NASSAU COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE/INFORMATION TECHNOLOGY

Course Syllabus for

CSC 240
Mobile Application Development

Course Information

Title:	Mobile Application Development
Credit Hours:	3 Credits
Number:	CSC 240
Section:	AA1
CRN:	47309
Semester:	Spring 2020
Meeting Times:	Monday and Wednesday 5:30-6:50pm
Location:	B223

Instructor/Contact Information

Name:	Darci Burdge
Office Location:	B3047
Office Hours:	Tuesday 1:00-2:15pm and Thursday 10:00-11:15am or by appointment
Office Telephone:	572-7383 ext 26826
Email Address:	Darci.Burdge@ncc.edu
Website:	http://matcmp.ncc.edu/~burdged/

Blackboard and Student Email Link: https://myncc.ncc.edu/

Course Description

This course introduces students to the emerging field of mobile device software development. Capitalizing upon their prior experience in general-purpose object-oriented program development, students will learn how to write and test programs for handheld devices. Students will learn about the hardware limitations of handheld devices and how to optimize performance for them. Laboratory fee applies.

Course Prerequisite

Prerequisites: At least a C in CSC 130 or permission of the Department.

Course Attribute

This course is designated as an Applied Learning Practicum.

Applied learning is an educational approach where students learn by engaging in direct application of skills. Students apply knowledge and skills gained from traditional classroom learning to hands-on and/or real-world settings. The practicum approach is the application and practice of technical concepts and skills relevant to a profession.

Detailed Topics Outline

Topic	Subtopic	Approximate Classes (75 minute classes)
Understanding the Android development environment	- Files that make up the application (Manifest file, resource files, activity files, etc.) - Application components (activities, intents, resources, services, content providers, ...) - XML - Using Android Studio - Tablet setup	3
Creating the user interface	- Screen Layouts - View and ViewGroup objects - Creating controls, menus, and dialogs - Action bar - Standard UI development guidelines	4
Resources for Android developers	- Using the Android developer site and other online resources - Using standard development guidelines	1
Event handling	- Handling UI events - Event Listeners/Handlers - Input - Defining Activities - Apps with Multiple Activities	4
Lifecycle and saving activity state	- The activity lifecycle and callback methods - Saving and restoring the state of the activity on a rotation	2
Database	- Creating a dSQLite Database - Querying a SQLite Database - Displaying the records in a database in a list view	4
Mobile specific and web technologies	- Introduction to Google Play services, Google maps - Restful APIs and JSON	4
Open Source Mobile Apps	- Intro to HFOSS - Communication Tools - Project Management - Contributing to an HFOSS project	8
Total		30

Learning Outcomes and Objectives

To provide the student with an overview of the key concepts related to the development of applications for mobile Android devices. Emphasis is placed on fostering the student's ability to develop new knowledge by reading current technical websites and applying this new knowledge in their applications and sharing it with their peers.

Specific Learning Goals & Outcomes

1. App Creation
Students should be have a general overview of the field of Mobile Application Development and be able to create simple apps.

Learning Outcome

1.1 Components of mobile applications
After successfully completing this course, students will understand the necessary components of a mobile application (interface, activity, event handling). Students will be able to modify an existing mobile application to include additional functionality and additional user interactions.

2. Life-long learning
Students should be able to demonstrate that they can research a topic not covered in class and explain it to the class.

Learning Outcome

2.1 Research a topic relevant to mobile applications
After successfully completing the course, students will understand the need to do research in a rapidly changing area. They will gain experience in communicating the knowledge acquired through research and practice presentation and communication skills. Students will be able to research a current topic in mobile application development and present their findings to their classmates at an appropriate level. Examples include, but are not limited to: Web services, accelerometer, accessing Contacts, accessing the clock, phone services, messaging, accessing /modifying the calendar.

3. Writing Code
Students should be able to write syntactically correct code in the language specified.

Learning Outcome

3.1 Using APIs
After successfully completing the course, students will better understand the application development process (from design to implementation). Students will hone these skills by developing multiple mobile applications.

