Mathematical Design, Fall 2020

Queens College, Math 128

Prof. Christopher Hanusa

http://qcpages.qc.cuny.edu/~chanusa/courses/128/20/

Housekeeping

For Freshmen: This is an FYE class

- Congratulations!
- You're enrolled in both MATH 128 and ENGL 110.
- You get to know each other through both classes.
- You have people who you can turn to throughout QC.

This class satisfies the Pathways MQR requirement

- Congratulations!
- Everyone has to take at least one at CUNY.
- You're getting it out of the way early! (And doing it in style!)
- Are you majoring in a major that requires calculus? (Bio? Physics?) You probably shouldn't be in this class. Set up a meeting with an Academic Advisor to find a better class to take.

Graded Work

There's some "math"

- 20–25 "standards" = content areas

Standard 1. Cartesian Coordinates. Can you determine the Cartesian coordinates of a given point? Can you place a point at a given coordinate pair?

- Show me that you master those concepts through assessments
- You have the opportunity to re-assess standards.

There are projects and a final portfolio

- Three projects that use progressively more advanced tools.
- Deliverables: • Digital Image • Code • Writeup of process
- Portfolio: Assemble artwork and analyze your journey.

Class participation

- Participate in groups in class, Ask and answer Qs in Campuswire.

So we're online ... what does that mean?

A different feel from in-person.

"Flipped classroom" for "content".

- Video tutorials will be outside class time.
- Comprehension questions for practice on concepts.
- In class: Breakout rooms / Desmos to reinforce and challenge.

Time management is important.

- It's HARD! Set aside time **every day** to make progress.
- Follow the guidance to keep track of projects
- Study groups can keep you honest. Stick to a schedule. "We're going to work every Tuesday at 3pm. Join the Zoom!"

Use Campuswire to ask and answer questions!

We will appeal to Flexibility and Humanity.

A normal day "in class"

In class

- Arrive on time & Be ready to participate! (Designated Audience)
- Discussing sticking points from Campuswire
- More advanced problem-solving questions

Problem Solving or **Project Work**

Dedicated time to make progress and ask questions on project

Outside class

- Learning outside class
  - Watch and work through tutorial, take notes
  - Ask and answer questions on Campuswire including Daily Question
  - Progress on your projects

To do well in this class:

- **Form good study groups.**
  - Discuss tutorials and classwork.
  - Bounce around ideas, topics, questions.
  - It helps to have people to talk through things with.
- **Put in the time.**
  - Three credits = 6–9 hours/week out of class.
  - Project work is expected outside class too.
  - You only get out what you put in.
- **Come to class prepared.**
  - Review previous day's concepts.
  - Do the homework & work on your projects.
- **Stay in contact.**
  - If you are confused, ask questions (in class and out).
  - Don't fall behind in coursework or homework.
  - I need to understand your concerns.

Everything posted online; Another homework Monday (many parts).

Creating a community

It's important to get to know each other.

Breakout rooms!

- **5 minutes to chat** - introduce yourselves, what you're expecting from this semester, how life has been affected, anything.
- **3 minutes to play** / collaborate with a new technology.
- Jamboard? Jamboard! A collaborative whiteboard.
  Everyone will open the link for their group's Jamboard in another window and play/explore.
  One person should share their screen to the breakout room.
- **5 minutes to discuss** the experience.
  (I'll send a list of questions at that time.)
- We'll gather together to debrief.
- Back in the breakout room, we'll start exploring Desmos.

Desmos

Desmos is

- A graphing calculator!
- A learning platform!
- A tool to create mathematical art!

Make sure you are always logged in. That lets you save your work!

Part of Homework for Monday

Create three number pattern rules.

- Create a rule of the form x_n is a function of n that will be relatively simple to guess.
- Create a rule of the form x_n is a function of n that will be more difficult to guess.
- Create a recursive rule of the form x_{n+1} is a function of x_n.

Prepare to test your breakout-room-mates to see if they can figure them out during the next class.

See the rest of the homework on our course website.