

University of Glasgow's Response to the COVID19 Crisis and the Impact on Teaching Geospatial Science and Surveying

William Kelly



Like all institutions in Higher Education, the University of Glasgow has had to react quickly to the global pandemic. This has meant developing new ways of teaching for staff and of learning for our students. The pivot to remote working and online learning and assessment meant overcoming difficulties such as students and staff working from home, issues with technology, and health concerns, with field projects and work placements the most affected. Academic staff were supported by a series of workshops where staff shared their experiences, and provided with a 'studio in a box' kits that contained microphones, webcams, green screens etc. This article describes the experience of the University of Glasgow in making this transition during the COVID-19 pandemic.

INSTITUTION, SUBJECT AND COHORT

The University offers several accredited postgraduate programmes across the field of geospatial science. The programmes, offered within the School of Geographical and Earth Sciences (GES), include courses in Land and Hydrographic Surveying, GIS, Cartography, GNSS, Remote Sensing and Management.

We have a diverse student cohort which is often an even split of students from the UK/EU and

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beyond (particularly Asia). We also usually have several students enrolled part-time, completing their studies whilst they work.

COVID 19 TIMELINE

In Scotland, the first confirmed case of COVID-19 occurred on the 1st March, and regular University COVID updates started one day after this. Face to face teaching ceased on Monday 16th March with instruction to move to online delivery. Confirmation of postponement or cancellation of all field-classes came on the 12th March – impacting our surveying and GIS field classes. The UK government instigated ‘lockdown’ on the 23rd March - a few weeks before the end of our second semester.

Geospatial Science, particularly the Surveying aspect, is a subject where labs and field classes are very important for developing practical skills.

Our Surveying students were halfway through a laser scanning project when face to face teaching stopped. This project work is highly reliant on specialist software hosted in our computing labs.

It is at the conclusion of semester 2, during the Easter break, that the surveying students have their 1-week residential land surveying field class in the west of Scotland – see Figure 2 . Shortly after this, their second exam diet begins.



Figure 1 The usual field class location at Ardentinnny

INSTITUTIONAL RESPONSE

Initial communications focussed on adhering to state instruction with regards to lockdown, and reassurance. Teaching and assessment policies were developed / amended but these of course took time.

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On 9th April, the University announced their ‘no detriment’ policy – in effect a safety net to protect students whose performance had been impacted. The University decided to take the default position that the global panic did impact staff and students. In practice, all grades for assessments taken after the 16th March would not have a detrimental impact on final grades.

The University assured international students they could return home when possible and guaranteed they would be able to complete studies – requiring planning of remaining assessments.

The lockdown also occurred before our second exam diet. A decision was made to not hold any exams in person, at the University. Instead, for the first time, our exams were completed online. These were administered through our Online Learning Environment (OLE), Moodle. Exam questions were published online, and students had 24 hours to complete the exam and upload their answers. The time allowance was in consideration for students potentially in different time zones, accessibility, and technical issues. It was not the time that was expected to complete the questions.

SCHOOL AND SUBJECT LEVEL RESPONSE

Our School level IT team had to develop new remote access facilities available through our Virtual Private Network (VPN). Generic remote desktop services already existed but our students required access to a specific computing lab equipped with specialist processing software with its own license server. Support from industry on supplying local licenses, for use at home, was critical for many students who struggled with performance issues when using the VPN service.

Flexible Learning Teams were quickly established across the University. These teams are tasked with ensuring a fully flexible teaching approach that is resilient to the pandemic and government lockdown status. The GES School team began working on assembling guides and holding workshops on remote, flexible learning and teaching.

SUCCESSSES SO FAR

Pivot to Online

The pivot to remote working and online learning has been difficult - but has been achieved. Students and staff are working from home. Issues with technology, health concerns have made this a trying time. Some staff are trying to work with children in the house, some students are juggling jobs with remote learning.

MS Teams and Zoom have emerged as the communication tools of choice. Procedure and etiquette of large online meetings have been established and ironed out (mostly).

The School have covered expenses of additional equipment for working at home, as well as creating ‘studio in a box’ kits that can be loaned out to staff for recording material at home.

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These contain microphones, webcams, green screens etc.

New communications channels with students have been adopted to try and fill the gap of the impromptu and informal lab discussions. The online chat function in MS Teams has been successful so far.

