## MATH1400 Modelling with Differential Equations (Spring 2021) Presentation

In weeks 19–22, there will be four extra sessions to prepare for and conduct a short presentation (check your timetable). You will work in pairs to choose a topic on mathematical modelling involving differential equations, rehearse, and then give a short presentation to your tutorial group.

The purpose of these sessions is for you to learn to clearly presenting your ideas to a group of audiences, which is an essential skill in almost every field. It is important that you attend all four presentation sessions so that things run smoothly for the group and the assessment. Note that these sessions are in extra to and independent of the regular tutorial sessions.

## **1** Instructions

- Choose an application of differential equations in any field, ideally one that you are interested in or is related to your degree. Application areas not covered in the module are welcome. Some examples are the Lorenz system (to model fluid flow), Black-Scholes model (to model derivative investments) and Lotka-Voltera model (for interacting populations). You do not need to solve the model.
- Most likely your audiences will not be familiar with the topic you are presenting. So the first thing is to provide some background of the application area and explain clearly in plain language the problem that you are interested in.
- Next you should tell us about the mathematical model. There is a lot of freedom on what you can do here. You can explain how the model represents the real-life situation, describe what each term means and what assumptions have been made, why the model is good (or bad!). If you have learned something about the solution, you can talk about that too.
- As an audience, you are expected to ask questions and give constructive feedback on other presentations in your group. Do you find the presentations interesting? Have you learned something from it?
- Each presentation should be about 8 minutes long + 2 minutes for questions and feedback. Both students in the pair should have a chance to speak. Discuss among yourself how to share the presentation time. You are strongly encouraged to rehearse before giving your final presentation to get the timing right. You can use slides, virtual whiteboards, scanned neat hand-written notes or any formats that can be practically implemented during the online sessions.

## 2 Assessment

Presentation is marked out of 5 with a mark subtracted for unexplained absence for each session. The mark will contribute 5% to the MATH1400 module grade. The assessment is mainly based on your effort and not so much on getting all the sciences right. There is also no need to worry about not knowing the answer to the questions being asked. Feel free to discuss.

## 3 Schedule

Date	Activities
Week 19	Agree working groups (pairs), and on project choices so that ideally each pair in the tutorial group is doing a different topic. Discuss your ideas, and get feedback from group and tutor.
Week 20	Each pair spends about 3 mins to outline what they want to do in their presentation. This is the chance to get advices and help from tutor and group before finalising your presentation.
Week 21	Final presentations
Week 22	Final presentations (if needed)