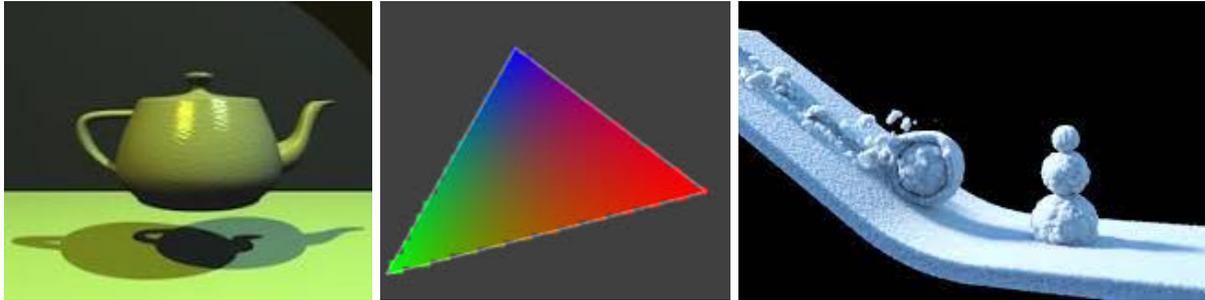


# CS155 Computer Graphics:



## Lecture:

Section 01: Tues Thurs 01:15-02:30PM

Section 02: Tues Thurs 02:45-04:00PM

Location: HMC Campus, Shanahan Center, 2450

All Lectures in person

Office hours: Tues-Thurs 9:00am-11:00am (McGregor Office 327)

I have an “open door” policy outside of office hours. If the door is open, come in and ask questions! If the door is closed knock but I'm likely gone. Any questions having to do with grades it is recommended you reserve 1 on 1 time via email due to privacy concerns.

Prof's Email: [cslocum@g.hmc.edu](mailto:cslocum@g.hmc.edu)

Grutor: Marwan Bit, [mbit@g.hmc.edu](mailto:mbit@g.hmc.edu)

## Course management:

Class Slack: [HMCPixelPals.slack.com](https://hmcPixelPals.slack.com)

[https://join.slack.com/t/hmcpixelpals/shared\\_invite/zt-211hozdia-0t3WZS9riFdygBi7rkboQ](https://join.slack.com/t/hmcpixelpals/shared_invite/zt-211hozdia-0t3WZS9riFdygBi7rkboQ)

Slides:

<https://drive.google.com/drive/folders/1h5PFYr2YhuW6Vb5fgt06RbtEkuURbYk-?usp=sharing>

## Textbook/tools:

Optional: Fundamentals of Computer Graphics by Shirley and Marschner (Anything 3rd edition or later ( I got my 3rd edition physical years ago for 10\$ used through amazon))

Ray Tracing in one weekend: <https://raytracing.github.io/>  
(facetiously named, THE raytracing resource, also by Shirley)

Shadertoy: <https://www.shadertoy.com/> Set up an account (free)

Code: Posted with assignments, Some Code is Linux based. Compiles on Windows and Mac with some effort but Graphics work is largely not done in the apple ecosystem. (Mac/Windows at your own risk! Computer labs are available). Class is primarily C++ with a mix of OpenGL for shaders and python. All software is free (Cygwin, OpenCV).

All Quizzes are IN PERSON CLOSED-BOOK with the exception of Professor provided cheat-sheets (you can't make your own). Quizzes are short and non-cumulative.

**Schedule (subject to change):**

Week	Topic	Item(s) Due
1 8/29+31	What is Graphics, color, images	Survey 1
2 9/5+7	Cameras, Lens, Shaders, Rays	Image processing art
3 9/12+14	Planes, Spheres, Normals, Phong	Quiz 1, Shadertoy1
4 9/19+21	Refractions, Shadows, Texture	Shadertoy 2, Survey 2,
5 9/26+28	Triangles!, Meshes, Scenes.	Quiz 2 (rays), C++ ray trace1
6 10/3+5	Bounding Volume Hierarchy, Texture Mapping, anti-aliasing, mipmaps.	C++ ray trace 2, Survey 3
7 10/10+12	Noise. Transformations, matrix	Procedural generation Python
8 10/19	History of GPUs	Quiz 3(BVH + comp geometry)
9 10/24+26	Raster,Depth, Clipping, Culling	Survey 4, C++ raster 1
10 10/31+11/2	Curves, Animation (Interpolation)	C++ raster2
11 11/7+9	Animation (Kinematics), VR	Project Proposals,Quiz 4 (GPUs + rasterization)
12 11/14+16	Mass-Springs, Rigid Bodies	Project Code Check, Survey 5
13 11/21	Fluids	Thanksgiving'
14 11/28+30	Stylization, Volume Rendering	Survey 6, Final Project Diagram
15 12/5+7	Interaction & Modern Rendering	Final Project turn in
16 -	Finals week	Final Project demo

Assignments are due at 11:59pm PST Monday of the next week

(example: Image Processing art is due Monday the 11th of September)

Surveys are due Friday at 11:59pm week-of Except the First Survey which is due Wed 11:59pm the next day.

