Final Project

Description

The final project is worth 15% of your final grade. It is due at noon ET on April 26, 2022.

Please note that the following instructions pertain to this specific assignment. Instructions for other assignments may differ.

Your final project consists of two equally weighted parts:

A) A video portion, 5-10 minutes long. Production quality is irrelevant - it doesn’t have to be fancy. However, you must appear on camera in a speaking role at least briefly so I can verify you as the creator.

B) A written portion, 2-4 pages long, single-spaced, 12pt font, properly cited. Note that this will be run through Turnitin software to check for plagiarism. I highly recommend you use typesetting software Latex (more specifically the online editor Overleaf (https://www.overleaf.com/institutional-login), which you can use for free by registering through your UWaterloo email), but Word-style typesetting is acceptable too.

If either portion is either too short or too long, I will not read/view it, and that portion will be an automatic zero.

You must complete two tasks. You can choose which task you will complete as the video portion and which task you will complete as the written portion.

Outreach Task: You must create an outreach style lesson/activity aimed at the level of Grade 12 students with a basic understanding of calculus on any topic of your choosing from Weeks 2 through 6 inclusive.

Instructional Task: You must create an instructional style lesson aimed at the level of MATH228 students on any topic of your choosing from Weeks 7 through 12 inclusive.

You must present at least one real-life application of DEs if you choose an application that is covered in the course content, you must bring in a new spin on what the course content presents already.

The mathematics you invoke does not have to be in-depth, but must be correct.

You must also include either an interactive component or a demonstration.

I should come away from your task fully believing you understand what you are talking about, and I should feel inspired and enthusiastic to learn more about the concept of DEs.

You can find the full mark breakdown for the two portions by looking at the relevant rubric. (/d2l/lp/rubrics/list.d2l?ou=757049)

Outreach Task

- Aimed at the level of a Grade 12 student with a basic understanding of calculus
- On any topic from Weeks 2 through 6 inclusive
- Your goal is to engage and to generate interest in DEs (think: science museum presentation or an expert in the field coming to present at a local school)
- This should be a lesson on how to do the math
- You must present at least one real-life application of DEs. If you choose an application that is covered in the course content, you must bring in a new spin on what the course content presents already.
- The mathematics you invoke does not have to be in-depth, but must be correct.
- You must also include either an interactive component or a demonstration.
- I should come away from your task fully believing you understand what you are talking about, and I should feel inspired and enthusiastic to learn more about the concept of DEs.

Instructional Task

- Aimed at the level of you and your peers in MATH228
- On any topic from Weeks 7 through 12 inclusive
- Your goal is to teach a peer a topic from this course (think: a tutor or Khan Academy)
- This is a lesson on how to do the math
- You must present at least one fully worked mathematical example/problem. It does not have to be a real-world application. You cannot use any example presented as part of the course content already.
- The mathematics you invoke should be in-depth (don’t skip steps) and correct.
- Note that your task shouldn’t only be presenting a fully-worked example, but is rather a short lesson on the topic.
- I should come away from your task fully believing you understand what you are talking about, and I should feel confident that I could go solve a problem on this topic myself right after.

Important Deadlines (all at noon ET)

- Friday, February 11th: email me (skotecha@uwaterloo.ca) on or before this date with your topic of choice for the outreach task, a rough idea of what you might choose as a real-life application, and a rough idea of what you might do for your interactive component or demonstration. I will let you know if I approve of your ideas and provide suggestions. The sooner you send me this, the sooner I can provide guidance and you can recalibrate. I will not provide this detailed feedback on the Outreach Task past this deadline. I will, of course, answer more minor questions on the Outreach Task after this date.
- Friday, April 1st: email me (skotecha@uwaterloo.ca) on or before this date with your topic of choice for the instructional task, a rough idea of what you might choose as a real-life application, and a rough idea of how you might structure your lesson. I will let you know if I approve of your ideas and provide suggestions. The sooner you send me this, the sooner I can provide guidance and you can recalibrate. I will not provide this detailed feedback on the Outreach Task past this deadline. I will, of course, answer more minor questions on the instructional task after this date.
- Tuesday, April 5th: email me (skotecha@uwaterloo.ca) on or before this date to tell me which task you will submit as your written portion and which task you will submit as your video portion. If you have any concerns about any feedback on how you could make this work based on your previous communications with me, include this in your email.
- Tuesday, April 26th: submit your final project portions to the written locations on or before this date to tell me which task you will submit as your written portion and which task you will submit as your video portion. If you have any concerns about any feedback on how you could make this work based on your previous communications with me, include this in your email.

How To Submit Your Final Project

Your portions must be submitted online to the written locations and video locations by the deadline specified in the Course Schedule (and above) and Dropbox (if specified). Late submissions will not be accepted. If you meet all the deadlines stated above, you will earn a 4% bonus on your final project mark (2% bonus for each portion).

Your assignment must be submitted in the following file types:

- Video portion: MP4
- Written portion: PDF

Please refer to the Submitting to a LEARN Dropbox (d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&page=quickLink&rcode=uWaterloo-3239160) page for general guidelines, how to submit to a dropbox, and how to create a PDF.
Turnitin: Text matching software (Turnitin®) will be used to screen the written portion. For further details, please see the University Policies page.