Additional Objectives
   a) Students will be able to write and modify XML interfaces using a variety of layouts.
   b) Students will use the callback methods in the app life cycle to store and restore the app's state.
   c) Students will be able to create a simple database and store, query and retrieve data from it.
   d) Students will gain experience in reading technical websites and learning about cutting-edge topics.

e) Students will gain experience in writing about technical topics and presenting to their classmates.

f) Students will apply their knowledge of Android programming as they learn how to contribute to a humanitarian open source project.

Instructional Methods

This course is taught using a variety of instructional methods including lecture, discussion and small group work. Students will have access to Android tablets which they can use for app development and testing.

Textbook and Materials

- Android Developer Website: http://developer.android.com/
- Additional websites:
  - https://developers.google.com/android/
  - http://stackoverflow.com/questions/tagged/android
  - http://www.vogella.com/articles/Android/article.html

Student Responsibilities /Course Policies

- Attendance

  Attendance is a critical aspect of this course. As such, attendance will be taken every day at the beginning of class. Students are responsible for all material missed due to absence and should contact me or another student prior to the next scheduled class meeting to determine what was covered and/or assigned. Any student that is absent on the day an assignment is due is still responsible for submitting the assignment electronically by the specified deadline.

- Withdrawal Policy

  I will grant a grade of "W" any time through March 27th. You must decide by March 27th whether you wish to withdraw from this class. It is the student's responsibility to file a signed, drop/add form with the registrar if you wish to withdraw from this class. If a student stops attending and does not file an official withdrawal form, a grade of "UW" (Unofficial Withdrawal) will be assigned. A grade of "UW" will count toward your GPA as an F. Consideration will be given to students who request a "W" after the withdrawal date.

College Policies

- Academic Dishonesty & Plagiarism

  Academic dishonesty, which includes plagiarism and cheating, will result in some form of disciplinary action that may lead to suspension or expulsion under the rules of the Student Code of Conduct. Cheating can take many forms including but not limited to copying from another student on an examination, using improper forms of assistance, or receiving unauthorized aid when preparing an independent item of work to be submitted for a grade, be it in written, verbal or electronic form. Anyone who assists or conspires to assist another in an act of plagiarism or any other form of academic dishonesty may also be subject to disciplinary action.

  Plagiarism is a particular type of academic dishonesty that involves taking the words, phrases or ideas of another person and presenting them as one's own. This can include using whole papers and paragraphs or even sentences or phrases. Plagiarized work may also involve statistics, lab assignments, art work, graphics, photographs, computer programs and other materials. The sources of plagiarized materials include but are not limited to books, magazines, encyclopedias or journals;

electronic retrieval sources such as materials on the Internet; other individuals; or paper writing services.

A student may be judged guilty of plagiarism if the student:

(a) Submits as one's own an assignment produced by another, in whole or in part.

(b) Submits the exact words of another, paraphrases the words of another or presents statistics, lab assignments, art work, graphics, photographs, computer programs and other materials without attributing the work to the source, suggesting that this work is the student's own.

Allegations of student plagiarism and academic dishonesty will be dealt with by the appropriate academic department personnel. It is the policy of Nassau Community College that, at the discretion of the faculty member, serious acts will be reported in writing to the Office of the Dean of Students, where such records will be kept for a period of five years beyond the student's last semester of attendance at the College. These records will remain internal to the College and will not be used in any evaluation made for an outside individual or agency unless there is a disciplinary action determined by a formal ruling under the Student Code of Conduct, in which case only those records pertaining to the disciplinary action may apply. A student whose alleged action is reported to the Office of the Dean of Students will be notified by that office and will have the right to submit a letter of denial or explanation. The Dean will use his/her discretion in determining whether the alleged violation(s) could warrant disciplinary action under the Student Code of Conduct. In that case the procedures governing the Code of Conduct will be initiated.

- Copyright Statement

  The Higher Education Opportunity Act of 2008 (HEOA) requires the College to address unauthorized distribution of copyrighted materials, including unauthorized peer-to-peer file sharing.