Exams

Over 1000 exams were successfully completed online including the geospatial science courses: Hydrographic Surveying, Engineering Surveying and Geodesy & GNSS. Overall this was deemed a success - with very few support calls to IT and fewer reported issues than 'normal' exams. As submissions were typed it was much easier for graders to read and mark.

For some time, there has been a discussion on the role of the traditional exam at the University, considering if written traditional exams will still be used in the future. It will be interesting to see if this hastens any change in examination policy.

Flexible Teaching Workshops

The School FLT team have been working hard to help guide approaches for online teaching and learning. A series of workshops have been delivered by the team, including the author, subjects such as editing lecture recordings and online assessments - see Figure 2.

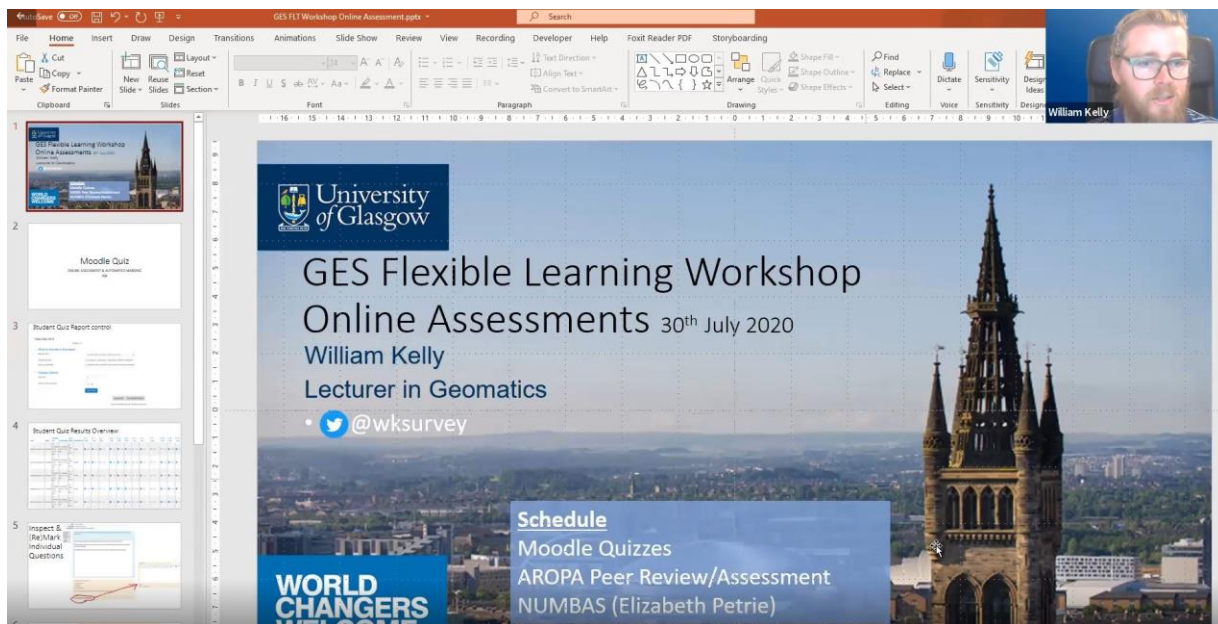
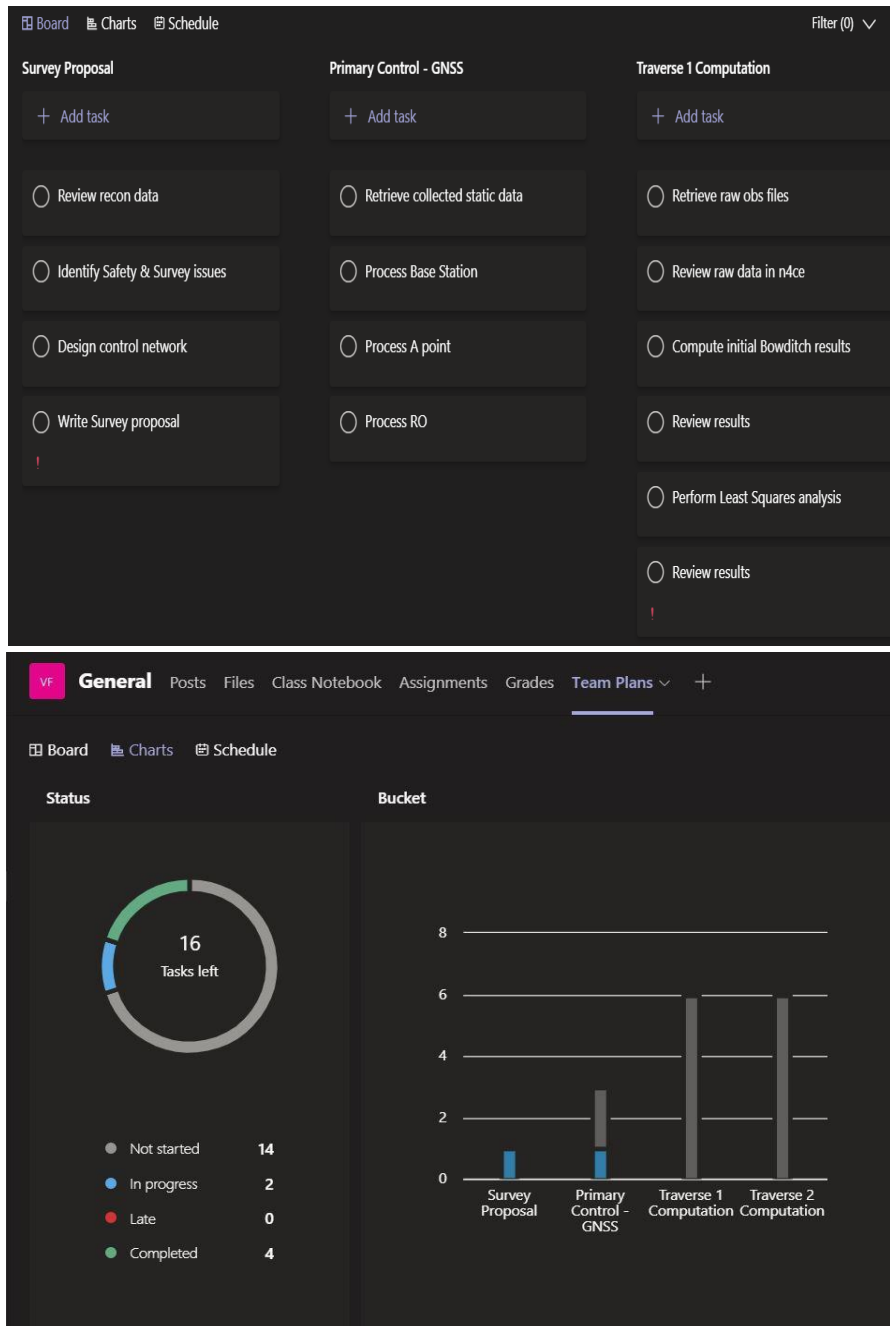


