

CSCI 4540: Mobile Computing Summer 2022

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)
Chat	MS Teams
Course web page	https://ecu.instructure.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. Students will learn the tools and techniques used to build and deploy mobile applications, including how to use common mobile services such as maps and location services. 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. 3030 is not required, but some of the techniques from that course could be helpful. The material on databases is self-contained, but CSCI 3700 could also be helpful in better understanding this material. You should be fairly proficient in Java before taking this course. Although we use Kotlin, having a good programming background will make learning a new language easier, especially given the pace of this course, and there are good educational resources for moving from Java to Kotlin. **It is highly recommended that you have completed at least CSCI 2540**, especially now that CSCI 1010 and CSCI 2530 are both taught in C.

Learning Outcomes

After taking this course, you should be able to:

- Design and develop mobile applications for modern Android devices
- Create effective UI tests for mobile user interfaces
- Integrate common mobile APIs to support services such as remote data storage, maps, and location services
- Support online crash reporting and automate multi-device testing
- Understand and apply the basics of internationalization and accessibility

Tools and Applications

The following applications may be used in this course:

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

Textbooks

The required text for this course is *Android Programming: The Big Nerd Ranch Guide (4th Edition)*, by Bill Phillips, Chris Stewart, Kristin Marsicano, and Brian Gardner. Either paperback or (if available) electronic versions of this book are fine. Prior editions will not work since they did not use Kotlin, and a lot has changed in Android development since the prior editions came out!

Other helpful material, including references to books, 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, June 2nd to Saturday, June 4th, on Canvas. The final exam for the course will be available from Monday, June 20th to Tuesday, June 21st (final exam day is officially June 21st), also on Canvas. More details about the exams will be available closer to the exam dates. Both are timed exams.

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

Grading

Students will be evaluated based on the combination of class activities. 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%
Canvas Participation Activities	10%
Homework Assignments	40%

Homework assignments will be due weekly.

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 during an interview with a potential 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 MS Teams.

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 Canvas 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.

Continuity of Instruction

In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in the course will be communicated as soon as possible by email, and on Canvas. Students are encouraged to continue the readings and other assignments as outlined in this syllabus or subsequent syllabi.

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/>.

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.