Here's What You Need to Know About CS 450/550

"Computer Graphics is the world’s #1 enabling technology. It doesn't matter who you are or how you got here. Computer Graphics is for everyone." – Mike Bailey

Mike Bailey  
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I Apologize in Advance for What Noise You Might Hear in my Background at Home

Welcome! I’m happy to be here, I hope you are too!

Concerns Taken from the Pre-Quarter Qualtrics Survey, I

You're concerned with the workload.  This is the summary of what several years of this class have told me about the hours/workload.

You don't like having to commute 2 hours each day for class.  This class is also offered on Campus – that should help you some.

You're concerned about having to do Group Projects.  There are no Group Projects in this class – I dislike them too.

You're concerned that you have no prior background in CG.  No problem – that's what I am assuming.  We start from zero.

You're concerned because you're not a CS major.  This course has been deliberately tailored so that those outside of CS can still succeed in it.  CG is for everyone!

You're concerned that you don't know C++.  We will use what I would call "C++-lite", and there will be lots of sample code, and lots of professor/TA help.

You're concerned that OpenGL is complicated to understand.  We are deliberately starting with the simplest way of using OpenGL, so that everyone gets comfortable right away.

Concerns Taken from the Pre-Quarter Qualtrics Survey, II

You're concerned that this class will be math-heavy.  We will use some math, but I wouldn't call it "math-heavy".

You're concerned that you have no prior background in linear algebra.  No problem – we use library functions to handle transformations.  The underlying implementation of transformations is hidden and is, frankly, unimportant.  It’s the use of the transformations in an application that really matters in this class.

You're concerned that the A grade window is small.  That’s because we do a "soft grade" on your projects.  "Did it work as required?"  If yes, then full credit.  No counting the number of comments.  No timing how long it ran for.

You're concerned that that you would like to use Blender.  Because Blender is so fun and useful (a bunch of the illustrations in our notes were done on Blender), I will have one or two "Blender Nights" – optional Zoom classes on how to use Blender.

You're concerned that you don't draw or create much physical art at all, so you're nervous about your capabilities.  Personally, I can't draw to save my life!  That was one of the things that attracted me to CG in the first place.  I suck at drawing by hand, but I found I could "draw" in 3D by using what I know now.

You're concerned about the programming style.  No counting the number of comments.  No timing how long it ran for.

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Concerns Taken from the Pre-Quarter Qualtrics Survey, III

I have just moved to the USA.  It is my first time here. I am still figuring out the rules and regulations."

Thankfully, just arriving in the USA doesn't put you at as much of a disadvantage as you think.  No matter how long someone has been here, the changing rules and regulations are still often a mystery.  First choice should be asking your advisor.  Second choice – ask me.  I may not know the answer, but I am usually good at figuring out who does.  Welcome to the USA!  I hope you enjoy your time here.

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The CS 450/550 Class Resources Page

Class materials will be linked into various Canvas pages, but you can find everything here:

http://cs.oregonstate.edu/~mjb/cs550

(It doesn't matter if you are in CS 450 or CS 550. It doesn't matter if you are on-campus or online. We all use the same Class Resources Page.)

Course Topics
1. Summary of the computer graphics process
2. Coordinate systems and the graphics pipeline
3. Drawing a 3D scene using OpenGL
4. Single and hierarchical transformations
5. Projection from 3D to 2D
6. Animating the 3D viewing
7. Framebuffers and color
8. Lighting
9. Texture mapping
10. Transparency (blending)
11. Various approaches to 3D modeling
12. Various approaches to 3D rendering
13. Various approaches to 3D animation
14. Vertex Buffer Objects
15. GLM
16. Shaders (Vertex and Fragment)
17. Shadows
18. Stereographics
19. Virtual and Augmented Reality
20. A look into the computer graphics future – Vulkan

Grading: Points and Cutoffs
- 10 Quizzes @ 10 points each
- 2 Tests @ 100 points each
- 7 Projects, worth a total of 650 points
- CS 550ers will also do a 100-point Paper Review Project (450ers get a free 100 points for that assignment)

Grade cutoffs will be no higher than:

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Total Points = 1050

Note that this is not 90-80-70-60!
I do it this way because we do such a soft grading on the programming projects.

Quizzes
- Quizzes will go live on Canvas every Friday at 12:01 PM Pacific Time (one minute after noon).
- Each quiz is due at 23:59 Pacific Time Sunday evening (one minute before midnight).
- Exception: Quiz #0 is due at 4:00 PM on Wednesday, October 4.
- There is no quiz on the Friday of Thanksgiving week (Week #8).
- Part of what is being quizzed is the time management skill to remember to take the quizzes. If you forget to take the quiz, there is no make-up.
- I really recommend that you take the quiz before the end of Friday! That way, your weekend activities won’t distract you from getting the grade.

EECS Information for You:

Calendar of Events:
(EECS events are in orange, career events for students are in green)
https://eecs.oregonstate.edu/eecs-calendar

Resources for students looking for internships and jobs:
https://eecs.oregonstate.edu/eecs-student-portal

Link to the Code of Student Conduct:
https://beav.es/codeofconduct
Students With Disabilities
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at disability.services@oregonstate.edu or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Religious Holidays
Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

Counseling and Psychological Services
Oregon State University’s Counseling and Psychological Services (CAPS) provides OSU students with individual, relationship, and group counseling. I have met some of these people, and they are really good. If you are in any type of emotional difficulty, don’t hesitate to contact them. If it makes it easier for you, I will walk over with you.

MySSP: Mental Health Support for Students
MySSP @ OSU is an app that gives all OSU students, including Ecampus students, 24/7 access by text or phone with a licensed mental health counselor. (MySSP stands for My Student Support Program). The app makes it easy to schedule short-term counseling appointments with the same ongoing counselor and provides educational materials covering mental health topics. Students can communicate with a counselor in five different languages (Mandarin, Cantonese, French, Spanish or English); additional language options are available upon request. Students can download the Anytime Anywhere: MySSP @ OSU and learn more about the service at http://beav.es/anytimeanywhere. For questions, please contact Bonnie Hemrick (bonnie.hemrick@oregonstate.edu), Director of Mental Health Promotion.

Life Events
As John Lennon/Alien Saunders? has said: “Life is what happens to you while you’re busy making other plans”. I care about you as a person. When life happens to you, send me an email and come see me. I might be able to help, I might not. But I surely can listen. You are not alone.

Reach Out for Success
University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it’s important to reach out. Consider discussing the situation with me or an academic advisor. Learn about resources that assist with wellness and academic success at http://oregonstate.edu/reachout. If you are in immediate crisis, please contact the Crisis Text Line by sending OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

Basic Needs
Success at OSU means knowing and using your resources. One helpful resource is the community of staff available at the Basic Needs Center (BNC) for support at bnc@oregonstate.edu, 541-737-3747. Students can drop in during open hours and talk with a BNC student leader for resources, ideas and strategies connected to basic needs challenges. The BNC is often known for its food pantry, but there are other resources connected to groceries and affording food often available and staff who can help you work through housing stressors. Undergraduate students, living in Oregon, are especially encouraged to explore SNAP as a resource. BNC staff are skilled with helping students navigate this process.

Additionally, the BNC Textbook Lending Program offers students the opportunity to check out required textbooks for the academic term.

Furthermore, if you are comfortable doing so, please talk with me. I will do everything I can to help you.