  Thus, the College strictly prohibits the users of its networks from engaging in unauthorized distribution of copyrighted materials, including unauthorized peer-to-peer file sharing. Anyone who engages in such illegal file sharing is violating the United States Copyright law, and may be subject to criminal and civil penalties. Under federal law, a person found to have infringed upon a copyrighted work may be liable for actual damages and lost profits attributable to the infringement, and statutory damages of up to $150,000. The copyright owner also has the right to permanently enjoin an infringer from further infringing activities, and the infringing copies and equipment used in the infringement can be impounded and destroyed. If a copyright owner elected to bring a civil lawsuit against the copyright infringer and ultimately prevailed in the claim, the infringer may also become liable to the copyright owner for their attorney's fees and court costs. Finally, criminal penalties may be assessed against the infringer and could include jail time, depending upon the severity of the violation.   Students should be aware that unauthorized or illegal use of College computers (such as engaging in illegal file sharing and distribution of copyrighted materials), is an infraction of the Student Code of Conduct and may subject them to disciplinary measures. To explore legal alternatives to unauthorized downloading, please consult the following website: http://www.educause.edu/legalcontent.

- Classroom Disruption Policy

  Faculty has a right and responsibility to maintain a proper learning environment in the classroom. As integral members of this partnership, students are expected to participate actively in the learning experience and must do so in an appropriate manner.

Disruptive conduct in the classroom that interferes with the instructor's performance of his/her professional functions or that undermines the integrity of student learning will not be tolerated. Disruptive conduct includes, but is not limited to:

- Students who routinely enter class late or depart early,
- Students who repeatedly talk in class without being called upon;
- Students who continually interrupt lectures;
- Students whose cell phones repeatedly ring and/or emit an audible sound during class or students who repeatedly text during class;
- Students who intimidate or harass a professor/classmate;
- Students who threaten a professor/classmate, participate in a physical display of anger, or verbally abuse a faculty member/classmate;
- Students whose classroom behavior otherwise violates the College's Student Code of
- Conduct and (or) Sexual Harassment and Sexual Violence Policy.

This negative behavior will incur faculty intervention and may result in disciplinary action. Additional information can be found at the following website:
https://collegecatalog.ncc.edu/current/policiesandprocedures/academic_info/classroom_disruption_policy.html

Americans with Disabilities Statement & Non-Discrimination Statement

If you have a physical, psychological, medical, or learning disability that may have an impact on your ability to carry out the assigned coursework, I urge you to contact the staff at the Center for Students with Disabilities (CSD), Building U, (516)572-7241, TTY (516)572-7617. The counselors at CSD will review your concerns and determine to what reasonable accommodations you are entitled as covered by the Americans with Disabilities Act and section 504 of the Rehabilitation Act of 1973. All information and documentation pertaining to personal disabilities will be kept confidential.

Campus Services

NCC offers many free resources and services to our students. For an overview the support and counseling services available please visit: https://www.ncc.edu/campusservices/counselingservices/

Food Insecurity

If you are having difficulty affording groceries or accessing sufficient food to eat every day or if you lack basic necessities and believe this may affect your performance in the course, I urge you to visit The NEST @ NCC Food Pantry in North Hall (N Bldg) Basement. **The NEST provides free groceries and personal care items to all NCC students and their families and can assist you in accessing other necessary resources**. The NEST is open 6 days a week. Hours can be found on the NCC Portal and posted on the door of the pantry. Please visit The NEST's website for further information: http://nestncc.weebly.com

Course Resources

- Web Sites
  Students will use email and Blackboard (an online course management tool) throughout this course. Students are expected to read their NCC email accounts daily and to check Blackboard for notification of assignments and to submit their work for grading. Both NCC email and Blackboard (via the NCC Online link) can be accessed from the portal - http://myncc.ncc.edu. Project management and communication tools will also be used.

