*University of La Verne*

**COMPUTER SCIENCE & COMPUTER ENGINEERING PROGRAM**

**Central Campus, Spring 2020**

# CMPS 481 MOBILE APPLICATIONS DEVELOPMENT – CRN 1275

## COURSE INFORMATION:

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|---|---|
| **Units:** | 4.0 Credit Hours |
| **Pre-Req.:** | CMPS 378 or instructor's approval, not challengeable |
| **Schedule Types:** | Lecture/Seminar |
| **Requirements:** | Computer Science Elective |
| **Class Location:** | Founders Hall 206 |
| **Course Time:** | Lecture/Seminar: Tuesday 2:00 – 5:20 p.m. |

## INSTRUCTOR INFORMATION:



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| **Instructor:** | Prof. Jozef Goetz Ph.D. |
| **Office:** | Founders Hall 108 B |
| **E-mail:** | JGoetz@laverne.edu |
| **Phone:** | (909) 448-4663 |
| **Office Hours:** | F: 3:00 – 5:00 p.m. |



## COURSE DESCRIPTION:

Covers mobile application development, basic principles, concepts, and constructs of Android applications, controls and properties, application bars, navigation, and creation of mobile applications in addition to an introduction to Java. Course's app-driven approach teaches each new technology in the context of many fully coded and tested Android apps, complete with code walkthroughs and sample outputs.

This course is focused on mobile application development, with an emphasis on **device based programming** creating applications for Android platforms. Students will **learn** how to use Software Developer Kit tools for Android apps mobile development, which includes developing the life cycle, creating the project, programming the user interface, interfacing with services and debugging the application. With the Android platforms, students will **leverage** the **new functionality** and **user interface** to build **intuitive** and **interactive** mobile applications. According to the International Data Corporation (IDC) as of 2019, **Android had about 87%** of the global smartphone market share, compared to **13% for Apple**.

**Tools:** Android Studio, combined with the free Android Software Development Kit (SDK) and the free Java Development Kit (JDK) - provide all the software you'll need to create, run and debug Android apps, export them for distribution (e.g., upload them to Google Play™), NetBeans IDE.

**Topics include:** Java language and application, application architecture, Extensible Application Markup Language (XAML), basic principles, concepts, and constructs of Android phone applications, controls and properties, application bars, navigation, and creation of mobile applications.

## COURSE OBJECTIVES:

a. Specific outcomes of instruction:

1. Understand the **concept** of the Android platforms and develop applications using Java/Android programming language.
2. Learn the Java and Android Developer **Tools** such as **NetBeans IDE, Android Studio** and **Android emulators**.
3. **Architect**, **design**, **develop**, **debug**, and **deploy** phone applications.
4. Develop the **knowledge**, **skills**, and abilities necessary to architect and build Java and mobile applications on NetBeans, and Android platforms.

b. Student learning outcomes:

| Course Contributions | | Student Learning Outcomes for Internet Programming, Information Science, and Software Concentrations (SLOCS) |
|---|---|---|
| * | 1 | Ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. |
| * | 2 | Ability to design, implement, and evaluate a computing-based solution to |

| | | |
|---|---|---|
| | | meet a given set of computing requirements in the context of the program's discipline. |
| * | 3 | Ability to communicate effectively in a variety of professional context. |
| | 4 | Ability to recognize professional responsibilities and make informed judgment in computing practice based on legal and ethical principles. |
| | 5 | Ability to function effectively as a member or leader of a team engaged in activities appropriate to program's discipline. |
| * | 6 | Ability to apply computer science theory and software development fundamentals to produce computing-based solutions. |

📖 **REQUIRED TEXT:**

[1] Android How to Program with an Introduction to Java, 3/E by Paul Deitel; Harvey Deitel, Prentice Hall, 2017, ISBN-13: 978-0-13-444430-7, ISBN-10: 0-13-444430-2.

[2] Android Programming Concepts, 1/E by Trish Cornez, Richard Cornez, 2017; Jones & Bartlett Learning, ISBN-13: 9781284070705.

✍ **EVALUATION AND GRADING:**

There will be lab and project assignments, midterm and final exams. The course grade will be calculated as follows:

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|---|---|
| Lab, project assignments | 45% |
| Midterm | 25% |
| Project Presentation | 05% |
| Final project and exam | 25% |
| TOTAL | 100% |

Final course grades will be assigned as follows:

| | | |
|---|---|---|
| 94 – 100 = **A** | 90 – 93 = **A-** | 87 – 89 = **B+** |
| 84 – 86 = **B** | 80 – 83 = **B-** | 77 – 79 = **C+** |
| 74 – 76 = **C** | 70 – 73 = **C-** | 67 – 69 = **D+** |
| 64 – 66 = **D** | 0 - 63 = **F** | |

✍**NATURE OF ACTIVITES IN THE CLASS:**

**1**. ☝ **Time spend outside of class:**

In order to gain genuine knowledge and skills you should know that for every **one credit hour** in which you enroll, you need to spend **approximately two** to **three hours** outside of class **studying** and **working** on **assignments** for the course. So, students should plan to work **at least 6 - 12 hours** per week outside of class.

