

# Mapping the Sustainable Development Goals (SDGs) in the University Curriculum: School of Geosciences



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## Our Team and Acknowledgements

Our team at SRS includes Michelle Brown, Matthew Lawson, Rachel Chisholm, and Sarah Kate Read. Senior members of this team not only established the project, but also helped to guide the project and ensure that aims and timelines were applicable and achievable.

This review mined the SDG data from the School of Geosciences courses on the DRPS pages.

## Executive Summary

During this academic year, the University of Edinburgh has committed to implementing more sustainable programmes and projects through their 2030 Strategy. With these commitments in mind, expanding teaching on sustainable topics has never been more opportune. The Department of Social Responsibility and Sustainability established this Curriculum Review project to identify teaching related to the Sustainable Development Goals in a target school's curriculum. This report is on the School of Geosciences, our second case study school, in the College of Science & Engineering

The objectives of this review were to:

- (1) review the UG and PG curriculum in the School of Geosciences
- (2) identify courses engaging with the SDGs at this school,
- (3) Engage with academics on support for delivering SDG curriculum

Not all objectives were met within the timeline of this project and this is explained under the section covering Covid-19. This review was successful in identifying several courses at the School of Geosciences exhibiting high level of engagement with teaching the SDGs at both UG and PG level.

We did not get closer to understanding what makes a successful SDG curriculum or guidance on how to deliver it as our staff survey is still live and there were delays to the project for myriad reasons, all stemming from the disruption of Covid 19. What has been clear in many conversations around this project is that there is no standardisation for curriculum delivery around the SDGs and this is something academics would like to see addressed.

### Geosciences specific findings

- Data from the Undergraduate and Postgraduate courses showed some similar trends, particularly for the high inclusion of Goals 13 (Climate Action) and 14 (Life Below Water) in DRPS course descriptions
- Academic staff are including the SDG terminology in their course descriptions but it is not clear *how* teaching is delivering content on? the SDGs as learning outcomes
- Academic staff are looking for guidance and peer support on what exactly comprises a good SDG curriculum.
- Training opportunities and a community of practice would be welcomed.

## Introduction

This short extension of the project was an opportunity for SRS to take a second school within another college, one that was known to be delivering extensively on the SDGs, and to map its courses, and to possibly gather information on how this teaching and learning was being delivered in practice.

The team decided that Geosciences would be a good choice as the second case study in that it was from another college, so could offer comparisons across colleges and disciplines, and was perceived to be a School that would report high incidences of SDG representation within its courses, both UG and PG. Time permitting it was suggested by the Project Coordinator that having data from a school within each of the Universities three colleges would give some insight into SDG engagement across various disciplines.

## Methods

### *Curriculum Review*

The main objective of our project is a curriculum review of Geosciences to identify the *current* engagement or *opportunities for* engagement with topics related to the SDGs. To achieve this goal, we used the methodology developed by Sarah Kate Reid (2020) during her internship with SRS. The methodology and rationale is fully explained in the original report.

The focus was to review the courses listed on the DRPS under the school of Geosciences, which was 320 in total, and to survey the academic staff within the school using the original survey for comparison to the first case study school (Business). The DRPS review used the search terms developed and tested by Cote et al (2020). These search terms were vetted further by this project's steering group, leading to a few key additions (Table 1; additions in red).

One Project Coordinator within the Department of Social Responsibility and Sustainability carried out the curriculum review itself. Mentions of each search term were catalogued for each course, as well as general information on the course.

A full list of collected information is available.

Only courses from the DRPS 2020-2021 curriculum were included in this review. A quality check was also added to the review process with the Project Coordinator reviewing each course twice. This took a significant amount of time and was laborious work.

In the second check the Project Coordinator worked with a programmer to develop a faster appraisal system using VBA (visual basic application) within excel, and this helped. This method searches individual DRPS descriptions and populates the data spreadsheet at a rate of approximately 2 minutes per course. With the new developed method for reviewing DRPS available the review time for a school is cut by almost 90% which will help with any extension of this project into further schools.

