

CPSC 333 Mobile App Development Syllabus

Fall 2023

Last Updated: 27 August 2023 (Note: syllabus subject to change, your instructor will make an announcement if changes occur)

Instructor information

Instructor	Email & Phone	Office location & hours
Daniel Olivares, PhD	olivares@gonzaga.edu 509-313-5753	BCISE 011 (& via Zoom upon request) Monday, Wednesday, Friday 11:00AM - 12:00PM Wednesday, Friday 8:30AM - 9:00AM

General information

Course Meetings Time & Location

Section 01: MWF 9:00am-9:50am - BCISE 003

Course Information

- Techniques of mobile application development. An introduction to mobile application programming.
- Credits: 3.00
- College: School of Engineering/Applied Science (SEAS)
- Department: Computer Science
- Prerequisites: CPSC 122

Description

This course provides an introduction to mobile application development. The primary aim of this course is to provide students with a thorough introduction to designing and building native and/or cross-platform apps for mobile devices. The platform, frameworks/libraries, and development tools used in this course vary and are dependent on the current demand in industry. Topics include object-oriented programming, design patterns, user interface design and implementation, data storage, working with application programming interfaces, threading, camera and photos, and location and maps.

Learning Objectives

By the end of this course, you should be able to

- Develop a solution using an industry-standard integrated development environment (IDE)
- Design and develop software using basic object-oriented (OO) programming techniques, including composition, inheritance, interfaces/protocols, and polymorphism
- Design and develop software using common design patterns, including Model-View-Controller (MVC)
- Develop a solution that uses a graphical user interface (GUI) framework and graphics packages
- Design and implement complex user interfaces with storyboarding
- Discuss modern frameworks and libraries for real-world mobile application development

Brief list of topics to be covered

- Languages and tools
 - Object-oriented programming and integrated development environments
- Git/Github for source code version control
- Object-oriented programming
- Common design patterns for event driven programming
 - Callbacks, target-action pairs
 - Adapters, delegation
 - Model-View-Controller
- Multi-screen apps, navigation, transitions, and app lifecycle methods
- User interface elements
 - Layouts and layout managers
 - Views and widgets
 - Lists/tables
 - Menus and toolbars
 - Etc.
- Camera and photo access
- Data storage and retrieval
- Working with APIs (application programming interface)
 - Connecting with cloud services
 - JSON parsing
- Threading and background tasks
- Location and maps with Google Services

Course Activities and Structure

Class Meetings. Class meetings will typically contain a mix of lectures, interactive examples, interactive group activities, and small and large group discussions. You are expected to read the assigned material **before class** (see the course calendar for participation deadlines), and you are required to bring your laptop to every class, as you will use it to engage actively in course activities. Note that, in some cases, a Wi-Fi enabled smart device (phone, tablet) may be used to submit in-class participation responses hence the requirement to bring your laptop to every class. Additionally, you will be expected to bring your laptop to class in order to take in-class exams. **Note that the classroom may have lab machines that you can use to complete class activities as well for instances when you are unable to use your personal laptop.**

In addition, in many class meetings, you will engage in **small group activities** in which you (a) work on small design scenarios/problems with your peers for feedback and discussion; or (b) work on small design and problem-solving tasks in teams, and then present your progress to the class for feedback and discussion. These activities will provide opportunities to practice concepts and methods being explored in the class.

Canvas is the online presence for this course. You can access it at <https://canvas.gonzaga.edu/> or through Zagweb. Once you log on to our course site, you can read course announcements, participate

in online discussions, send e-mail to course participants, access course materials, hand in course deliverables, review peers' work, and access your grades.

Course materials

Required materials

- A laptop adhering to GU SEAS requirements. Click [here](#) to learn more about the requirements.
- You are expected to bring your laptop to class regularly to complete and participate in in-class activities and assignments.

We will use smartphones and laptops throughout the semester to facilitate class activities. However, research and student feedback clearly show that using devices for non-class related activities harms not only your own learning, but other students' learning as well. Please use devices for classroom activities and note-taking only!

Required text

Mobile Application Development (a zyBooks book ISBN: 979-8-203-21999-2). This is an online interactive textbook. Access codes can be purchased at the ZagShop bookstore or follow these instructions to gain access to the book:

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: **GONZAGACPSC333OlivaresFall2023**
3. Subscribe

A subscription is \$64 and will last until **Jan 03, 2024**. Students will be able to subscribe until **Dec 06, 2024**.

