University of La Verne

COMPUTER SCIENCE & COMPUTER ENGINEERING PROGRAM

Central Campus, Spring 2022

CMPS 481 MOBILE APPLICATIONS DEVELOPMENT – CRN 1523

COURSE INFORMATION:

Units:	4.0 Credit Hours
Pre-Req.:	CMPS 378 or instructor's approval, not challengeable
Schedule Types:	Lecture/Seminar
Requirements:	**Core** Requirements for the Engineering of E-commerce concentration Computer Science Elective
Class Location:	Synchronous Zoom online meetings
Course Time:	Lecture/Seminar: Tuesdays 6:00 – 9:20 p.m.

INSTRUCTOR INFORMATION:

Instructor:	Prof. Jozef Goetz Ph.D.
Office:	Zoom
E-mail:	JGoetz@laverne.edu
Phone:	(909) 448-4663
Office Hours:	M: 4:30 – 6:30 p.m. on Zoom/WebEx by appointment at https://ulvadvising.as.me/jgoetz.

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 October 2021, **Android has about 84.1%** of the global smartphone market share, compared to **15% for Apple**.

Tools: NetBeans IDE, 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™).

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

b. Outcomes addressed by the course:

Course Contribution	Student Learning Outcomes
	1. Ability to **analyze** a complex computing problem and to **apply** principles of computing and other relevant disciplines to identify solutions (**AA**).
*	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 (**DIE**).
*	3. Ability to **communicate effectively** in a variety of professional context (**CE**).
	4. Ability to recognize professional responsibilities and make informed judgment in computing practice based on **legal** and **ethical** principles (**LE**).
	5. Ability to function effectively as a member or **leader** of a **team** engaged in activities appropriate to program's discipline (**LT**).
*	6. Ability to **apply** computer science **theory** and software **development** fundamentals to produce computing-based solutions (**ATD**).
	7. Ability to apply **security principles** and practices to maintain operations in the presence of **risks** and **threats (SPRT)**.

🕮 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:

Lab, project assignments	**45%**
Midterm	**25%**
Project Presentation	**05%**
Final project / 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. You need to be aware that approximately **33.4%** of your learning will take place in class with the remaining **66.6%** at home.

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 website. All assignments will be graded on a scale from 0 to 2 or 20 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.

The assignments (**projects**) will require you to **design, code**, and **test** programs. 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_S22/Guidelines/.** Please do not attempt to **turn in any lab assignment by email. No credit will be given for such work.** Each project assignment will be posted on **OneDrive** under **481_Mobile_App_Development/S22_481/YourName/PROJ_ch# or ASS#**. The **PROJ_ch#** directory should contain only **project word document** and **project directory** with all source files for the current chapter project. The **PROJ_ch#** directory should contain only **project word document** and **project directory** with all files for the current chapter project.

You must turn in:

1. A flowchart, pseudocode or diagram 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. Screenshots of all source code and results.
5. You will receive a **score of zero** if **falsified input/output** that doesn't match the source code or submissions that are plagiarized or that violate the collaboration guidelines.

Class and **project assignments** are the **key** to your **success**. Don't expect to learn or have a good grade if you miss classes and/or home assignments. You will **build** your **knowledge** and **skills based** on the **previous classes** and **project assignments**. You will need to **create** and submit the **final** project of your choice. At the end of the semester you will present your final project to the class.

If the program is **not** fully functional, please include a **readme.txt** file that describes what does not work. All documents must be submitted along with **sample input** and **output data**. Your work must be **saved** on OneDrive (an individual link will be emailed by your professor). You should be **ready to show** project solution to your **professor** at the very **beginning** of class**.** Please check the **Assignment.doc** every time for all assignment specifications. The **Assignment.doc** serves as a **staring point** to any assignment solution.

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.

9. 🗁**Course material:**

All handouts, my syllabus, guidelines, lecture notes, links and assignments will be posted at http://classes.jgspectrum.com/. Click the top menu item Classes you will see a folder labeled
CMPS 481: Mobile Apps Development 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. 🎤**ZOOM OR WEBEX ETIQUETTE & TIPS**

Online: This teaching modality expects students to be highly motivated and disciplined.

