CS 374-639

Spring 2021

Mobile Application Development

Do you want to learn about the opportunities of mobile app development?

Do you want to design and develop your own app?

Do you want to submit an app to an app store?

Do you want to learn about entrepreneurship in tech?

Credits: 4 credits (CS 374) / 3 credits (CS 639)

Prerequisite: Java

Course information:

Instructor: Dr. Christelle Scharff (She/her)
When & Where: **Web-assisted (WA):** Course is taught with both on campus sessions and online components.
E319 NYC (6) / MIL16 PLV (?) (if on campus)
Office: Floor 2 - Room 228, 163 William Street, New York City
Tel.: 212-346-1016 (office)
Email: cscharff@pace.edu
I generally answer emails in less than 24 hours
URL: https://www.pace.edu/seidenberg/sections/meet-the-faculty/faculty-profile/cscharff

Office hours: By appointment on Zoom

Description:

This course surveys the specificities of the development of native applications for Android devices. The software engineering of application development including user-centered design, testing and quality assurance will be emphasized. Students will learn how to design and develop applications for the Android platform. The following topics will be covered: intents, content providers, notifications, rich and responsible layouts, location based facilities, recycleviews, databases, and network / web access. Kotlin will be covered. A project is integrated in the course.

Learning outcomes:
After taking this course, students should be able to:

- Have deep technical knowledge of Android development (Java and Koltin);
- Develop and maintain high-quality mobile software products;
- Understand the software engineering process to develop mobile software products;
- Appreciate the importance of user-centered design, testing and quality assurance in developing mobile software products;
- Understand the specifics and constraints of developing for mobile platforms;
- Have knowledge of events, conferences and important papers on Android and mobile computing;
- Understand entrepreneurship and app monetization in the mobile sector.

Tools:
Programming languages: Java, Kotlin.
Software, APIs and tools include: Android Studio, Android SDK, Firebase, Git, GitHub
Communication: Slack, email, Zoom
Instruction: Classes, Zoom, HackerRank, Google Docs

Course format:

- *Lectures:* A new set of lecture notes is delivered each week. They are posted in Classes.
- *Zoom:* All *Zoom sessions* are recorded and posted in Classes. During Zoom sessions, try to add a picture of yourself if you have your camera off. Mute your microphones when you are not speaking.
- *Quizzes:* There will be weekly quizzes. Each quiz will be due at 11:59 PM on **Monday**.
- *Calendar:* Be sure to put all deadlines on your calendar.
- *Assignments:* All graded assignments are posted in Classes. At the beginning of the semester, students will evaluate their Java skills using HackerRank, a platform used for recruitment. Design and programming homeworks will be due weekly on **Monday**. The delivery of assignments will be done in GitHub exclusively (except otherwise specified). There are no exchanges of code by email etc. Programming assignments will require students to deliver apk, screenshots and the complete project code in GitHub. Names of files need to relate to the assignment and follow the instructions. Programs will be tested and graded by another student (peer-review) with oversight from the professor.
- To ensure fairness, *neither quizzes nor assignments* will be accepted after the end of the semester (5/1).
- *Midterm:* The course includes a 2-hour midterm that will be administered online during class time. It will include a written part and a programming part.
- *Project:* The course integrates a team project and a synchronous presentation.

- *Slack:* Students will ask questions and collaborate with their team using Slack. They are encouraged to answer the questions of their classmates. They must observe netiquette in the discussions.
- *Emails:* Emails to the professor should have the title CS 374-639 SP 2021 and be followed with the reason of the email. If students post an issue they encounter, they should add clear explanations, screenshots and videos. Slack is preferred to emails for this type of question. Emails must be used for private questions.
- *Meetups:* Students will be encouraged to attend events online.
- *Software Engineering:* Software engineering with agile will be emphasized in the course. Students will go through all the phases of the development of mobile solutions: requirements, design, development, quality assurance and maintenance.
- *Fairness:* All work related to the course has to be finalized by 5/1 (end of the semester). To be fair to all students in the class, no work is accepted after that time.

Textbooks and resources:

- Google Developers Training https://developers.google.com/training/android/
- Google Codelabs https://codelabs.developers.google.com/

Additional materials and recommended readings will be assigned during the course. As Android is evolving rapidly, books are quickly outdated and online resources are privileged.