Figure 2 – Live workshop for staff via Zoom

CHALLENGES

Field Class

The residential land surveying field class was postponed in the hope that it would be possible for students to attend in late summer, however this has not been possible. Instead a virtual replacement will be performed. Students will work together using tools such as MS Teams to communicate and track project tasks – see Figure 3.



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Virtual Surveying field classes have been implemented and trialled at other institutions but there are several difficulties. Students, and staff, identify virtual field classes as a supplement, rather a replacement, for field work. The scopes of these implementations tend to be limited to a singular task e.g. levelling or traverses, as there are significant time and cost issues.

There will be the challenge of preparing replacement activities and assessments, but the hope is that a remote field class will allow greater focus on data processing and quality analysis. Students will have to work both independently and collaboratively as a team, remotely - perhaps still good preparation for the workplace after all.

MSc Projects and Work Placements

We have had to de-risk student projects and so the focus has been on the processing and analysis of existing datasets, rather than collecting new data in the field.

The companies that host our 6-month work placements have also been impacted by the pandemic – with many staff on furlough (the UK government’s scheme to pay wages of staff unable to work). These placements have been delayed until we are able to proceed with companies in providing a safe work placement.

CONCLUDING THOUGHTS

The impact of COVID-19 has been severe for Higher Education and this will continue through the next academic session however, there are some positives to take away.

The necessity of quickly moving to online teaching earlier this year has shown what is possible. Now we can use the short amount of time we have to try and develop quality online materials that can be used for teaching remotely, or as part of a blended learning program, over the long term. For our students, this will improve accessibility and lifelong learning opportunities.

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