

Mobile Applications and Services

CS4261/CS8803-MAS

Spring 2017

Georgia Tech Lorraine

Monday, Tuesday, Wednesday 18:00-19:30

Instructors - Matt Sanders & Russ Clark

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Course Description

This course covers the area of application development and deployment in today's commercial mobile networks, enterprises, and smart cities. This space is undergoing rapid change as new devices and technologies become available and the network, service, device, and application providers experiment and innovate with new converged architecture models. A goal of this course is to survey the current state of application work in this environment and provide a contrast with traditional telco and Internet environments. We will cover the technical details of the field, the user centered design process, and the business environment which are equally important to understanding successful applications and services.

An important goal for this class is to get you thinking about innovation, design, and entrepreneurship. This is a natural fit for this material because the mobile and convergence space is replete with opportunities to build something that other people will use and maybe even launch a business. We expect that many of your class projects should be on one of the mobile app stores (e.g. iPhone, Android) by the end of the semester. There are many opportunities at Georgia Tech to support you in such an endeavor. One such opportunity is the [Convergence Innovation Competition](#). Your final project will follow the guidelines for CIC entries, which will be held in April 2016 simultaneously in Atlanta and Metz.

While many of the students in this class are from the College of Computing, we encourage students from diverse backgrounds and all majors to participate. In the course projects, we have the flexibility to leverage the contributions of people with a wide range of experiences and interests, and teams with the benefit of diverse perspective will have a distinct advantage over others.

This course will utilize a combination of in-class lectures and online lectures, and includes a teaching team and lab support from Atlanta in addition to the instructors. This will include project update presentations which your team will make both in class and online in order to get a diversity of feedback and interaction with the teaching team and MAS students in Atlanta. While we have scheduled the course for three consecutive days each week to accommodate travel schedules, project deadlines, and online presentations, we will not meet as a class for each of those times every week. Any meeting times which are not used for these purposes will guarantee that your team has a time available for project work. Regardless, **Your schedule must allow you to participate at the scheduled time and days throughout the semester.**

Project

This is a project based course which requires the design and development of a viable end to end running prototype. You will work in teams and as a class to develop these prototypes throughout the

semester. You will present your progress and you will review the progress of other teams throughout the semester, including those taking the course in Atlanta.

While the focus of the course is mobile applications and services, development work might also include hardware prototypes, telematics/automotive, sensors, robotics, kiosks and information displays, and embedded systems depending on the needs of your project and your interests. In order to produce a viable end-to-end prototype, teams will also need to understand and use a user centered design process, the development of a business model canvas, and some unique details specific to the domain of your project. Because of the wide range of topics (technical, business, and domain specific), you and your team must work together to acquire the skills required to complete your project with the help of the instructor, the class, and the teaching team back in Atlanta.

Individual contributions to each team will vary depending on the goals, skills, and interests of the individual and the other team members. As a result, beyond the core concepts discussed in class, not all students will learn the same set of skills on a team or in the course. It is your responsibility to work with your team to identify, negotiate, and define your specific contribution which will make your project a success. Note that this will be an ongoing process as your project evolves and your team pivots.

Grading

- Individual Written Assignments and Participation - 20%
- Peer Feedback and Evaluations - 30%
- Project - 50%

There is no midterm or final for this course. The majority of the grade is focused on the projects and your individual contribution to the class through presentations, feedback of other teams, and evaluations of your teammates. **Please note that the project and these efforts will require substantial sustained effort and discipline throughout the semester.**

Course Topics

Our **thematic areas** for the course will be:

Life Long Health and Wellbeing
Smart Cities and Healthy Communities

Course **topics** will include:

Mobile Application Development
Restful Web Service Development
User Centered Design
Conducting Interviews
User feedback and data collection
Designing for Context
Team makeup, formation, and management
Mockups and Storyboarding
Application and Service Architectures
Competitive Analysis

Full Stack Development

Presence and Sensing

Customer Discovery, Business Model Canvas, and Minimum Viable Products

Advertising and Revenue models

Presentations, Demonstrations, and Elevator Pitches

IoT & Sensing

Companion Devices

Networks: IP, Telecom, Cellular, VoIP, and WiFi