

# 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, typeset, 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) (<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 view/read 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 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 engagement 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 **not** 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/flavour from 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](mailto:skotecha@uwaterloo.ca) (<mailto: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 your 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 re-calibrate. **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](mailto:skotecha@uwaterloo.ca) (<mailto: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 worked example, 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 re-calibrate. **I will not provide this detailed feedback on the Instructional 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](mailto:skotecha@uwaterloo.ca) (<mailto: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/want 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](#) ([/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=dropbox&rcode=uWaterloo-3239160](#)) and [video](#) ([/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=dropbox&rcode=uWaterloo-3270303](#)) dropboxes. Late submissions will not be accepted: they are an automatic zero.

If you meet all the deadlines stated above, you will earn a 4% bonus on your final project mark (2% bonus for each portion).

## How To Submit Your Final Project

Your portions must be submitted online to the [written](#) ([/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=dropbox&rcode=uWaterloo-3239160](#)) and [video](#) ([/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=dropbox&rcode=uWaterloo-3270303](#)) dropboxes by the deadline specified in the [Course Schedule](#) (and above) ([/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=content&rcode=uWaterloo-461258](#)). Dropboxes can be accessed by clicking **Submit** and then **Dropbox** on the course navigation bar above. Only your most recent submission will be marked.

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&type=content&rcode=uWaterloo-3239389](#)) page for general guidelines, how to submit to a dropbox, and how to create a PDF.



**Turnitin.com:** Text matching software (Turnitin®) will be used to screen the written portion. For further details, please see the [University Policies \(/d2l/common/dialogs/quickLink/quickLink.d2l?ou=757049&type=content&rCode=uWaterloo-461265\)](#) page.