

# CS310 - Mobile Application Development

## Syllabus – Fall 2024/25

### Course Objective

The main objective of this course is to provide students with the tools and skills needed to build applications for the Mobile platform. The course starts with a brief introduction to Java programming environment and moves forward with creating stateful web services using Java and developing mobile applications consuming web services via the React Native platform.

Upon completion of this course, students are expected to design, code and implement applications on mobile and hand-held devices with limited resources, understand web services, manage messaging with HTTP and deploy/consume web services residing on Java Application Servers.

### Prerequisites

Applicants are expected to have a basic understanding of writing algorithms and familiarity with the basic concepts of object orientation with some experience in a programming language like C#, C++, etc.

### Projected Outline

#### **PART 1 – Java Language and Web API's (Backend Programming)**

The objective of this part is to review the basics of Java as an Enterprise Programming Framework. Beginning with Java basics, the Spring Framework will be introduced for coding persistent applications backed by document stores for building microservice architectures. Upon completion, students will be able to use the Java language with efficient resource consumption for applications serving on the internet.

1. Week-1 Java Introduction - The Big Picture - Classes and Objects
2. Week-2 Java Classes and Objects
3. Week-3 Java Collections and Inner Classes and Exceptions

##### **Submission of Project Groups (Oct 7<sup>th</sup>)**

4. Week-4 Introduction to Spring Framework and Microservices

##### **Back-End Project Start (Oct 17<sup>th</sup>)**

5. Week-5 Persistence with Document Stores (MongoDB)
6. Week-6 MongoDB and Spring Data
7. Week-7 Spring Web and Rest

#### **PART 2 React Native (Frontend Programming)**

The objective of this part is to review the basics of React Native Framework.

8. Week-8 React Native Introduction – Dev Environment Setup
9. Week-9 Navigation in React Native

##### **Project Phase-1 Submission (Nov 21<sup>st</sup>)**

10. Week-10 State Management in React Native
11. Week-11 User Interface (UI) Components
12. Week-12 Data Management and Networking
13. Week-13 Device Features and Permissions
14. Week-14 Best Practices

### Project Phase-1 Submission (Dec 27<sup>st</sup>)

## Grading

- **Midterm Exam : 30%** (Graded over 100, date will be announced after Week-3)
- **Course Project 30%**
  - Proposals Pass / Fail
  - Project Phase-1 %15
  - Project Phase-2 %15
- **Final Exam 40%**

\*\*\* Your Project Proposal must be accepted in order to continue for Project Phase-1 and Project Phase-2

\*\*\* Project Submission dates are fixed and will not be extended.

\*\*\* All exams must be attended and a project must be submitted for not failing the course!

\*\*\* You must have a proper health report to get make-up exam.

\*\*\* Make-up exams will be more difficult

## Instructor

Ahmet Demirelli – [ahmetdemirelli@sabanciuniv.edu](mailto:ahmetdemirelli@sabanciuniv.edu) Office: FASS 1013B

## Office Hours

Teaching Assistants will be providing support at office hours, please follow the announcements.

## Required Software

You may use any tool that supports Spring Framework and React Native Development. However, TA's and LA's will only provide support for the following tools:

### Part 1:

- Spring Tools 4 (Eclipse Version) <https://spring.io/tools>
- IntelliJ <https://www.jetbrains.com/idea/download>
- Docker Desktop (for MongoDB and testing Microservice deployment)

### Part 2:

- Android Studio <https://developer.android.com/studio>
- VSCode <https://code.visualstudio.com/download>
- React Native <https://reactnative.dev/docs/set-up-your-environment?os=windows&platform=android>