Additional Notes:

- You are required to register with your official @zagmail.gonzaga.edu student email.
- Though access to the digital book is not indefinite, you may print (or download as PDF) the zyBooks contents during subscription time to maintain an offline, **non-interactive**, copy of the book.
- *If you have any difficulty with or questions about zyBooks usage, support is available at the zyBooks help desk:*
<https://zybooks.zendesk.com/hc/en-us/sections/360001556914-Students>

Course schedule

See Canvas for a detailed course schedule.

Exam schedule

Please see the course calendar for your midterm and final exam dates. The official finals period is:

- Section 01: Final Exam Period Wednesday, December 13..... 8:00 am to 10:00 am

Communication

We will use Canvas to communicate, submit assignments, and view grades. An invitation link should not be needed, you should automatically be enrolled in the Canvas course through your enrollment in my course via Zagweb.

*Note: Please use Canvas as the primary communication method for course-related messages. I will monitor email as well but using Canvas is the preferred communication method. This will increase your message visibility and reduce likelihood of emails getting flagged as spam or getting lost in transit. Further, **any course-related emails should be sent from your official zagmail.gonzaga.edu student email.***

Additionally, [Discord](#) (free to use) will be used to augment class communication and facilitate digital office hours—ask questions and discuss topics with other students in the class, TAs, and the instructor. Discord supports voice and text communication as well as screen sharing capabilities (see *Canvas for server invite URL*).

Finally, I will also be using Zoom to augment office hours and to teach remote lectures as necessary. You will find the Zoom URL details (lecture and office hours) on the Canvas home page for the course.

Office Hours

You are strongly encouraged to take advantage of office hours **and/or make an appointment** to meet with me if you have questions about the course material. I am more than happy to help you and office hours are a great way to get one-on-one help with the material. You are not “bothering” your instructor if you show up to office hours! Those hours are set aside explicitly for you to use.

As an alternative to face-to-face office hours, I will also make digital office hours via Zoom and/or the class Discord server available upon request in advance.

Course (and Digital) Classroom Etiquette

- Please respect the food and drinks policy in the classroom and use common sense (i.e., don't damage lab equipment!)
- Please be conscious of appropriate behavior and background while communicating via digital modes.

Grading

Your grade for the course will be based on the following items (weights are in parentheses):

- **Class Participation (10%).** Because this course depends heavily on in-class activities and teamwork, you are expected to attend class meetings and to participate actively. I understand that you may need to miss class occasionally for valid reasons. For this reason, your **three lowest class participation scores will be discarded—that is, you will receive three free attendance/participation credits.** Any discrepancies in participation need to be brought to my attention within a week of the posted grade.

In-class participation credit will be given based on submission of in-class activity artifacts (i.e. work done during class) via paper and/or Canvas assignment/quiz submissions. Note that you will need to be on a Wi-Fi enabled device connected to the Gonzaga Wi-Fi in order to access in-class participation assignments/quizzes for in-person lectures.

- **ZyBook Activities (10%).** This part of your grade will be for completing participation activities

in the zyBooks textbook. Completing **90%** or greater of the challenge activities for a chapter (by the due date) constitutes full credit for the chapter. Note that zyBook activities will be scored **all or nothing**. **Late completion of zyBook activities will not receive credit.**

→ **You are expected to read through each section of the course zyBook prior to the lecture the topic is covered.** It is highly recommended that you complete the participation activities for each topic *before the class* we talk about it. The intent is for you to have some minimal level of familiarity to better inform question asking and discussion activity during lectures and help you to actively engage in course activities.

→ With the last point in mind, **quizzes** on these topics will be held **prior to moving onto the next topic.**

→ **There will not be extensions or exceptions to the zyBook deadline policy** - 90% or greater of the challenge points for each section must be achieved by the submission deadline to receive credit. There *may* be an opportunity to replace two (2) incomplete zyBook scores towards the end of the semester but do not count on this!