**2**. ☺**Collaboration:**

One of the goals **of studying at the university is to learn how to learn. Learning is a long life process. One of the** computer-science educational methods is an **Extreme Learning** method. Extreme Learning integrates **problem-based learning, pairing learning, collaborative learning** practices to help students gain more hands-on experience and in-depth knowledge on specific topics. **Collaborative** learning in pairs allows **students to open interaction, educate each other** and **share ideas, knowledge and experience.**

**Guidelines:**

a. You should use the **Extreme Learning** method **by giving each other technical support**, help understand the assignment and brainstorm general solution but each student must submit **your own detailed project solution.**
b. Each member of the group project should be able to explain any part of the submission, and **not just be able to explain "his or her" part.**

**3**. 🔔 ☝**Attendance and Participation:**

Required and verified. Attendance and class participation are extremely important in this course. You should **notify the**

**instructor in advance of your absence** from the scheduled course meeting. **It is essential** that you **attend all lectures and labs to succeed in the course.** Regardless of excuse, absences in excess of **three week classes** will result in the automatic exclusion of the student from that class and you will receive a **grade of F.** If you are absent from class, it is your responsibility *to make-up* any missed classes and check on announcements made while you were absent.

**4**. 🔔 **Timeliness:**

You are expected to be in your seat and ready to begin class promptly at the start of each class. **Don't leave the class before class ends.** When students do that, it **negatively affects** the **whole class.** It is **distracting** and **rude, and sends a message** that the **material is easy, which is not true.** Schedule your day such that you may manage contingencies (such traffic, doctor appointments, etc.) when they occur. The instructor maintains the discretion to mark you absent for all or part of the class in the event you fail to be timely and prompt.

**5**. ☺ **Class Contribution:**

**Class Contribution** in the form of presentation your final project, **comments** that relate to material in the text and **answering a question** asked by the professor or another student counts for **extra points** of your grade in this course.

**6**. ✍**Lab, home and project assignments**:

Several lab and project assignments will be given over the course of the semester. An electronic version of the project assignments can be downloaded from the course's Web site. All assignments will be graded on a scale from 0 to 2 after presenting the assignments to the instructor. Expect one to two quick questions to show your understanding. You will receive a **score of zero** if **falsified input/output** that doesn't much the source code or submissions that are plagiarized or that violate the collaboration guidelines.

You will need to turn in your projects according to the description found in 1_Project Submittals.doc at **http://classes.jgspectrum.com/classes/481_S20/Guidelines/.** Please do not attempt to **turn in any lab assignment by email. No credit will be given for such work.** Each assignment will be submitted in a **clear plastic binder** with a firm **attached** USB flash drive to the binder. This USB drive should contain only all documents and executable file for the current assignment.

You must turn in:

1. A diagram or flowchart if you are asked – see **DiagramExamples.doc.**
2. A well-commented source code with a hard copy.
3. A sample of the screenshots of **input** and **output data** for the executing program. A sample is at least **four (4) sets of sample inputs (test cases) and results** including **boundaries** (using the extremes of the input domain, e.g. maximum, minimum, just inside/outside boundaries**)** and **each branch** of each control structure (code coverage)**.**
4. A printout of all source code and results. Save all to the USB drive.
5. You will receive a **score of zero** if **falsified input/output** that doesn't much the source code or submissions that are plagiarized or that violate the collaboration guidelines.

You will need to **create** and submit the **final** project proposal. At the end of the semester you will present your final project to the class.

**7.** ☻ **Make-up and late assignments**.

**No credit** will be given for assignments turned in after the due day specified in Assignment.doc. Assignments MUST be submitted **before class begins** on the due date**. No-makeup assignments are allowed. Do not get left behind**. Unless extraordinary circumstances can be documented, no assignments will be accepted after the beginning of class on the day the assignment is due. **No assignments will be accepted after they have been handed back or reviewed in class.**

**8**. 🚫**Midterm and Final Exams:**

There will be two exams to complete the course work and obtain a grade for the course. **There will be no make-ups for the midterm and final examinations**. If you are absent from a **midterm** and have a **valid excuse**—an illness, a death in your family, injury or another equally compelling reason—the weight of your final will be increased by the weight of the midterm. You must provide **adequate** and **verifiable** documentation. Without a valid excuse, you will receive a **zero score for** the **midterm** and the final's weight will remain unchanged. A missed **final** will be dealt with according to University regulations on incompletes and withdrawals. Midterm and final **exams** will cover specified chapters (see schedule for dates and coverage).

**9. 🗁Course material:**

All handouts, my syllabus, guidelines, lecture notes, links and assignments will be posted at http://classes.jgspectrum.com/. You will see a folder labeled 481, and you will find all **CMPS 481** documents there. You may copy them to your computer.