There are no Midterms or Finals.

**Grading:**

Item	Grade %
Surveys	15%
Programming Assignments	50%
Quizzes	15%
Final Project	20%

The lowest grade in Quizzes and Surveys is dropped. Assignments, and the Project are final.

Extra Credit is ideally never assigned :). If assigned it will be available to all students (no individual exceptions) and not in excess of 100%. Assignments typically have extra points in them that act as insurance (it replaces missed points, no extra points).

**Late Policy:**

Surveys and written responses must be on time, (no late submissions).

As a new Visiting Professor your feedback is super valuable! Survey links are in lectures to encourage attendance.

Code Projects have a four day late policy with a 2.5% grade penalty per day late. (Get started on code projects early as they are designed to take many days to complete). Any missing submissions after 4 days midnight PST are zeros.

Final Project must be on time! (no late submissions), It is recommended to submit partially completed projects periodically to show progress and secure partial credit in the event the project is not completed on time.

Rescheduling of a quiz must be done ahead of time with the rare exception of emergencies (Medical, Family, ect, to be approved by the Prof personally).

**Academic Integrity (Honor Code):**

Unless otherwise mentioned I follow the college academic integrity policy.

Survey responses should be your own words and opinions.

Collaboration on code and Final Projects are **encouraged**.\*\*\*\*

\***DO NOT** post code or assignment materials online (chegg, stack overflow., ect) the materials are made by myself and many other professors who did NOT give permission for them to be made public. Shadertoy submissions should be kept in private Mode. (Discord, ect are fine as long as it goes away at the end of the semester and don't find it :))

\*Code submitted should be your own. (you may show code to other students to get feedback, consult online sources for reference, but you must write your own code, limit copy-paste to one liners, whenever possible cite your sources with comments. Final Project code must be unique (no AI code).

\*Collaboration with text2code generative AI (ChatGPT) is discouraged as it has mixed accuracy, most of the solutions it gives can be found online through traditional means (stack overflow, code in the textbook ect.) and are much more reliable.

\*This policy is experimental (Don't abuse it). Quizzes are used to make sure that you understand the materials so if you skip the work on the assignments it will bite you later.

You may, and are **encouraged**, to post your final projects (not programming assignments) online. (Github, shadertoy, itch.io, personal site, ect.)

As with anything else in the Syllabus, if you have any questions ask the professor first.

### **Accessibility:**

HMC is committed to providing an inclusive learning environment and support for all students. Students with a disability (including mental health, chronic or temporary medical conditions) who may need accommodations in order to fully participate in this class are encouraged to contact the Office of Accessible Education at [access@g.hmc.edu](mailto:access@g.hmc.edu) to request accommodations. Students from the other Claremont Colleges should contact their home college's Accessible Education officer.

### **Writing Center:**

The HMC Writing Center provides a welcoming space for writers to get feedback on their composition projects, whether written, spoken or visual pieces. Writing Center Consultants are prepared to assist students in any discipline at any stage of the writing process, from developing an idea to polishing a final draft. Even the most accomplished writers benefit from seeking feedback at the writing center. You may schedule an online appointment through their website, <https://www.hmc.edu/learning-programs/writing-center/>

### **Wellness:**

College students often experience issues that may interfere with academic success such as academic stress, sleep problems, juggling responsibilities, life events, relationship concerns, or feelings of anxiety, hopelessness, or depression. If you or a friend is struggling, we strongly encourage you to seek support. Helpful, effective resources are available on campus, at no charge.

- If you are struggling with this class, please visit during office hours or contact Prof. Carter, by email.
- Check-in with an academic dean if you are struggling in courses or unsure what academic resources are available at HMC by emailing [academicdeans@g.hmc.edu](mailto:academicdeans@g.hmc.edu).
- Reach out to The Office of Health and Wellness to discuss options available to by emailing [wellness@hmc.edu](mailto:wellness@hmc.edu)

MCAPS provides crisis support services 24/7/365. Students can call us at 909-621-8202 and press “1” at the prompt to speak with a crisis counselor. Other prompt options are available for those not in crisis.