects/Teaching assignments	40%
Quizzes/Tests	30%
Exercises/Labs	25%
Participation/Organization	5%

Semester grades will be averaged using the following weighting:

Cumulative semester work	90%
Semester Final Exam	10%