Syllabus
CSC 2355
Mobile Programming
Spring 2020

Professor: John Youssefi, Ph.D.
Course Hours: Thursday 6:30-10:30 pm.
Office: SM 205, (650) 508-3450, jyoussefi@ndnu.edu
Office Hours: Tuesday and Thursday 5:30-6:30 & by appointment.
Prerequisites: CSC 1140 or permission of instructor.

Course Description:

This course is a semester long project-based exploration into iOS mobile app development focusing on the design and implementation of RESTful API clients. Classes meet on campus twice a week for lab and working sessions. In the first half of the course, students develop skills by completing coding labs and building three fully functional app assignment projects. In the second half of the course students will apply their skills--working together in small teams--to design and build an original app from the ground up. The course culminates in a Demo Day event where teams will present their finished apps in a live demo. The course material and projects for this course is handled by CodePath.

Course Objectives/Learning Outcomes:

* Students will develop the ability to conceptually formulate and analyze problems in computing and information processing using efficient algorithms, data structures, and mathematical tools to solve problems (PLOs 1)
* Students show mastery of abstract structures, objects and their use in an object-oriented environment; (PLOs 2)
* Students will demonstrate the ability to conceptually formulate and analyze problems in computing and information processing using efficient algorithms, data structures, and mathematical tools to solve problems (PLOs 1)
* Students will design and implement build three fully functional app projects; (PLOs 1)
* Students will learn different algorithms, modularity and their correct use in software applications; Familiarity with time-space analysis; (PLOs 1)
* Students will achieve higher competency in software design and programming (with Swift as programming language); (PLOs 2)

* Students will work designing and developing an original group project app from the ground up. (PLOs 3)

* “PLOs” refers to the 'CSC Program Learning Outcomes' which can be found in the catalog https://www.ndnu.edu/documents/university-catalog-2018-2019.pdf#page=73

### Attendance and Coursework Submissions

CodePath courses focus on developing student's habits and skills in order to be successful in the tech industry. Success in industry goes beyond proficiency in technical domains; The ability to be punctual, meet project deadlines and work effectively in a collaborative team are equally important skills. The following policies around attendance and coursework submissions are meant to encourage professional behavior.

### Coursework Weighting

All coursework grading and accountability is handled by CodePath. The following table outlines how each coursework section is weighted in calculating a student's final grade. See Coursework Grading for a breakdown of scores for individual coursework items.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>Assignments</td>
<td>Weekly app projects</td>
</tr>
<tr>
<td>50%</td>
<td>Group Project App Milestones</td>
<td>Original app project and presentation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
<th>Score</th>
<th>Grade</th>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
<td>90-93</td>
<td>A-</td>
<td>87-90</td>
<td>B+</td>
</tr>
<tr>
<td>84-87</td>
<td>B</td>
<td>80-84</td>
<td>B-</td>
<td>77-80</td>
<td>C+</td>
</tr>
<tr>
<td>74-77</td>
<td>C</td>
<td>70-74</td>
<td>C-</td>
<td>67-70</td>
<td>D+</td>
</tr>
<tr>
<td>64-67</td>
<td>D</td>
<td>60-64</td>
<td>D-</td>
<td>0-60</td>
<td>F</td>
</tr>
</tbody>
</table>
Bonus points

A student can earn bonus points on an app assignment by completing extra app features beyond that which is indicated as required. Bonus points will only be applied within the given coursework section they are earned and won't increase the impact of a given section beyond it's designated weight. For instance, no amount of bonus points will increase the impact of the Assignments section beyond 50% of the final grade.

Coursework Submissions

- **All coursework items** are submitted through CodePath Course Portal and due by their posted deadlines.
- **Three (48 hour deadline extensions)** are allowed for the entire semester, no questions asked, no need to request extensions. 48 hours is the maximum allowed extension for any individual coursework item, extensions cannot be combined per coursework item.
- **Once the 3 deadline extensions have been used**, any coursework item submitted after the posted deadline will not be accepted.