Pace Mobile Lab:

Please join http://facebook.com/pacemobilelab

Policy:

The following policy for the course will be enforced:

- *Course Documents:* All material will be posted online in Classes. It is students' responsibility to consult the material.
- *Assignments:* Late assignments are not accepted, except special situations. Students need to let the instructor know as soon as possible.
- *Emails & Announcements:* It is students' responsibility to read emails and consult announcements in Classes and Slack regularly.
- *Software:* Students will be responsible of installing and configuring different software in this course. It will take patience! Students should use Slack, the web and StackOverflow for assistance.
- *Course Grades:* You will be assessed on:
  - Participation (5%)
  - Homeworks (30%)
  - Quizzes (20%)
  - Midterm (15%)
  - Team project (30%)

Session assistant:
Each student will be a session assistant at least once during the semester. The responsibilities of the session assistant include:

- Introduce each session with what was done during the last session and what are the next deadlines
- Remind students to have a picture during Zoom sessions
- Check attendance during live sessions and mark the students who are on campus and absent
- Remind the instructor to record, stop recording etc. Zoom sessions
- Check the access right for the documents and videos that are posted after the session
- Check the chat during the session

Attendance and participation:
Discussion and participation are a major emphasis in this course. This means that it is your responsibility to come to class ready and willing to take part in group knowledge building. Your in-class participation grade will be primarily based upon the small group work, activities that we do in class and your role as a session assistant. This grade will also reflect your level of investment in classroom discussion. I will provide you with a provisional participation grade at two checkpoints during the semester.

Proofread and check the spelling before submitting communications. While online communication is more relaxed, it is not careless communication. Doing a quick proof of your work before you send it may alleviate the need to clarify your posting and save you some time and potential embarrassment. Be aware of copyright and "fair use" law; do not plagiarize, and don't forget to cite your information.

Penalty of late work:
Submitting work one week late will result in a lower grade for the assignment.

Grades:
Grades are computed the following way:

A 90-100
A- 88-90
B+ 85-88
B 82-85
B- 80-82
C+ 75-80
C 70-75
C- 65-70
D+ 60-65
D 55-60
F 0-55

Important dates:

- Be sure to put all these important dates on your calendar.
- Start of the course – Saturday 1/23
- Midterm – Saturday 3/20 (synchronous, 9 am to 11 am, online)
- Final presentations of the project – Saturday 5/1 (synchronous, 9am, online)
- Asynchronous classes on Saturday 2/27 (SeidenHack) and Saturday 4/3 (Eastern weekend)
- No class on 3/27 (Passover, university closed)
- End of the course – Saturday 5/1

Pace University COVID-19 Safety:

CDC guidelines and University policy require proper face covering use in all classrooms, conference rooms, hallways, elevators, and other common areas. Face coverings are required even if you are more than 6 feet from another individual in a common indoor area. We must work together to protect others and ourselves from the transmission of COVID-19. Any student entering class without a face covering will be asked to: a) don a face covering or b) go to Security to obtain a face covering if the student does not have one. Students who do neither of these things will be asked to leave class and they will be marked absent for the session. Students are expected to be familiar with the current COVID-19 regulations, which are posted on the Return to Campus website. See also up-to-date policies and announcements.

Academic Integrity:

Students in this course are required to adhere to Pace University's Academic Integrity Code. The Academic Integrity Code supports honesty and ethical conduct in the educational process. It educates students about what constitutes academic misconduct, helps to deter cheating and plagiarism, and provides a procedure for handling cases of academic misconduct. Students are expected to be familiar with the Code, which can be found under "University Policies" in the Student Handbook: http://www.pace.edu/academicintegritycode. Individual schools and programs may have additional standards of academic integrity. Students are responsible for familiarizing themselves with the policies of the schools, programs, and courses in which they are enrolled.

Pace University Academic Integrity Code
http://bit.ly/pacestudenthandbook

University Policies in the Student Handbook
http://bit.ly/pacestudenthandbook

Form to report a case (for faculty)
http://www.pace.edu/provost/academic-policies-forms

Continuity Plan:
In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to change when necessitated by revised course delivery, semester calendar or other circumstances. Information will be communicated online. If the course is not able to meet [face-to-face], students should immediately read any announcements and/or alternative assignment. Students are also encouraged to continue the readings and assignments as outlined on this syllabus or subsequent syllabi.

Procedure for Students with Disabilities Who Wish to Obtain Reasonable Accommodations for a Course:
The University's commitment to equal educational opportunities for students with disabilities includes providing reasonable accommodations for the needs of students with disabilities. To request a reasonable accommodation for a qualified disability a student with a disability must self-identify and register with the Office of Disability Services for his or her campus. No one, including faculty, is authorized to evaluate the need for or grant a request for an accommodation except the Office of Disability Services. Moreover, no one, including faculty, is authorized to contact the Office of Disability Services on behalf of a student. For further information, please see Resources for Students with Disabilities at www.pace.edu/counseling/resources-and-support-services-for-students-with-disabilities.

Technological Resources:
- List of all Pace Information Technology Services.
- For assistance with a technological concern (Classes, Internet, Computer, etc.), contact the Pace Helpdesk at 914-773-3648 or create a help desk ticket.
- Visit the Learning Remotely website