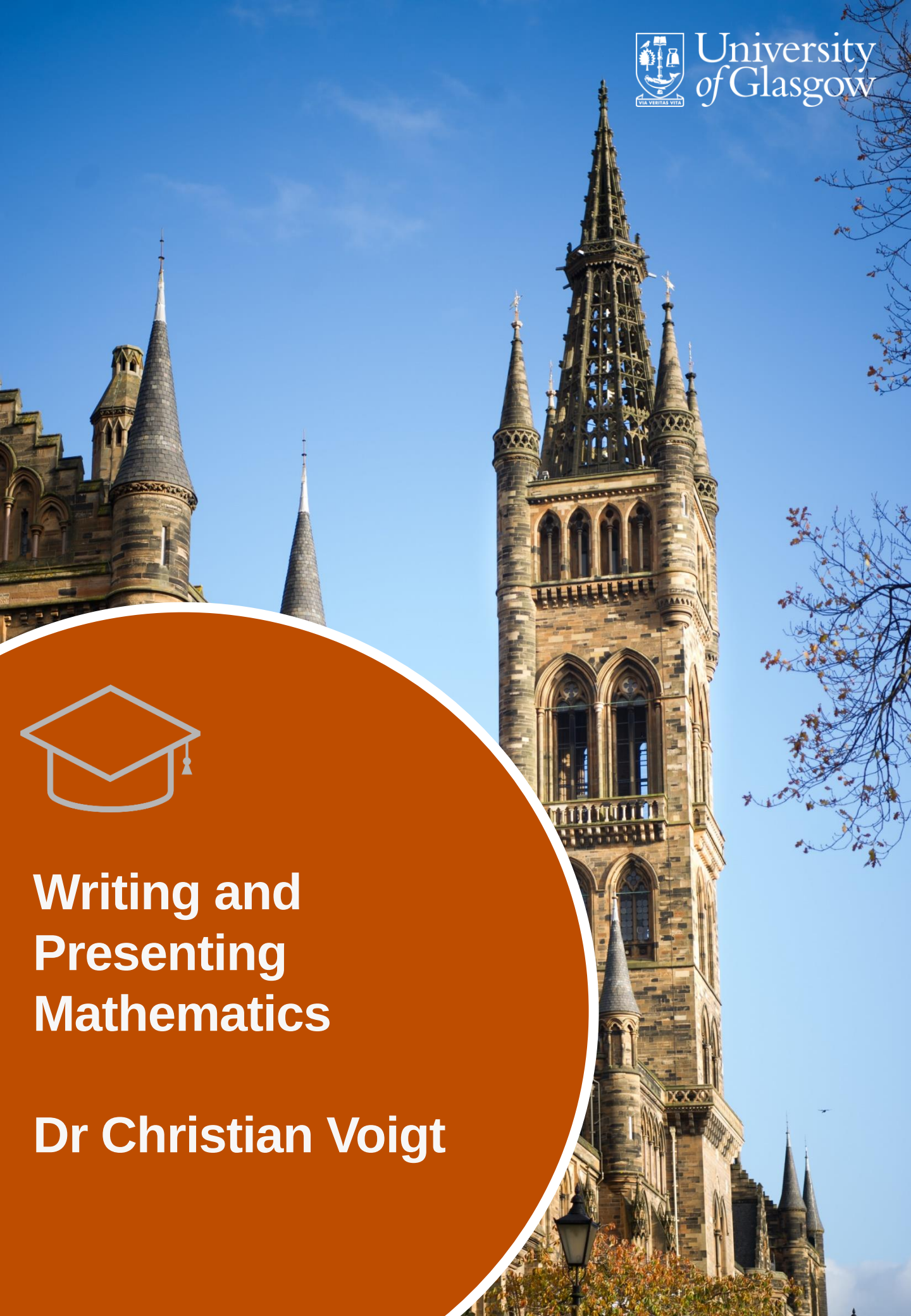

Writing and Presenting Mathematics

Dr Christian Voigt

Writing and presenting mathematics.

This course introduces students to the typesetting software LaTex and the programme Mathematica, which in turn prepares them for final year projects and future work.

Context

School of Mathematics and Statistics

Mathematics Single Hons

Level 3

Subject: Mathematics

Contributor: Dr Christian Voigt (Senior Lecturer)

Email address: Christian.Voigt@glasgow.ac.uk

Key features

A medium sized group (25-100).

Focusing on specific GAs: Investigative, Effective communicator, Confident.

A sequence of standalone sessions, combining main lectures and 8 hours of lab sessions during the first two weeks, delivered by 4 lecturers.

Advanced technology competency required as knowledge of Latex and Mathematica software needed. Prior training may need to be provided to most participants, both students and staff.

Full integration into the curriculum, which requires full alignment of ILOs, L&T activities and assessments. This results in the PIP form having to be revised and syllabus redesigned.

Considerable impact on staff workload, both in form of preparation and follow-up as students submit 2 written reports (3 pages/10 pages) which need to be marked, and do 20-minute group presentations (about 20 in total, 2 staff to mark each).

Activity description

Rationale

The main aim of Writing and Presenting Mathematics is to prepare students for doing their final year projects with focus on specific GAs:

- Investigative
- Effective communicator
- Confident

Implementation

LaTex is a typesetting software which is standard in Mathematics and other natural sciences for producing scientific documents.

Students can practise during the labs in the first two weeks of the course, and also individually in the School computer labs. They are taught how to do the most common things in LaTex, such as typesetting equations, diagrams, etc.in order to prepare them for their final year projects (which shall be written in Latex), and also to enable them to produce high-quality scientific documents in other contexts.

Students are taught how to perform a number of standard computations in Mathematica, which is a computing system which is used in Mathematics and related sciences to perform symbolic computations and other computational tasks, e.g. solving differential equations, and how to produce plots and diagrams (and then embed those into Latex documents). Some students will find Mathematica useful for their final year projects (in particularly for more applied/computational topics). In general, we believe it is important for students to be able to work with a computer algebra system like Mathematica as a transferable skill.

Reactions

Mainly positive feedback from students and staff; some students would like (even more) support, but this is not feasible in terms of resources.

In their “long” WPM projects students have to choose one out of 3 possible topics and write an essay of about 10 pages, given some guidance by a member of staff. In terms of GAs, this ticks the “Investigative” and “Independent and critical thinkers” boxes.

The students also have to do group presentations (20 minutes, groups of 4 students) at the end of the semester. This combines several of the GAs like effective communication and confidence, as students will present their findings in front of an audience.

In the past we haven’t referred to GA explicitly in the course.

Analysis & evaluation

Apart from a few minor possible improvements (being implemented for next year), this course seems to be working well.

There are discussions whether this course should be made available also to combined students. This would certainly be desirable, but one would need to rethink how to manage the corresponding increase in workload/resources.