CSCI 4540: Mobile Computing
CSCI 6905: Topics in Computer Science
Summer 2019

Class Meeting	Online
Instructor	Dr. Mark Hills
Office	Science & Technology Building, C-110
Office Hours	Tuesday 2:00pm – 4:00pm Wednesday 10:00am – 11:00am Thursday 1:00pm – 3:00pm Or, by appointment (just email to set up a time).
Phone	252-328-9692
Email	hillsma@ecu.edu (response within 24 hours during the week, possibly longer on weekends)
Webex	https://ecu.webex.com/meet/hillsma
Course web page	https://blackboard.ecu.edu
Slack	https://ecu-csci-4540-s1-2019.slack.com

Course Summary

The catalog description for this course is as follows:

> *Mobile computing and mobile application development. Mobile computing applications, technologies and wireless communication. Computing in environments with limited resources and low power, fault tolerance, and persistence. Mobile application frameworks and development environments. User interface design and evaluating user experience.*

This course provides a practical foundation for developing mobile applications as well as an introduction to the research literature in this area. Students will learn the tools and techniques used to build and deploy mobile applications, including how to use common mobile services (e.g., maps and location services, local databases, RESTful APIs). Students are required to complete a series of homework assignments and online activities over the course of the semester.

Prerequisites

The prerequisite for this course is CSCI 3010, Computer Networks, which has CSCI 2530 as a prerequisite. CSCI 3030 is not required but some of the techniques from that, or a similar course (e.g., SENG 6230), could be helpful. The material on databases is self-contained, but CSCI 3700/6600 could also be helpful in better understanding this material. You should be fairly proficient in Java – if you have a weak Java background, you will almost certainly struggle in this course, especially given the pace. For this, it is highly recommended that you have completed at least CSCI 2540.

Learning Outcomes

After taking this course, you should be able to:

- Design, develop, and test mobile applications
- Work with common mobile APIs such as data, maps, and location services
- Integrate your application with web-based, RESTful interfaces
- Understand the basics of internationalization and accessibility
- Navigate the research literature developing around mobile development

Tools and Applications

The following applications may be used in this course:

- App Development: Java JDK 8 and Android Studio
- Source Control: Git and GitHub
- Databases: SQLite and Firebase
- Testing: JUnit, Mockito, the AndroidX Test Library, and Espresso

Textbooks

We have two required textbooks for this course.

The first is a zyBook, which is an online textbook that also includes graded exercises. Instructions for accessing this book are available on Blackboard. The textbook will be available shortly before the start of this course.

The second is *Android Programming: The Big Nerd Ranch Guide (3rd Edition)*, by Bill Phillips, Chris Stewart, and Kristin Marsicano. You are highly recommended to purchase an ACM membership, which will give you access to the O'Reilly Safari learning platform/site. This book is then available through Safari. You can also find it on Amazon, although it is more expensive there (at least if you purchase it new). Links to the book, as well as instructions for joining ACM and accessing Safari, are available on Blackboard.

Other helpful material, including references to books, conference or journal articles, tutorials on the web, and videos will be posted as the course progresses.

Exams

The midterm exam for the course will be available from Thursday, May 30th to Saturday, June 1st, on Blackboard. More details about the exam will be available closer to the exam date. This is a timed exam.

The final exam for the course will be available from Monday, June 17 to Wednesday, June 19 (final exam day is officially June 18), on Blackboard. More

details about the exam will be available closer to the exam date. This will also be a timed exam.

Note: you will not need a proctor for the exams in this course. All exams will be administered through Blackboard.

Grading for Undergraduate Students

Students will be evaluated based on the combination of class activities. For undergraduates, the final grade will be assessed with the following criteria:

Grading	
A	≥ 94
A-	≥ 90
B+	≥ 87
B	≥ 83
B-	≥ 80
C+	≥ 77
C	≥ 73
C-	≥ 70
D+	≥ 67
D	≥ 63
D-	≥ 60
F	< 60

This grade is based on the following relative weights of the various activities:

Weighting	
Midterm Exam	20%
Final Exam	20%
Chapter Quizzes	10%
zyBooks Participation Activities	10%
Homework Assignments	40%

Homework assignments will be due weekly.