1. I ask you the **webcam** be continuously **on** for attendance purpose.
2. **Mute yourself** to avoid background noises that can disrupt the session, or to avoid embarrassing "hot mic" moments.
3. Identify the icon gesture to **"raise hand" digitally**. Don't assume you can unmute yourself to speak unless you have been given permission by the instructor verbally or in writing (in the syllabus).
4. **Speak only if prompted** or **appropriate**.
5. **Keep your focus on** the **camera and maintain eye contact on the screen** - this shows you are **attentive** and **engaged**.

6. **Limit facial expressions** that give away negative reactions.
7. ***Electronic Devices:***
   a. **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. **Your desktop/laptop** is to be **used only** for the purpose of lab exercises, taking notes and your **tablet/phone** for reading the textbook. **No recording devices** are allowed.
   b. **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.
8. **Classroom Behavior:**
   a. Everyone is expected to maintain a **courteous** and **respectful manner during lecture** or **student activities. Do not sleep, text, chat with your neighbors**, or work on assignments for other classes.
   b. **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. Students who do not demonstrate appropriate classroom behavior will be asked to leave and receive an absence.
   c. **Patience** and **attention** to detail are important to succeed in programming in Java/Android.
9. **Requirements:**
   a. Every time students should **save your work in CMPS 481 directory on your desktop/laptop** and to your cloud drive (Google drive or OneDrive or Dropbox) or your email in the case **your desktop/laptop crashes.**

Patience and **attention** to detail are important to succeed in Apps Development.
Good luck in your course!

12. 🕑 Tentative schedule (subject to change):

Date	Week No.	Topic	Reading Chapter
Feb 1	**1**	Syllabus review. Introduction to Java Applications Lab Exercises	**[1]A**
Feb 8	**2**	Introduction to Classes, Objects, Methods and Strings Lab Exercises	**[1]B**
Feb 15	**3**	Control Statements. Exception Handling. Lab Exercises	**[1]C, H**
Feb 22	**4**	Methods: A Deeper Look Lab Exercises	**[1]D**
March 1	**5**	Arrays and ArrayLists Lab Exercises	**[1]E**
March 8	**6**	Classes and Objects: A deeper Look Object-Oriented Programming: Inheritance Lab Exercises	**[1]F, G**
March 15	**7**	Object-Oriented Programming: Polymorphism GUI Components and Event Handling Lab Exercises	**[1]G, I**
March 22	**8**	**Midterm**	**above chapters**
03/28 - 04/03		**Spring Break**	

April 5	**9**	Introduction to Android Lab Exercises	**[2] 1**
April 12	**10**	Building User Interfaces and Basic Applications Lab Exercises	**[2] 2**
April 19	**11**	Activities and Intents Lab Exercises	**[2] 3**
April 26	**12**	Fragments, ActionBar, and Menus Lab Exercises	**[2] 4**
May 3	**13**	Graphics, Drawing, and Audio Lab Exercises	**[2] 5**
May 10	**14**	Graphics, Drawing, and Audio Lab Exercises	**[2] 5**
May 17	**15**	Threads, Handlers, and Programmatic Movement Project presentations	**[2] 6**
May 24	**16**	**Final: Tuesday 6:00 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.

15. ☝REMOTE COURSE PRIVACY:

It is an invasion of privacy and a violation of the course policies for anyone to **record and/or distribute** another class participant's photographs, videos, screenshot saves, or any other method for capturing an image or audio, moving or still, with or without sound, without the participant's written consent. This policy does not apply to the University's or professor's recording of the synchronous portion of the course.

16. ☝ INCLUSION:

The act of creating environments in which any individual or group can be and feel welcomed, respected, supported, and valued to fully participate and bring their full, authentic selves to work. An inclusive and welcoming climate embraces differences and offers respect in the words/actions/thoughts of all people.

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