

Shaping tomorrow together: A multidisciplinary year-long course for 1st year undergraduates

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Teaching, learning and assessment



Outline of activity or project

Academic staff, Management, Leadership

Intended outcomes of the project

The overall aim of this project is to create a mass learn-in model for staff ,students and external stakeholders which:

- + creates multi-disciplinary opportunities for curriculum, co-curriculum and extra-curriculum learning
- + identifies research projects for a range of student cohorts on key locally relevant global challenges
- + co-produces knowledge, understanding and solutions underpinned by community-based learning with internal and external stakeholders
- + draws on and validates the diverse and lived experiences of students and engages them with professionals
- + identifies local resolutions with students for action which empowers them with social agency, and activism, to manage change in their university, communities and environments, and channels anxieties about societal and environmental challenges
- + nurtures belonging within the university and the community through developing networks and collaborations between students, staff and external groups and establishes partnerships for learning and societal transformation
- + collectively develops teaching resources including authentic assessments, scenarios and content that can be adopted and adapted into the curriculum to provide innovative approaches that nurture key competencies for sustainable development
- + identifies and shares information about emerging job roles, social entrepreneurship, volunteering and work placement opportunities, enabling students to develop their interests and the competencies required by employers, organisations and communities.

Outline of activity/project

This course runs across the School of Energy, Geoscience, Infrastructure and Society (EGIS) engaging approximately 350 first year undergraduate students from multiple disciplines as diverse as Civil Engineering, Biology, Urban Planning, Architecture, Geography, and Marine Biology. This is one of the first courses a student will encounter at university and was launched during the Covid-19 pandemic. The overall aims of the course was to build an academic community of belonging for new students and to foreground the climate emergency in the learning experience of every undergraduate student joining the school.

The strategy for delivering this large scale project includes multiple threads, summarised as:

- + short-burst individual and group exercises with a quick feedback turnaround to build confidence with academic process, assessment and expectations
- + longer, more 'in-depth' group assignments with a signposted process related to weekly course leader input
- + large-scale interactive lectures on global issues with voting and text-based interactions

- + scaffolded multidisciplinary small-group working, facilitated by PhD students acting as mentors
- + subject-specific material and lectures provide students a sense of disciplinary identity and agency within their groups
- + live guest lectures and direct response and engagement with global current events, with minimal fixed curriculum syllabus.

Intended project outcomes

The module provides students with 30-credits (at SCQF Level 7) and is delivered over 2 semesters. Through engaging with the activities outlined above, students will be able to:

- 1 Demonstrate an appreciation of relevant 'Global Challenges' and an understanding of the relevance to their discipline
- 2 Apply this knowledge to a specified context, evaluating data, information and ideas, and effectively synthesising this to develop an original solution in response to a specific task
- 3 Present, evaluate and advocate, using a variety of media (spoken, visual, written, interactive and others) a synthesis of complex ideas in a well-structured and coherent form
- 4 Demonstrate essential study skills using a variety of platforms, including the range of personal behaviours identified by the Heriot Watt Graduate Attributes.

In addition, the teaching team, including academics and Teaching Assistants (PhD students and Research Associates) developed confidence in:

- 1 Setting open-ended assessment briefs
- 2 Teaching beyond their specialist disciplines
- 3 Working with students to co-create the syllabus and topics
- 4 Assessing and moderating across a variety of media, based on process learning outcomes rather than product.

Further guidance for project leads

The project was delivered with a course teaching team that included at least two academics managing the weekly global sessions in tandem (two live hrs/week), and managing the course administration and organisation. A wider team of disciplinary-specific academics supported occasional discipline-specific inputs and seminars. Importantly the programme was supported by a team of 13 Teaching Assistants (TAs) who liaised regularly with student groups through synchronous and asynchronous channels, plus undertook marking and feedback. The project required staff development for the course teaching team, both academics and teaching assistants.

Delivery of the programme was supported by our institutional VLE (Blackboard with Collaborate Ultra). Rubrics were provided to facilitate consistent marking by TAs and staff team. Collaboration was through MS Teams, with each of 45 groups having a separate channel. The use of digital communication tools enabled recording of group presentations. MS Forms was used for peer-marking and interactive feedback throughout the course. Individual submissions also used other tools including Miro.com, Kialo-edu.com and padlet.com.

The course was based around current events therefore there was minimal pre-recorded material. The delivery team needed to be agile and responsive to current events, debates or policy developments. Guest lecturers engaged with moderated Q&A sessions. Assignments were open-ended. The course required the teaching team to work outside their 'comfort zone' in terms of disciplinary specialisms and switching focus to academic practice and critical thinking over content.

The course introduced students to current blogs, news sources and datasets, some recorded in 'useful resources' below. The course, which had an extensive reading, listening and watching list, aimed to highlight sources with a high diversity of authors from a variety of global nations. Podcasts were invaluable and we invited students to suggest additions to the recommended list. It should be highlighted that content is flexible and responsive and will change next year: so the focus is very much on scaffolding and designing a process and pathways for learning: not on defining syllabus content or outcome.

Assessment or Evaluation

The course piloted a variety of assessment techniques in this first year of operation. In the first semester of the programme the focus was on four core learning outcomes: research, synthesis, presentation, professionalism. As this was the first higher education assignment for the majority of the students, a series of low-stakes assessments were designed to build a learning community, understand groupwork, incorporate scaffolding and mentoring from recent graduates, and develop assessment literacy through peer marking and feedback.

Infographics and group presentations were used to provide rapid feedback, these were followed by a larger, independent subject-specific assignments, set and marked by discipline teams and a final in-depth group report.

In the second semester students were asked to:

- + undertake a critical reflection and advocate findings using a choice of formats including video, podcast, TicToc, data visualisation
- + identify suitable datasets and suggest AI algorithms that could be used to analyse the data
- + in the final group project, student selected topics, and debated and documented arguments (Kialo-edu.com).

Useful resources

countdown.ted.com/ (inspirational videos, also invitations for students to get more engaged with wider community/host a session)

www.carbonbrief.org/ (excellent source of recent news and interactive data)

unstats.un.org/sdgs/report/2020/ (Wonderful free-access datasets on Sustainability Indicators worldwide, and also analysis of same)

data.gov.uk/, <https://statistics.gov.scot/data>, www.data.gov/ (and other countries too – great source of data for analysis)

Kilao-edu.com

miro.com