Grading for Graduate Students

Students will be evaluated based on the combination of class activities. For graduate students, the final grade will be assessed with the following criteria:

Grading	
A	≥ 90
B	≥ 80
C	≥ 70
F	< 70

This grade is based on the following relative weights of the various activities:

Weighting	
Midterm Exam	20%
Final Exam	20%
Chapter Quizzes	10%
zyBooks Participation Activities	10%
Research Project/Lesson	10%
Homework Assignments	30%

Homework assignments will be due weekly. Details on the research project/lesson, with specific dates and deliverables, are available on Blackboard.

Student conduct

Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own work, except where teamwork is explicitly allowed or required. That does not mean you are not allowed to discuss your ideas with other students. Working in groups can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is plagiarism and is unacceptable. Students who copy other students' work, or who allow their work to be copied, or who copy their work from other sources, such as the internet, are violating the ECU academic integrity policy. Not only that, if you are copying your answers instead of doing the work yourself, you are essentially missing the entire point of this course, which will come back to haunt you when you don't know this material at a future employer.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course. Violations may also be reported to the ECU Office of Student Rights and Responsibilities (OSRR).

Other Policies

No incompletes will be issued in this course except for extraordinary circumstances, and even then only if you are nearly done already, and have done work of acceptable quality, so that you have a realistic chance to pass the course.

All assigned work is due by the posted due date and time. Late submissions will not generally be accepted. If for some reason you are not able to complete the assignment on time, you must contact me directly with an explanation and

request an extension before the deadline. If something comes up and you are having trouble keeping up with the class, talk to me right away, ***don't wait until the end of the term!***

Course participation is an important part of the course. Please read any assigned readings in a timely fashion, do the assignments promptly, type in and experiment with code examples, and ask questions on Slack.

Material to review, including recorded lectures, will be made available at the start of each week. I recommend that you watch the material the day it is released and send any questions as soon as possible. Falling behind will make the course more difficult than it would otherwise be.

All code, test scripts, and other software artifacts for your homework assignments must be stored in GitHub (**this is not optional**). I will not accept assignments submitted through Blackboard or emailed to me. If you have questions about your code, check it in to the related GitHub repository, that way I can easily look at it. Do not email me code snippets or screenshots of code, I cannot run either.

Copyright on Course Materials

Course materials, including programming assignments and lecture notes, can only be publicly shared or used for commercial purposes if given permission. This is covered by ECU copyright regulations, available at http://www.ecu.edu/prr/10/40/02, which state the following:

> 7.1.3. Notes of classroom and laboratory lectures, syllabi, exercises and other course materials taken by Students shall not be deemed Student Works, may only be used for personal educational purposes, and shall not be used for commercialization by the Student generating such notes or by any third party without the express written permission of the author of such Works. Violation of University Policy may be grounds for disciplinary action pursuant with the ECU Student Conduct Process.

Weather emergencies

In the event of a weather emergency, information about ECU can be obtained through the following sources:

ECU emergency notices   http://www.ecu.edu/alert
ECU emergency information hotline 252-328-0062

Students with disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138 ((252) 737-1016 (Voice/TTY)).

For more information, please see http://www.ecu.edu/cs-studentlife/dss/.

Retention Requirements

Academic requirements for retention have changed. Please be aware of the following new GPA requirements. Please discuss the retention requirements, entrance to major requirements, and your goals with your academic advisor.

GPA Hours at ECU (identified in Transcript in Banner Self Service) plus transferred credit hours	"Old" Retention Requirement All courses taken at ECU	New Retention Requirements Effective with Fall 2011 grades All courses taken at ECU
1-29 semester hours	1.6 GPA	1.8
30-59 semester hours	1.8 GPA	1.9
60-74 semester hours	1.9 GPA	2.0
75 or more semester hours	2.0 GPA	2.0

Caveats

Occasionally, it may be necessary to revise this syllabus due to extenuating circumstances. I reserve the right to revise this syllabus if the need arises. If I do so, I will provide you with advance notice.