- **Individual Assignments (20%).** Through a series of individual assignments, you will practice and demonstrate the key skills being taught in the course.
- **Exams (30%).** In lieu of traditional exams, there will be a series of smaller **in-class** quizzes and group challenges throughout the semester.
 - **Quizzes (10%).** Each quiz will cover the course topics from materials covered in the previous week(s). Quizzes will be in the following format: a digital quiz taken on Canvas. See IQs on the course calendar. These will focus on covering chapter material found in the ZyBook text.
 - **Group Challenges (20%).** In addition to the expected class participation activities, there will be a number of separately graded group challenge activities that take place during class as described in the section. Group challenges will be in the following format: a structured coding task requiring group collaboration and submission. See GCs on the course calendar.
- **Team Project (30%).** Teams of students will engage in a project. Students will be responsible for choosing, completing, and presenting a final project demonstrating the cumulative skills learned throughout the course.

Grading Scale

The following scale will be used to convert your course percentage into a grade.

94-100	A	77-79.99	C+
90-93.99	A-	73-76.99	C
87-89.99	B+	70-72.99	C-
83-86.99	B	67-69.99	D+
80-82.99	B-	60-66.99	D
		<60	F

Suggestions for Getting the Most out of this Course

- **Adopt a growth mindset.** On the first day of class, I introduced the concept of a “growth” vs. a “fixed” mindset, and [cited research](#) a legacy of research that demonstrates the positive impact

a “growth” mindset can have on learning and success. Revisit those slides and/or view [Carol Dweck’s Ted Talk](#) on the power of the growth mindset. The structure of this course, and my approach to teaching, aim to create a learning environment that promotes a growth mindset. By being aware of the concept and principles, you can positively contribute to that environment.

- **Attend class.** You can only benefit from this course if you show up! This is especially true of the group activities. Therefore, you are expected to attend every class session. In addition, I expect you to participate actively in class by asking questions, answering questions, and engaging in the collaborative design and problem-solving activities. Remember, part of your grade is based on attendance and participation (see above).
- **Put in enough time.** My rule of thumb is that students need to put in 3-4 hours of work outside of class for every hour they spend in class. This translates to roughly **6-8 hours per week**. You may need to put in only a fraction of 6 hours during some weeks, while you will find yourself putting in more than 6 hours during other weeks—especially during weeks in which pieces of your final design project are due.
- **Take initiative to get help.** You cannot get help if you do not ask for it! You can do this in two ways. First, I recommend that you find students in the course with whom to meet and discuss course material. Second, take the initiative to contact myself or other students if you begin to struggle. The sooner you ask for help, the better! Please do not wait until it is “too late” before asking for help.
- **Have reasonable expectations.** You get what you put into this course! Your success is dependent upon your own efforts (growth mindset!). If you take an active role in your own learning, you will excel in this course, and have fun doing so. If, in contrast, you expect to show up to lectures and your effort ends there you will likely not get much out of the course, and your grade will suffer.

Additional Policies

Please familiarize yourself with the following course policies. By following them, you will get the most out of this course, and you will not encounter any unwelcome surprises down the road.

- **Attendance:** The [Gonzaga attendance policy](#) on absences stipulates that the maximum allowable absence is two class hours (100 minutes) for each class credit. For three-credit classes, the maximum absence is, therefore, six class hours (300 minutes). Classes scheduled to meet for more than 50 minutes have more than one class hour for each meeting; for example, a class which meets for 75 minutes has one and one-half class hours for each scheduled meeting. Instructors may report absences to the Registrar’s Office, which will in turn notify the students. **The grade given for excessive absences is a “V,” which has the same effect as “F” (Fail) and is counted in the GPA.** This outcome can be appealed to the Dean of the College/School in which the course is offered.
What does this mean for you?
If you miss six (6) 50-minute class periods over the course of the semester you can be given a “V” grade which will appear on your transcript as an “F.”
- **Corresponding with the instructor via e-mail.** Please message me through Canvas; please only use direct e-mail if you are unable to access your Canvas account. This helps me keep course-related conversations together, will not accidentally be flagged as spam mail (yes, it does happen!), and will

ensure that I respond to your questions more promptly (i.e., It is not competing for my attention alongside the numerous other emails I receive!)