Attendance Incentives

- **Perfect Attendance**: Attendance at ALL sessions will result in the addition of 10% points to the final grade. (i.e. a 70% would become an 80% and an 85% would become a 95%)
- **Consistent Attendance**: Attendance at at least 1 session for every week OR 70% of all sessions of the course will result in the addition of 5% points to the final grade. (i.e. a 70% would become a 75% and an 85% would become a 90%)
**CodePath Requirements for Course Completion**

CodePath holds all professional and college students to the same high bar of quality coursework and professionalism. In order to be considered CodePath alumni and receive recognition for successful completion of the course from CodePath, **students must complete the course with a final grade of 60% or above.**

Students meeting the above requirements will:

2. Be considered CodePath alumni and gain access to alumni networks.
3. Gain full access to the CodePath career center and be eligible for mentorship opportunities with CodePath professional alumni.

**Courses Offered for College Credit**

For students taking a CodePath course for credit at their college, the professor of record at the college for which the course is being taken will have full discretion and the final decision for any grades a student receives in the course at their college. Students should defer to their college for specific add/drop, course withdrawal and grading policies.

- CodePath will provide the professor of record with all grades and student data from the course.
- The final grade given to a student at their college is decided by the professor of record for the course and is independent of the final grade determined by CodePath.

**Reporting**

**Grade Book**

CodePath will maintain a grade book for the course visible only to relevant CodePath staff and the professor of record for the given college.
The delivery methods and frequency of student grade reports will be determined by the professor of record and may include direct reports from CodePath or internal college platforms like Blackboard, Canvas, etc.

**Student Privacy**

CodePath adheres to best practices and complies with all regulations regarding student information and data privacy as outlined by FERPA.

- Private student information and assessment data will only be shared with relevant team members within the CodePath organization and the professor of record for the participating college.
- Students who wish to have their data shared with any 3rd parties must grant CodePath explicit consent of such data sharing.
- Public facing leaderboards, such as Cybersecurity Capture the Flag Competitions, will use aliases and not contain student identifiable information.

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**Coursework Overview**

Coursework for CodePath courses includes a mix of weekly labs, assignments and a final group project.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Coursework</th>
<th>Content Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>Prework:</strong> Tip Calculator</td>
<td>Course Orientation (Prework at for-credit sites)</td>
</tr>
</tbody>
</table>
| 1    | **Lab:** Tumblr Photo App - Feed  
**Assignment:** Flix Part 1 | • Networking Part 1  
• Table Views |
<table>
<thead>
<tr>
<th>Unit</th>
<th>Coursework</th>
<th>Content Description</th>
</tr>
</thead>
</table>
| 2    | Lab: Tumblr App - Detail  
**Assignment:** Flix Part 2 | • Navigation  
• Passing Data |
|      |            |                     |
| 3    | **Lab:** Flix App - Auto Layout  
**Assignment:** Twitter Part 1 | • Auto Layout  
• Search & Filter |
|      |            |                     |
| 4    | **Lab:** Parse Chat App  
**Assignment:** Twitter Part 2 | • Opensource Parse Backend  
• Capturing Images |
|      |            |                     |
| 5    | **Lab:** Flix - MVC  
**Assignment:** Instagram Part 1 | • MVC  
• Authentication |
|      |            |                     |
| 6    | **Lab:** PhotoMap App  
**Assignment:** Instagram Part 2 | • Networking Part 2  
• Device Frameworks |
|      |            |                     |
| 7    | **Group Project - Design:**  
• Brainstorming, Group Formation |                     |
<p>| | | |
|      |            |                     |
| 8    | <strong>Group Project - Design:</strong> User Stories |                     |
|      |            |                     |
| 9    | <strong>Group Project - Design:</strong> Wireframes &amp; Data Schema |                     |
|      |            |                     |
| 10   | <strong>Group Project - Develop:</strong> MVP Sprint 1 |                     |
|      |            |                     |
| 11   | <strong>Group Project - Develop:</strong> MVP Sprint 2 |                     |</p>
<table>
<thead>
<tr>
<th>Unit</th>
<th>Coursework</th>
<th>Content Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td><strong>Group Project - Develop:</strong> MVP Sprint 3</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td><strong>Group Project - Develop:</strong> Polish Sprint 1</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td><strong>Group Project:</strong> Demo Day!!! □</td>
<td>• Vote for Best App Categories</td>
</tr>
</tbody>
</table>

**Course Structure**

This course teaches iOS development in a project-based format over a 15-week period. Each week builds on the skills and knowledge from the previous week:

