CS 443: Mobile Applications (Fall 2018)  
Department of Computer Science  
University of Massachusetts Boston

Instructor and Contact Information: Bo Sheng, Office: S-3-167, E-mail: bo.sheng@umb.edu.

Suggested Text:


Course Description:

Mobile devices are becoming ubiquitous along with the high demand for mobile applications serving corporates and millions of end-users. In this course, students will learn programming skills for developing mobile applications on Android platform, which is the fastest growing mobile operating system. Android is open source and includes many libraries that can help developers easily implement rich and complex applications. Students in this course will learn how to create, test and deploy Android applications. Solid skills of Java programming and application development are necessary for a successful completion of this course.

Prerequisite:

CS310 or permission of the instructor

Outcomes:

- Be familiar with Android development environment
- Understand the process and characteristics of mobile application development
- Understand the components of an Android app and major features of Android platform
- Be able to develop, test and deploy entry-level Android applications

Topics and tentative schedule:

- Android intro (week 1)
- Android Studio and a Simple App (week 1–2)
- Manifest and activity lifecycle (week 2–3)
- Broadcast Receiver (week 4)
- Notification (week 5)
- Services (week 6–7)
- Graphics (week 8–9)
- Location and maps (week 9–10)
- Network Connection (week 10–11)
- Content provider (week 11–12)
- Access Contacts Data (week 12–13)
- Sensors (week 14)
- Gestures (week 15)
**Course Work:**

- There will be 3–4 homework assignments and one term project in this class.
- Homework
  - Each homework assignment includes a programming task. Students will be given 1–2 weeks to finish it.
  - Partial points will be given, but no late submissions are accepted.
  - A program that does not successfully compile or produces no output loses 60% of the assignment grade.
- Project
  - Project can be conducted individually or in teams of two students. Group members will get the same grade for the project.
  - To complete the project, students need to
    - Submit a project proposal
    - Submit a project mid-term report
    - Present your work at the end of the semester
    - Submit a final report and all project codes
  - Project must be approved by the instructor. So talk to me before submitting your project proposal.
  - Project will be assessed based on
    - Novelty of the idea (25%)
    - Quality of the implementation (35%)
    - Quality of the presentation and reports (40%)
  - All projects will be rated by the students at the end of the semester.
- Device
  - Homework assignments will be evaluated on Android emulator.
  - Students will be given mobile devices (either a tablet or smartphone) for the projects when necessary. The devices should be well maintained during their uses. Students will be responsible for any damage to the devices.

**Grading:**

- Attendance and participation: 5%
- Homework assignments: 65%
- Term project: 30%

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(90–100)</td>
<td>A-(87–89)</td>
</tr>
<tr>
<td>B+(84–86)</td>
<td>B(80–83)</td>
</tr>
<tr>
<td>B(74–76)</td>
<td>B-(77–79)</td>
</tr>
<tr>
<td>C+(74–76)</td>
<td>C(70–73)</td>
</tr>
<tr>
<td>C(64–66)</td>
<td>C-(67–69)</td>
</tr>
<tr>
<td>D+(64–66)</td>
<td>D(60–63)</td>
</tr>
<tr>
<td>F(&lt;60)</td>
<td></td>
</tr>
</tbody>
</table>

**Policies:**

- **Accommodations:** Section 504 of the Americans with Disabilities Act of 1990 offers guidelines for curriculum modifications and adaptations for students with documented disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center for Disability Services in the Campus Center (617-287-7430). The student must present these recommendations and discuss them with each professor within a reasonable period, preferably by the end of Drop/Add period.
- **Student Conduct:** Students are required to adhere to the University Policy on Academic Standards and Cheating, to the University Statement on Plagiarism and the Documentation of Written Work, and to the Code of Student Conduct as delineated in the catalog of Undergraduate Programs. The Code is also available online at http://www.umb.edu/life_on_campus/policies/community/code