

CPSC 425 Computer Graphics Syllabus

Spring 2025

Last Updated: 13 January 2025 (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) Tuesday and Thursday 8:30AM - 10:30AM

General information

Course Meetings Time & Location

Section 01: T/Th 10:50AM - 12:05PM - BCISE 003

Description

Introduction to the use of graphics primitives within a higher level language to produce two and three-dimensional images; underlying mathematical operations used to implement standard graphics packages; practical experience with current graphics systems.

Learning Objectives

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

- build interesting, complex 3D object models in a computer graphics system
- describe the mathematical representation of 2D and 3D lines, curves, and surfaces, and their rendering in 2D raster graphics
- describe the coordinate systems for models, the world, the camera, and the screen, and how to convert among them, including perspective and parallel projection
- describe and use techniques for realistic rendering of objects, including the modeling of different surface materials and illumination conditions, texture mapping, hidden line removal, z-buffering, and ray tracing
- create dynamic, interactive displays that incorporate animation and user input

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**, 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.

Canvas is the online presence for this course. You can access it at <https://canvas.gonzaga.edu/> or through Zagweb (**do not perform an internet search for “Canvas”, this will not take you to the correct URL**). 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.*

Required text

- There is no officially required text for the course, but materials and readings will come from online sources and the optional text listed below. You will get much more from the course if you are able to reference the materials/resources in the below textbook.

Optional text

- Learn Three.js: Program 3D animations and visualizations for the web with JavaScript and WebGL , Fourth Edition. Packt Publishing Ltd. (ISBN: 978-1803235868)
- Link: [Packt Publishing eBook edition](#)

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: Wednesday, May 7..... 10:30 am to 12:30 pm

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*).

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.

- **Individual Assignments (20%).** Through a series of individual assignments, you will practice and demonstrate the key skills being taught in the course. These will be assigned once per topic and due shortly after covering the topic.
- **Quizzes (20%).** In lieu of exams, there will be a series of smaller quizzes throughout the semester. Each quiz will cover the course topics from materials covered in the previous week(s).
- **Team Project (50%).** 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