- **Weekly App Assignment.** A new mobile app is assigned to each student as an individual project.
- **Code Review.** We will briefly review each app and provide feedback on code.
- **Labs.** Students will practice pair-programming while working on app projects during class sessions once a week.
- **Online Support.** Students can post questions and get support through our Discussions System.
- **Github Based Online Learning Portal.** Students will have access to a custom learning portal with videos, code samples, and comprehensive documentation library.
- **In-Person Class Sessions:** Students meet in person twice a week in 2 hour sessions to complete labs, work on weekly assignment project apps and design and implement their final group project. Note: Session frequency and time may vary by college.
- **Assignments:** Each week, we will be building an iOS app that helps us reinforce and apply the concepts we introduce within the course. Expect the weekly apps to take
anywhere from 5-10+ hours to complete each week outside of class. These projects will range from a basic movie reviews app to a full-featured Twitter Client.

- **Group Project:** In addition to the apps assigned each week, we will also have a collaborative course-wide project. The class will be broken up into groups of 3 students each, and every group will select a larger project to scope, design and build over the course of the class. At the end of the course, we will do a *demo day* showcasing all of these projects. Read more about the [course-wide group project](#).

**Assignments**

Students will build three fully functional app projects over the first 6 weeks of the course. Each app project spans 2 weeks and is broken up into 2 parts, resulting in an app assignment deliverable each week. Weekly app assignments typically require anywhere from 5-10 hours outside of class session times to complete. Weekly app assignments are due by their posted deadlines.

**Flix:**

A read-only movie browsing app similar to Rotten Tomatoes

**Twitter Client:**

A read-write twitter client that allows users to view and compose tweets using the Twitter API

**Instagram:**
A read-write Instagram-style app built from the ground up using a custom configured backend

Labs

In the weekly labs, students build apps to practice and reinforce key concepts for the week. Students will collaborate using a Pair Programming approach. Other lab activities will focus on specific skills like debugging and source control.

- **Lab Apps:**
  - Tumblr: A Tumblr Client that allows users to browse photos using the Tumblr API.
  - Flix AutoLayout: An extension of the Flix app which uses AutoLayout to adapt to various device sizes and orientations.
  - Flix MVC: A re-factor of the Flix codebase to utilize a Model View Controller design pattern.
  - ParseChat: A custom Chat App that uses Parse as a Back-end.
  - Canvas: A whimsical and playful app that allows users play with gestures.
  - Photo Map: An app that allows a user to tag photos with location and view all photos on a map.

- **Lab Activities:**
  - Debugging
  - Collaborative Work-flow

**Group Project App Milestones**
Over the second half of the course, students will be grouped into teams of three and begin work designing and developing an original group project app from the ground up.

- Students will be grouped into teams of 2-3 peers
- Students will have group milestone deliverables to complete each week
- Students will design and develop their own app from scratch
- Finishes with demo day showcasing their projects to each other and industry guests.

**Curriculum Breakdown**

**CodePath course curriculum share a common structure:**

- New mobile topics introduced each week building on the previous
- “Core” development topics introduced through workshops and exercises
- Individual mobile projects assigned to build over the first half of the course
- Group project with milestones to design and build over the second half of the course

**Topic Breakdown**

1. **Views and View Controllers**
   1. View controller lifecycle
   2. Using common views (buttons, labels, images)
   3. Using table views and collection views

2. **Auto Layout**
   1. Basic Auto Layout
   2. Auto Layout and table views

3. **Navigation**
1. Modal and push navigation
2. Tab bar controllers
3. Passing data between view controllers

4. **Animation and Gestures**
   1. View animation
   2. Using gesture recognizers

5. **Networking**
   1. Sending network requests
   2. Downloading and caching remote images
   3. Using Parse as a back-end

**Support Channels**

1. Get support from professionals, TAs and other students by posting technical questions to our **Discussions Forum**.
2. Check out our FAQ at [support.codepath.org](http://support.codepath.org)

**Incomplete:**

An "Incomplete" may be given to a student who has maintained satisfactory attendance and work throughout most of a course, including Independent Study, but due to extraordinary circumstances is unable to complete the required work by the end of the semester/session in which the course was taken. See the College Catalog below (p.56) [https://www.ndnu.edu/documents/university-catalog-2018-2019.pdf#page=73](https://www.ndnu.edu/documents/university-catalog-2018-2019.pdf#page=73)