**10. ♫Email Policy:**

I usually reply to emails that require a fast answer within 24-36 hours on weekdays. I will not reply to email messages that are unclear or disrespectful. Please include your **class name** and **section** in the **subject** field and a **salutation** (e.g. Dear Professor Goetz), so that it is clear that the message is not junk mail and deleted. **Students must check their e-mail messages on a daily basis. I will only use your Laverne e-mail address.**

**11. Others:**

***Electronic Devices:***

**You need to get into mood of thinking and studying, not into a mood of texting or checking your email.** So, b*efore class begins*, **turn off cell phones**. The **cell phone vibrating** or a **student texting** can be **very distracting to those around the student,** including **the faculty.** Please don't use **cell phones, e-mails, keyboards, browsers** etc. **during lectures** unless the instructor asks you. **Desktops** and **laptops** are to be **used only** for the purpose of lab exercises and taking notes. No recording devices are allowed.

> **Note:** Students **who use their mobile phones** during class lectures tend to write down less information, **recall less information**, and **perform worse** on a multiple-choice test than those students who abstain from using their mobile phones during class (p.251). Reference: Kuznekoff. J. H. and Titsworth, S. (2013). The impact of mobile phone usage on student learning. *Communication Education, 62*(3), 233-252.

**No clicking keyboard while lecturing**. **Please don't leave the class meeting during lectures.** All the above activities are **very disruptive** to others in class.

**Requirements:**

Every time students should **bring a USB flash drive** to class. Please note that absolutely **all of your work must be saved on your USB drive after each class.**

**Patience** and **attention** to detail are important to succeed in Apps Development.

**12. 🕑 Tentative schedule (subject to change):**

| Date | Week No. | Topic | Reading Chapter |
|---|---|---|---|
| **Feb 4** | **1** | Syllabus. Introduction to Java Applications<br>Lab Exercises | **[1]A** |
| **Feb 11** | **2** | Introduction to Classes, Objects, Methods and Strings<br>Lab Exercises | **[1]B** |
| **Feb 18** | **3** | Control Statements<br>Lab Exercises | **[1]C** |
| **Feb 25** | **4** | Methods: A Deeper Look<br>Lab Exercises | **[1]D** |
| **March 3** | **5** | Arrays and ArrayLists<br>Lab Exercises | **[1]E** |
| **March 10** | **6** | Classes and Objects: A deeper Look<br>Lab Exercises | **[1]F** |
| **03/17** | | **Spring Break** | |
| **March 24** | **7** | Object-Oriented Programming: Inheritance and Polymorphism<br>Lab Exercises | **[1]G** |
| **March 31** | **8** | **Midterm** | **above chapters** |
| **April 7** | **9** | Introduction to Android<br>Lab Exercises | **[2] 1** |

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|---|---|---|---|
| **April 14** | **10** | Building User Interfaces and Basic Applications<br>Lab Exercises | **[2] 2** |
| **April 21** | **11** | Activities and Intents<br>Lab Exercises | **[2] 3** |
| **April 28** | **12** | Fragments, ActionBar, and Menus<br>Lab Exercises | **[2] 4** |
| **May 5** | **13** | Graphics, Drawing, and Audio<br>Lab Exercises | **[2] 5** |
| **May 12** | **14** | Threads, Handlers, and Programmatic Movement.<br>Lab Exercises | **[2] 6** |
| **May 19** | **15** | Threads, Handlers, and Programmatic Movement<br>Project presentations | **[2] 6** |
| **May 26** | **16** | **Final: Tuesday 12:45 pm – 3:25 pm** | **above chapters** |

13. PLAGIARISM POLICY:

Students are encouraged to collaborate, discuss and debate course concepts. It is all right to ask someone else about how to solve a problem, but **it is not all right to copy somebody's code or give a code**. Any cases of someone **turning in work that is not originally theirs** will be dealt with by **assigning zeros to both parties involved.** Each student is responsible for performing academic tasks in such a way that honesty is not in question**.**

There is a "zero tolerance" approach to academic dishonesty. Appropriate disciplinary action may include, but is not limited to **giving student an F** on the assignment/project/quiz/exam and/or in the course and/or recommending expulsion. The dean may place on probation, suspend, or expel any student who violates the academic honesty policy. (See ULV catalog for details).

14. SOCIAL JUSTICE AT LA VERNE:

The Social Justice Incident Report Form is available to any University of La Verne community member wishing to report an incident of social injustice or discrimination (these may be acts that promote hate, fear, intimidation, unfair treatment, or oppression against an individual or a group). **Please note that reports can be submitted anonymously. Prior to submitting a social justice form, consider if the reason is academic (classroom related) or something beyond that as all classroom related issues should be taken up with the Chair of the Department.** The social justice incident/issue may be a non-emergency or emergency incident and can be reported to an agency (e.g. 911, La Verne Police Department, or University of La Verne Campus Safety Office). More information and the online reporting forms can be found on the web page of the Office of Diversity and Inclusivity or using the link below:
https://cm.maxient.com/reportingform.php?UnivofLaVerne&layout_id=25.

Registration in this course **and acceptance** of this **syllabus** constitutes acknowledgement by **holder that s/he has read** and **agrees** to the p**rovisions** of the **foregoing** agreement between student and professor.