CSCE 546: Mobile Application Development

IMPORTANT: This course consists almost entirely of writing code. If you are not familiar with Kotlin and Android Studio but you like to program and are familiar with any other language (e.g. Java, C#, or Python), you'll be fine. If you do not enjoy software development, this may not be the right course for you.

Course Logistics

Time:	TTh 2:50-4:05 pm
Location:	300 Main St, Room B110
Instructor:	Robert Bailey - baileyrt@cse.sc.edu
Office:	INNOVA 2247
Office Hours:	By appt preferred (email me); Monday at 12:00 pm
Teaching Assistant:	Aishneet Juneja
Prerequisites:	CSCE 240 or other programming course
Textbook:	None required
Website:	Blackboard.sc.edu
Final Exam:	25 April 2024 at 4:00 pm (Final Project due at 6:30 pm)

Course Objectives

- Develop functional capability in developing applications on Android Mobile devices.
- Develop functional knowledge of Android programming environments such as IntelliJ and Android Studio.
- Develop functional knowledge of the Kotlin programming language.

Course Resources

Required software:

- Android Studio (with emulator)

Alternate software:

- IntelliJ IDEA
- Visual Studio Code

Kotlin/Android learning:

- Google Kotlin Course
- Google Android Course

Other resources:

- Self-assessments on Kotlin programming language
- Kotlin Fundamentals Course
- Essential Kotlin book
- Kotlin Quick Reference guide
- Kotlin for Android App Development, ISBN-13: 978-0-13-485419-9
- Android Programming The Big Nerd Ranch Guide, ISBN-13 978-0135257562

Grading

Your final letter grade will be determined by your performance in the following:

- Homeworks: 4 assignments, 10 points each (40%)
- Labs: 4 assignments, 10 points each (40%)
    - For Grad and Honors, 5 assignments for 8 points each
- Final project: 20 points (20%)
    - Grad and Honors will have more requirements on the rubric

Grading Scale:
[90-100]=A, [87-89]=B+, [80-86]=B, [77-79]=C+, [70-76]=C, [67-69]=D+, [60-66]=D, [0-59]=F

Assignment details
Individual homework assignments consist of modules from the Google Kotlin and Google Android courses (links above). You will complete "badges" from the course, take screenshots, and submit them. You will complete a total of 30 units (with another 10 optional), and will work on approximately 25 mobile apps in the learning process.
Individual lab assignments consist of simplified programming tasks, with specific objectives (i.e. write a mobile app that highlights a specific feature of the phone).
The final project involves creating a mobile app of your own, which puts into practice the principles learned during the semester. You will complete this task either by yourself or with a partner (group of 2 max).

Policies

The following are a collection of applicable personal, department, and university-wide policies

Attendance: Attendance is not mandatory but is highly encouraged. You will only get out of this course what you put into it. I will record all lectures and post them to Blackboard. You can use VLC Media Player to play the MKV files. If you are unable to attend class you do NOT need to excuse your absence. Simply keep up by following the recordings.

Cheating: University policies and procedures regarding academic integrity are defined in policy STAF 6.25, Academic Responsibility - The Honor Code (see http://www.sc.edu/policies/ppm/staf625.pdf). Prohibited behaviors include plagiarism, cheating, falsification, and complicity. All potential Honor Code violations will be reported to the Office of Student Conduct and Academic Integrity, which has the authority to implement non-academic penalties as described in STAF 6.25. Academic penalties for Honor Code violations in this course range from a zero on the assignment to failure of the course.

Collaboration: Assignments should be done independently. It is permissible to discuss the problems at a high level with your classmates, but you should work out the details and compose the complete answers independently. Submission of identical or substantially identical work will be considered strong evidence that cheating has occurred.

Late Assignments: There is no penalty for submitting assignments late. However, all Google learning modules MUST be completed by the end of Spring Break (to give you the skills to complete the labs). And all labs MUST be completed before Reading Day.

