CS683 Mobile Application Development

Department of Computer Science

Metropolitan College

Boston University

Syllabus

Instructor Information

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Office Hours:

Tue, Wed and Thu: 4:00-5:00PM Or by appointment

Feel free to ask me any questions before or after class. You can always contact me by email **Please always add "CS683 (or cs683)" in the subject of your email**.

Course Information

Lecture Time
Tuesday 6:00-8:45PM CAS B27

Prerequisites
MET CS 342 **or** CS520 or CS521 or instructor's consent.
(You should be familiar with Java programming before taking this course.)

Reference Books:
Neil Smyth. ***Android Studio Development Essentials - Android 7 Edition: Learn to Develop Android 7 Apps with Android Studio 2.2.*** July, 2016. CreateSpace Independent Publishing Platform. (ISBN-10: 1535425334. ISBN-13: 978-1535425339)

Or the Newer Edition of the book

Neil Smyth. *Android Studio 2.3 Development Essentials - Android 7 Edition*. March, 2017. CreateSpace Independent Publishing Platform. (ISBN-10: 1544275439, ISBN-13: 978-1544275437)

Other Reading Materials

- Android Developer Website: https://developer.android.com
- OWASP Top 10 Mobile Risks: https://www.owasp.org/index.php/OWASP_Mobile_Security_Project#tab=Top_10_Mobile_Risks

Please check the course blackboard website (https://onlinecampus.bu.edu**) for more materials.**

Description (from Catalog)

The course discusses the principles and problems associated with mobile device applications. It uses as examples Google Android (mainly), occasionally iPhone. It includes as in-depth coverage of the open source Android development platform. Issues covered will include Mobile Hardware and Cell Networks, Architectures, Operating Systems, Languages, Development Environments and Simulators, User Interfaces, Location-based Services, Storing and Retrieving Data.

Objectives

At the end of the semester, students are expected to

- Apply the unique set of problems and challenges in developing mobile applications compared with desktop applications□
- Use the Android platform, tools, technology and process for developing mobile applications□
- Write applications and simulate their execution.

Course Requirements

- Class participation
- Reading and study
- Labs and the Semester-long project
- Exam

Course Policies

Grading Policy

The grade that a student receives in this class will be based on class participation, in-class exercise, quizzes, project and the exam. The grade is breakdown as shown below. All percentages are approximate and the instructor reserves the right to make necessary changes.

- 5% on class participation
- 10% on Labs
- 55% on the semester-long project
- 30% on final exam

Letter grade/numerical grade conversion is shown below:

A (94-100)   A- (90-93)

B+ (85-89)   B (80-84)   B- (79-77)

C+ (74-76)   C (70-73)   C- (65-70)

D (60-65)   F (0 – 59)

Attendance Policy

Attendance is expected at all class meetings. You are responsible for all material discussed in class. In general, no makeup quizzes and exam will be given unless an extremely good, verifiable reason is given in advance. Please respect your classmates by silencing your cell phones and other electronic devices before class begins.

Assignment Late Policy

All project deadlines are firm. A deadline miss means zero for the grade of that phase. It is the students' responsibility to keep secure backups of all working products.

Academic Integrity

Academic conduct in general and MET College rule in particular require that all references and uses of the work of others must be clearly cited. All instances of plagiarism must be reported to the College for action. *For the full text of the academic conduct code, please check* http://www.bu.edu/met/for-students/met-policies-procedures-resources/academic-conduct-code/.

Course Schedule

(This is a tentative schedule. It is subject to change based on the class progress and students' feedback**)**

Both the lecture and project use iterative approaches. The lecture includes two iterations. The project includes initial planning and 3 iterations.

Class #	Date	Topics	Readings/	Assignments
1	09/05	Introduction to Mobile Computing and the Android Platform	Smyth book: Chapters 1-4 and 7-13	Lab1(09/05-09/12) Project Assignment 1 (09/05-09/19)
2	09/12	Introduction to Android Application Development		
3	09/19	User Interface I (Activity, Layout, View, Widgets, event)	Smyth book: Chapters 14-26 (version 2.2), or Chapters 14 - 28 (version 2.3)	Lab2(09/19-09/26) Project Assignment 2 (09/19-10/03)
4	09/26	User Interface II (Activity & Fragment)		
5	10/03	Storage I (Preferences, File, Database)	Smyth book: Chapters 55-61 (version 2.2), or Chapters 57-63 (version 2.3)	Lab3 (10/03-10/17) Project Assignment 3 (10/03-10/24)
6	10/17	Storage II (Database, Content Provider, Network Storage)		
7	10/24	Intents and Services I (Android ICP, intents)	Smyth book: Chapters 40-43(version 2.2), or Chapters 42-45 (version 2.3)	Lab4(10/24-10/31) Project Assignment 4 (10/24 -11/07)
8	10/31	Intents and Services II (Services, Permissions, Security issues)		
9	11/07	Threads and Communication I (Android Processes and Threads)	Smyth book: Chapters 44-46 (version 2.2), or Chapters 46-48 (version 2.3)	Lab 5 (11/07-11/14) Project Assignment 5 (11/07-11/21)

10	11/14	Threads and Communication II (Threads and Synchronization)		
11	11/21	Graphics and Animation, Sensors	Smyth book: Chapters 30 (version 2.2), or Chapters 32 (version 2.3)	Project Assignment 6 (11/21-12/12)
12	11/28	Security - OWASP top 10 Mobile Risks	https://www.owasp.org/index.php/OWASP_Mobile_Security_Project#tab=Top_10_Mobile_Risks	
13	12/05	Android Security		
14	12/12	Project Presentation		Project is Due
15	12/19	Exam		

The above schedule is subjected to change according to the progress of the class and the feedback of the students.

Besides the book chapters, the additional reading material will be assigned for each topic. Reading before and after class is required and essential to succeed in this course. Students are responsible for **ALL** the materials covered in the lectures and lab sessions including any topics not in the textbooks.