

STEM Teach
IT-560-STEM-Mobile Computing
Valparaiso University
Winter/Spring 2021

Instructor: Saso Poposki, M.S.

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Class Time: **Online Asynchronous**

Office: Meier Hall 145-D **and Lab** MEH-130. (by appointment)

Course Credit: 3 credit hours

Term: January 25 – May 7, 2021

Description: This course provides experience creating applications in a mobile device environment for Android OS . Topics include the model, view, controller paradigm, user interaction, hardware device interaction, and common patterns of application behavior.

Textbook: No assigned textbook. Learning documents and all other materials will be available online and blackboard.

Technology: **Android Studio**. Free download from the following link:
<https://developer.android.com/studio/>

Audience: Anyone with an interest in programming for mobile devices.

Prerequisites: CS 157 or ECE 251 or IT-502 or consent of the instructor.

Course Goals:

- A. Students develop the ability to write apps for Android mobile device.
- B. Students learn to design apps that will grow and be modified by using the Model-View-Controller paradigm.
- C. Students will write apps that access a wide variety of a mobile device's components, including audio and picture files, phone calls, SMS, accelerometer, camera, and internet.
- D. Students will learn how to deploy their apps both personally and commercially.

Topical Objectives (with goals addressed). Students will be able to:

- 1. write apps that access each of the most important components of a mobile phone (A, C)

2. write apps that are easily usable in multiple languages (B)
3. develop at least one app for a purpose determined by the student (A, B, C)
4. design and modify apps that remain easy to debug and modify in the future (B,C)

Student Learning Objectives: *Information Technology Program*

1. To understand and practice methods of inquiry and strategies of interpretation within the student's field of study.
 - a. Students will master several programming environments.
 - b. Students will learn to identify and isolate problems.
2. To master the knowledge and skills pertinent to the student's field of study.
 - a. Students will acquire an extensive technological vocabulary.
 - b. Students will become comfortable with a wide range of technology environments.
3. As part of this course, students
 - a. Solve problems through algorithm development
 - b. Understand the basics of software design
 - c. Write, document, and debug programs for the implementation of algorithms
 - d. Implement algorithms in Java.
 - e. Understand basic computer logic and binary math
4. Upon successful completion of this course, students should be able to
 - a. Understand OO concepts: encapsulation, inheritance, polymorphism, interfaces, abstract classes
 - b. Use Unified Modeling Language for design, analysis, and documentation
 - c. Develop graphical user interfaces
 - d. Develop event-driven programs
 - e. Use file I/O and handle exceptions, design and implement OO programs
5. To effectively articulate the ideas, concepts, and methods through written and oral presentation.
 - a. Students will be taught how to make formal oral presentations and be required to give 6 such presentations during their program.
 - b. Students will write numerous thorough papers requiring extensive research. They will be required to use the services of the writing center.
6. To understand the connection between their knowledge and skills on one hand and their professional identity, responsibilities, and demands on the other.
 - a. Students will understand the implications of legal and professional regulations as they relate to information technology.
 - b. Students will study how technology can be made available to people that are traditionally less advantaged.
7. To integrate knowledge and methods of their study with cognates and other disciplines.
 - a. Students will learn techniques of modeling data from other disciplines.
 - b. Students will study human factors in IT.
8. To practice ethical and cultural sensitivity as it relates to professional and personal responsibility.
 - a. Students will examine a wide range of ethical issues related to technology and the potential side effects on people and the environment.
 - b. Students will explore the relationship between IT and ethnic and cultural diversity.

Grading:

Exam 1:	25%
Exam 2:	25%
Project:	25%
Assignments:	25%

Exams will involve the use of the computer. The project will be individually designed and implemented in stages. You will have time during class and lab to work on the project. Project criteria will be given to you later in the semester. Generally, 90-100 is an A, 80-90 is a B, etc. Minus and plus grades are assigned for final totals that fall near a boundary.

Honor Code:

You must adhere to and sign the University's Honor Code on all your work. Valparaiso University operates under a student initiated Honor Code. Each student studying at Valparaiso University agrees to conform to that Code. All new students should read the following explanation, since they must sign their registration form indicating that they will abide by the Honor Code. The Honor Code is an integral part of VU and permits students to do their academic work in an atmosphere of responsible freedom. The Honor Code is based on the highest principles of Christian ethics and morality and presumes every student is willing to maintain honesty in all academic work, as well as other phases of university living. Students are required to sign the pledge, indicating that they have submitted honest work and have not allowed the dishonesty of others to erode the integrity of the Honor System:

**I have neither given nor received
nor have I tolerated others' used of unauthorized aid.**

The Honor Code applies to all students registered for academic credit at Valparaiso University. Students have the responsibility for not using, giving, or tolerating unauthorized aid. When the definition of unauthorized aid is in question, students should ask the instructor to interpret the application of the Honor Code. In case of further doubt, students share the responsibility of clarifying the definition of unauthorized aid. Ignorance is not acceptable as a valid excuse for violations of the Honor Code. Students should report suspected violations to the Honor Council.

Accommodation Services

The Access & Accommodations Resource Center (AARC) is the campus office that works with students to provide access and accommodations in cases of diagnosed mental or emotional health issues, attentional or learning disabilities, vision or hearing limitations, chronic diseases, or allergies. You can contact the office at aarc@valpo.edu or (219)464-5206. Students who need, or think they may need, accommodations due to a diagnosis, or who think they have a diagnosis, are invited to contact AARC to arrange a confidential discussion with the AARC office. Further,

students who are registered with AARC are required to contact their professor(s) if they wish to exercise the accommodations outlined in their letter from the AARC.

Academic Support

To get help with this course, you can use the Academic Success Center (ASC) online directory (www.valpo.edu/academicsuccess) or contact the ASC (academic.success@valpo.edu) to help point you in the right direction for academic support resources for this course. Valpo's learning centers offer a variety of programs and services that provide group and individual learning assistance for many subject areas. These learning centers include:

- Graduate Tutoring Lab: Serves the academic needs of graduate students – tutors offer suggestions on organization of papers, assist in research and citations, and help in understanding difficult assignments. Additional one to one tutoring is also available.
- Writing Center: Primarily serves the needs of undergraduate students, but is also available for graduate students. Writing consultants provide proofreading and editing assistance for papers and assignments.
- Language Resource Center: Provides tutoring and other resources for language study as well as opportunities for authentic language use through conversation programs, enrichment activities and other exchanges.
- Academic Success Center: Provides referral service to help connect students with appropriate resources on campus to support their academic achievements.

Class Notifications and Other Announcements

Notifications and other announcements will be made through Blackboard with as much advance notice as possible. They will be posted in Blackboard and sent to your Valpo.edu email address.