Class Conduct: Professionalism will be expected at all times. Because the university classroom is a place designed for the free exchange of ideas, we must show respect for one another in all circumstances. We will show respect for one another by exhibiting patience and courtesy in our exchanges. Appropriate language and restraint from verbal attacks upon those whose perspectives differ from your own is a minimum requirement. Courtesy and kindness is the norm for those who participate in my class.

Diversity and Inclusion: The university is committed to a campus environment that is inclusive, safe, and respectful for all persons, and one that fully embraces the Carolinian Creed. To that end, all course activities will be conducted in an atmosphere of friendly participation and interaction among colleagues, recognizing and appreciating the unique experiences, background, and point of view each student brings. You are expected at all times to apply the highest academic standards to this course and to treat others with dignity and respect.

Accommodations for disabilities: The Student Disability Resource Center (SDRC) empowers students to manage challenges and limitations imposed by disabilities. (http://www.sa.sc.edu/sds/). Students with disabilities are encouraged to contact me to discuss the logistics of any accommodations needed to fulfill course requirements (within the first week of the semester). In order to receive reasonable accommodations from me, you must be registered with the Student Disability Resource Center (1523 Greene Street, LeConte Room 112A, Columbia, SC 29208, 803-777-6142). Any student with a documented disability should contact the SDRC to make arrangements for appropriate accommodations.

Counseling Services: The University offers counseling and crisis services as well as outreach services, self-help, and frequently asked questions. (https://sc.edu/about/offices_and_divisions/student_health_services/medical-services/counseling-and-psychiatry/index.php).

Policy Changes: Changes to the syllabus at the instructor's reasonable discretion, including changes to the evaluation and grading mechanisms, are possible but unlikely.

Academic Honesty Policy: You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of failing the assignment, and will result in additional disciplinary measures including referring you to the Office of Academic Integrity. Violations of the University's Honor Code include, but are not limited to improper citation of sources, using another student's work, and any other form of academic misrepresentation. For more information, please see the Honor Code.

Tentative Course Schedule

This schedule is subject to change. All changes will be announced through Blackboard, and revisions will be posted to Blackboard.

Day	Date	Topics	Assignments
1	9 Jan	Syllabus, Intro to Kotlin Course	HW1 posted
2	11 Jan	Kotlin Basics	
3	16 Jan	Functions	
4	18 Jan	Classes and Objects	
5	23 Jan	Build first Android App	
6	25 Jan	Layouts	HW2 posted, HW1 due (1/24)
7	30 Jan	App Navigation	
8	1 Feb	Activity and Fragment Lifecycle	
9	6 Feb	App Architecture (UI Layer)	
10	8 Feb	App Architecture (Persistence Layer)	
11	13 Feb	Advanced RecyclerView use cases	HW3 posted, HW2 due (2/12)
12	15 Feb	Connect to the Internet	
13	20 Feb	Repository pattern and WorkManager	
14	22 Feb	App UI Design	HW4 posted, HW3 due (2/21)
15	27 Feb	Review	
16	29 Feb	Flex	
17	5 Mar	SPRING BREAK	
18	7 Mar	SPRING BREAK	**All Homeworks (badges) due (4/11)**
19	12 Mar	Camera, flash	Lab 1 posted, Lab 5 posted
20	14 Mar	(lab work time)	
21	19 Mar	User location	Lab 2 posted, Lab 1 due (3/18)
22	21 Mar	(lab work time)	
23	26 Mar	Device sensors	Lab 3 posted, Lab 2 due (3/25)
24	28 Mar	(lab work time)	
25	2 Apr	Touch detection	Lab 4 posted, Lab 3 due (4/1)
26	4 Apr	(lab work time)	
27	9 Apr	Final project	Lab 4 due (4/8)
28	11 Apr	Final project	
29	16 Apr	Final project	Lab 5 due (4/15)
30	18 Apr	Final project	

N/A	22 April	Last day of classes	**All labs due**
N/A	**25 April**	**Exam block ends at 6:30 pm**	**Final project due**