MA438: Mathematics of Decision Making II

Project Outline

March 2023

Drs Rachel Quinlan and Niall Madden, School of Maths, NUI Galway

The goal

This project will allow you to demonstrate your interest in, and knowledge of, some aspect of this module.

You will do that by producing some ***artefact***, such as a video, that relates to one or more themes in the module.

Other types of artefacts can be considered, such as drawings, computer animations, physical model (e.g., of a polyhedron exhibiting a minimum spanning tree or matching of its graph), a song (don't laugh, it has been done:
`https://www.youtube.com/watch?v=UTby_e4-Rhg`) or a folk dance (stop laughing, it has been done!
`https://www.youtube.com/watch?v=lyZQPjUT5B4`).

The goal

But most likely you will pick some example, application, or data set, and video a presentation on it and the application of one of our algorithms to it. Or you might produce a video that would be useful to next year's cohort, such as on an alternative proof of a theorem covered, or explaining how to code an algorithm in MATLAB.

The goal

In all cases, you should consider who your intended audience is. For example, it might be:

- ▶ your classmates: showing them a new application of a topic studied in class;
- ▶ students in a 2nd year Linear Algebra or Discrete Mathematics course: giving them a flavour of an advanced topic;
- ▶ secondary students: arguing that mathematics is interesting
- ▶ ...

But not: your lecturers.

What you will do

1. Propose a topic, related to something covered in MA438, and suggest it to Rachel and Niall. Once agreed, provide this information in the **Project Topic** section of Blackboard.

2. Produce your artefact. If it is a video, you'll upload it to Blackboard. It is a model or a picture, you'll give it to Rachel and Niall (we'll return it after grading).

3. Write a short report explaining the artefact, how it relates to MA438, and what you learned in producing it. The report should be 2 or 3 pages, and include references to important material. The report will be submitted through TurnItIn.

Collaboration

You may work on the project on your own, or collaborate with one or two others. You should submit your own version of the report that includes a section stating the part you contributed.

Timeline

- **Agree a topic**: Tuesday, 21 March.
- **Submit** your artefact and report: Thursday, 6 April.