



Agile iOS Design and Development 21:219:420 (3 Credits)

Course Description

This unique hands-on course has been designed to expose students to the end-to-end product (application) design and Agile Scrum development process used by tech companies and entrepreneurs. Students will draft technical documents outlining their design and development process and write code to deliver a functioning application(product) with a data feedback loop for a final grade. All developed products will be presented and used(tested) to panelists during the Spring 2021 Rutgers-Newark DS Product-Application Show.

Learning Objectives

This course is structured to provide students with hands-on exposure to working as a software developer engineer (SDE), technical product manager (TPM) or as a tech entrepreneur. Students will use in-demand application development programming language(s), machine learning and augmented reality techniques to develop products. The course will introduce students to version control system(s) and verification tools to design, develop, analyze performance, test, deploy and maintain their product. Students will be able to develop full-stack data backend products using API's and implement Machine Learning and Augmented Reality to creatively solve complex real-world problems.

Pre-Requisites

Students must have completed 21:198/213:105 (Everyday Data) OR 21:198:102 (Computers & Programming II) OR 21:198:389 (Introduction to Swift iOS Application Development)

Course Materials

Programming language: Swift (iOS)

Textbooks: 1) Develop in Swift Fundamentals 2) Application Development with Swift 3) The Swift Programming Language (Swift 5.3)

Topics Covered

- Application Requirement Engineering and Prototyping
- Life Cycle Models - Waterfall, Rational Unified, Agile
- Agile Development Methods and Frameworks - Scrum, Extreme Programming
- Application Design Cycle and Model View Controller Architecture
- Application Development with Swift – ARKit, CoreML, CreateML Frameworks
- Application integration with public APIs to get live data from the internet
- Implementation - Coding and Code Review
- Version Control System - Github
- Publishing application to the App Store and Product Maintenance