**Average Student Workload Expectations:** Class time consists of 45 hours and students are expected to attend. Students are expected to engage in approximately 95 hours of out-of-class homework over the fifteen weeks, or approximately seven hours per week. Course assignments are made in accordance with this expectation.
<table>
<thead>
<tr>
<th>Workload Distribution:</th>
<th>Hours in Class:</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Written Assignments</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Project Presentation Preparation</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

**Student Success Center** 650-508-3696

The Student Success Center (SSC), located in the Campus Center, is dedicated to supporting students’ academic success at NDNU. The SSC provides writing and subject tutoring, test proctoring for students with accommodations, facilitates the math placement test (MPT), and is open for students from 8:00 a.m. – 10:00 p.m. with business hours from 9:00 a.m. – 5:00 p.m. For more information, see: [https://www.ndnu.edu/academics/student-success-center/](https://www.ndnu.edu/academics/student-success-center/)

The goal of the Student Success Center is to promote student learning and academic innovation. Professional staff members, peer tutors, academic advisors, and faculty work together to promote a supportive educational environment. Writing and subject tutoring schedules are forwarded directly to students’ NDNU e-mails and are included in the Student Weekly Update circulated by NDNU’s Communications Department.

Writing labs are offered in lower and upper division English courses. Writing tutoring is available on a drop-in basis and virtual writing tutoring is by appointment for our off-campus sites. Basic English language assistance is provided to international students who may need support writing papers or with general English. A writing lab dedicated to both APA and MLA writing styles is also offered. Math, computer science, and the sciences subject tutoring are led by peer tutors and a professional math tutor. Subjects, schedules, and tutor details are available at the Student Success Center.

**Disability Resource Center**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Students with disabilities, whether physical, learning, or psychological, who believe that they may need accommodations in this class are encouraged to contact the Disability Resource Center as soon as possible to ensure that such accommodations are implemented in a timely fashion. Please meet with the DRC staff to verify your eligibility for any classroom accommodations and for academic assistance related to your disability. Accommodations are not provided retroactively. The Disability Resource Center is located at St Joseph Hall, 117. Please contact the DRC by email at DRC@ndnu.edu or by phone at 650-508-3670.

**Counseling Services** (650) 508-3714  Counselingservices@ndnu.edu  New Hall E18 / E19

The mission of Counseling Services is to promote and enhance the overall wellbeing of students so that they may reach their potential for personal growth and academic success. Counseling Services is open Monday-Friday from 9am to 5pm, and currently enrolled students are welcome to call, email or drop-by to schedule an appointment.

**Course Evaluations/Teaching Effectiveness Surveys: Term 2 and Full-Semester**
Spring 2020 Full-semester and Term 2 courses
Teaching Effectiveness Surveys (course evaluations) will be available online through Campus Portal from April 27 – May 15, 2020. Your feedback regarding courses and faculty is very important to Notre Dame de Namur University, to your faculty, and to me as the instructor for this course. Your feedback helps us review and improve their teaching, helps departments/programs review and improve program content, and is used by the university in making decisions about tenure, promotion, and hiring decisions for part-time faculty.

Directions: To access, please enable pop-ups in your browser (uncheck pop-up blocker), then in Campus Portal look for the "You have an active survey" link in the left sidebar. Click that link to open the Course Evaluation Surveys page, which has a link to a survey for each course in which you're enrolled. Your feedback is very important! Please complete your evaluations for all your courses promptly. Remember: Your responses are anonymous.

Academic Honesty
NDNU’s core values include learning, integrity, and honesty, values we live out in all areas of our learning community. Academic honesty means you are able to demonstrate your own knowledge and skills and receive feedback on your learning that can help you improve. By taking responsibility for your own work and avoiding actions that could give you an unfair advantage over others, you are contributing to the NDNU learning community and developing professional skills and values that will serve you well into the future. Academic honesty is one of the most important values of a university community, and breaches of this trust have serious consequences. Please see the Student Handbook for a detailed discussion of Academic Conduct expectations.

Key Academic Calendar Dates
• Monday, January 20 – Martin Luther King Day
• Drop Deadline: Tuesday, January 26
• Thursday, February 6: Professional Development Day
  • no classes before 3:00pm
• February 26 – March 3 – Midterm
  • March 9 – 13 Spring Break
• Friday, March 4 – Midterm and Term 1 grades due
• May 1 – May 6 Finals
• Final Grades Due Friday, May 15