- Computer Center Requirement

  As part of this course, students should avail themselves of further study and/or educational assistance available in the B225 Computer Learning Center. Use of the resources in the Computer Learning Center is deemed an integral part of the course and will help the student master necessary knowledge and skills. **NOTE: In order to use the Learning Center you must present a valid NCC identification card.**

Assessments and Grading Methods

- Final grades will be determined by the following percentages:
  - Online Quizzes – 15%
  - In-class Quizzes – 20%
  - Homework – 15%
  - Nest-Related Project Contributions
    - Projects & 5/15s – 30%
    - Stand ups – 10%
  - Preparation/Attendance/Engagement – 10%

- Reading Assignments

  Online reading assignments will be given to provide the student with recent technical information about Android development. These assignments will contain questions to help guide the student to pay attention to particular topics of importance.
- Online Quizzes

  There will be approximately 9 online quizzes. After completing each reading assignment students will take an online, timed quiz based upon the reading assignment and questions asked in the assignment.
- In-class Quizzes

  There will be approximately 5 in-class quizzes. Each quiz will assess the student's knowledge of the material covered in class and as homework. Make-up quizzes will not be given.
- Homework:

  Approximately 5 graded homework assignments will be given. These will include a combination of programming and non-programming assignments.
- Nest-Related Project Contribution:

  Students will work on a mobile app for NCC's Nest. Much of this work will be completed in teams outside of class. Teams will consist of 3-4 students and will be able to work asynchronously using various technologies. Specifics will be distributed at the appropriate time. Weekly progress reports (known as 5-15s) will be submitted and students will have to complete 3 in-class "stand-ups" where they describe what they have been working on.
- Preparation/Attendance/Engagement (PAE):

  To be successful in this class, you must actively engage with the material, prepare carefully and come to class excited to participate in the activities and discussions. PAE is assessed for each individual during each class period. Preparation includes completing reading, exercises and activities before class. Attendance is being on-time and in class. Engagement combines participation in activities and discussions and a demonstrated investment in the class.

  PAE scores will be assigned according to the rubric below. The standard score in each category, and what you should generally expect to receive, is a ✓. Something exceptionally notable is required to move either up to a ✓++ or down to a ✓-.

Score	Preparation	Attendance	Engagement
0	Did not complete the reading assignment/online quiz/homework needed to participate in class.	Did not attend class or was not present for significant portions of class.	Consistently inattentive, distracted, disconnected and/or demonstrating disinterest in the class/activities.
√-	Does not demonstrate sufficient familiarity with assigned materials.	Attended class but may have been late and/or left the room with unusual frequency or duration and/or left class early.	Frequent periods of distraction, inattention, or disinterest in the class/activities.
√	Demonstrates expected familiarity with the assigned materials.	Attended class, was moderately late, but present throughout the entire class.	Engagement in class/activities is consistent, helpful, on topic and at the expected level.
√+	Same as √	Same as √	Engagement in class/activities is consistent, helpful, and on topic. Engages in class discussion and/or team work in a way that enhances individual or team learning.
√++	Demonstrates exceptional insight and draws on assigned and other material to enhance the class in unique and creative ways.	Same as √	Engagement in class/activities is exceptional in a way that enhances the class for everyone.

Course Schedule and Important Dates

Week	Topic	Assignments
1-2	Android basics – file structure, xml, UI design, activities and resources; Event handling – listeners and onClick resource	Homework and quizzes as needed; Programming assignments as needed
3-4	Introduction to open source tools App bar – components, adding items/spinners, responding to events; Alert dialogs; Application life cycle – lifecycle callbacks	Homework and quizzes as needed; Programming assignments as needed
5-6	Application life cycle – saving and restoring state Multiple activities – creating, starting, sharing data between activities	Homework and quizzes as needed; Programming assignment as needed
7-8	Introduction to HFOSS; Working on an HFOSS project	Homework and quizzes as needed; Programming assignment as needed

9-11	REST APIs – connecting, querying, getting and parsing results in JSON format	Homework and quizzes as needed; Contributions to a humanitarian open source project
12-14	Databases – relational databases, creating, updating, querying, and deleting tables Complex database queries; Additional topics needed for the HFOSS project; Google maps – creating map app, connecting to Google Play Services, manipulating the map	Homework and quizzes as needed; Contributions to a humanitarian open source project

- Important Dates for the Spring 2020 Semester:
  - Monday, February 17 – Thursday, February 20 – evening classes do not meet
  - Monday, April 6 – Thursday, April 9 – evening classes do not meet
  - Tuesday, May 12 – Evening classes end
  - Wednesday, May 13, Thursday, May 14, Monday, May 18 – Makeup Classes – if necessary, evening classes will meet on one or more of these days