- **Accessing course materials.** Canvas is the online presence for this course. **Log in regularly (every day)** to view course announcements, view the course calendar schedule, access course materials, access your grades, and submit assignments. “I didn’t know assignment X was due at this date/time” is not an acceptable excuse! It is your responsibility to keep on top of course tasks.
- **Checking your grades.** To view your current grades, click on the Grades tab in Canvas. My goal is to have work graded within one week of the final deadline, but this may not always be possible. Please check your grades regularly to ensure that your grades have been entered properly, and please let your instructor or the TA know as soon as possible if you detect an error.
- **Challenging a grade.** If you believe that I have made a mistake in grading an assignment, you have **one week (from the time your grade is first posted to the gradebook)** to discuss the matter. Such discussions should take place through Canvas—never in class (see point above). Please discuss grading issues as soon as possible. Students have often attempted to bargain for points well after their grades have been posted—often near the end of the semester when they have realized that they needed more points to obtain a certain grade. Please do not attempt to do this!
- **Exams.** In general, I will not allow you to make up the exam unless you (a) have a legitimate excuse and (b) make other arrangements with me at least one week in advance of the exam. If you have a **genuine emergency** and you cannot give proper notice, I will accept make-up requests after the fact, provided that (a) they are in writing, with supporting, signed documents, and (b) they are submitted to me no later than 24 hours after the starting time of the exam you missed. I will review each case on an individual basis, and I will let you know if your request is granted no later than 24 hours after it is submitted. **Travel plans are not a valid excuse to miss an exam!**
- **Late policy for assignments.** **Deadline reminders are a courtesy, not a requirement. You are responsible to follow the course calendar and be aware of provided due dates!** Course assignments are due by the stated due dates and times. See each assignment on Canvas for their deadline and late policy. **Note that some assignments may be time sensitive and will not allow for late submissions.** In cases of illness and extenuating personal circumstances, you may request in writing that an exception be granted to this policy, but your request must be issued in a timely manner (preferably in advance of the due date), and there is no guarantee that it will be granted.
- **Academic integrity:** You are expected to follow the university policy on academic honesty. Academic honesty is expected of all Gonzaga University students. Academic dishonesty includes, but is not limited to cheating, plagiarism, and theft. Any student found guilty of academic dishonesty is subject to disciplinary action, which may include, but is not limited to, (1) a failing grade for the test or assignment in question, (2) a failing grade for the course, or (3) a recommendation for dismissal from the University. A complete copy of Gonzaga's Academic Honesty policy can be found at [course catalog](#).

Resources and Success for Well-being

Please take care of yourself and your fellow zags! Be aware of the student support resources that the University provides for you. Additional resources for student support are available at <https://www.gonzaga.edu/academics/Diversity/CampusClimate/campus-and-local-resources.asp>

- **Center for Cura Personalis.** The [Center for Cura Personalis](#) serves students in many ways including through proactive outreach and educational programs about healthy choices and

interventions for students who may be struggling.

- **Health and Counseling Services.** Health & Counseling Services functions as your private physician's office and counseling center. Health & Counseling Services is a confidential resource. To schedule an appointment, please call 509-313-4052.
- **University Ministry.** University Ministry's mission is to support members of the Gonzaga community in their spiritual growth and development, empowering them to live out God's love in the world. Contact: University Ministry, Hemmingson Center 104, x4242 or umin@gonzaga.edu

Campus Security and Public Safety. At Gonzaga we believe that the security of our campus is a responsibility shared by all members of the community. For more information, visit the [Campus Security and Public Safety](#) site.

Gonzaga University-Wide Policies

University Academic Policy Statements	Associated Links
Support Links	Canvas Support
Diversity, Equity and Inclusion	Office of Diversity, Equity and Inclusion Bias Incident Assessment and Support (BIAS) Team
Harassment, Discrimination and Sexual Misconduct Policies	Harassment and Non-Discrimination Policy Title IX
Academic Integrity Policy	Academic Integrity Policy
Students with Disabilities/Medical Conditions and accessible Documents (EITA)	Disability Access and Resources Office Electronic Information Technology Accessibility (EITA)
Religious Accommodations for Students	Religious Accommodations for Students Policy
FERPA and Privacy	FERPA
Class Attendance Policy	Class Attendance Policy
Notice to Students of COVID-19 Expectations	Student Arrival & Return to Gonzaga Guides
Notice to Students about Class Recordings (audio, video and photos)	Zoom sessions might be recorded
Student Conduct	Gonzaga University's Student Code of Conduct
Course Evaluations	Course Evaluations