An explanation and/or demonstration of the VBA excel function can be given by the Project Coordinator but it would be prudent for SRS to develop its own template, or speak with IS to develop something inhouse that could be used for a number of different review purposes.

## Mapping the Sustainable Development Goals (SDGs) in the University Curriculum

### Geosciences report

Table 1: Search terms developed by Cote et al (2020) including search term additions decided by UoE steering group.

Goal	Description	Search Terms							
Goal 1	No poverty	poverty	income distribution	wealth distribution	socio-economic				
Goal 2	Zero Hunger	agriculture	food	insecurity	nutrition				
Goal 3	Good health and well-being	health	well-being						
Goal 4	Quality education	educat	inclusive	equitable					
Goal 5	Gender equality	gender	women	equality	inequality	girl	queer		
Goal 6	Clean water and sanitation	water	sanitation						
Goal 7	Affordable and clean energy	energy	renewable	wind	solar	geothermal	hydroelectric		
Goal 8	Decent work and economic growth	employment	econom	economic growth	sustainable development	labour	worker	circular econom	wage
Goal 9	Industry, innovation, and infrastructure	infrastructure	innovation	industr	buildings				
Goal 10	Reduced inequalities	trade	inequality	financial market	taxation				
Goal 11	Sustainable cities and communities	cities	urban	resilien	rural				
Goal 12	Responsible consumption and production	consum	production	waste	natural resource	recycl	industrial ecology	sustainabl e design	
Goal 13	Climate action	climat	greenhous e	greenhouse gas	environment	global warming	carbon	weather	climate crisis
Goal 14	Life below water	ocean	marine	water	pollut	conserv	fish		
Goal 15	Life on land	forest	biodiversity	ecology	pollut	conserv	land use		
Goal 16	Peace justice and strong institutions	institution	justice	governance	peace	rights			



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### *Staff Survey*

Built into the methods of our review is a vital staff survey step. This staff engagement has been included in several curriculum review studies (Morsi et al 2007; Joyner 2016a, 2016b; Davis et al 2016; Denby and Rickards 2016; Chaney et al 2017). The survey responses not only substantiate search term hits, but also helps to distinguish the 'intended curriculum' from the 'delivered curriculum' as it relates to the SDGs.

Rather than engage with the top twenty highest scoring courses in the School (as per Business School) we decided to roll out the survey to all course organisers within Geosciences, and to interested groups such as the Geosciences Sustainability Group. The rationale being that all courses acknowledge the SDGs in their DRPS outlines, and we wanted those who were invested in and enthusiastic about SDG teaching methodology to come forward with ideas on how best to support teaching and learning.

(The survey remains unchanged from the Business school version in order to standardise the questions asked of colleagues. Examples of questions can be found in the original report).

The staff survey is live and has so far gathered 17 responses. The survey distribution was delayed in response to colleagues workloads being stretched and focused on the time sensitive pressures of the academic cycle of exam boards and other annual summer planning.

## COVID-19

Covid 19 had a significant impact on this project. The project was initialised at the beginning of lockdown when the University and its staff and students were going through major changes to normal service. Academic staff were overwhelmed with changes to teaching and pastoral duties, the university itself had to undergo major shifts in service delivery subsequently delays were there on almost every part of this review including DRPS information not being made available until late into May.

In addition to tangible obstacles the general wellbeing and mental health of staff and students was particularly low in the first and second month of this 3-month project. That had an impact on conversations, approaches and the ability to progress. Obstacles were not attributable to particular individuals, they were beyond the control of a single stakeholder, as a society we were all going through significant disruptions to life and working patterns were non-standard and the pandemic has restricted many of the engagement routes and the working period for our this review ends in June 2020.

However, there is much interest in the project and some feedback that it will become easier to engage with it as we are now past key hot points in the academic year, with teaching staff keen to move onto productive and engaging projects.

## Results

### Curriculum Review

Data from the UG and PG showed some similar trends, particularly for the high inclusion of Goals 13 and 14. The postgraduate curriculum/programmes have more mentions in general (PG = 3038 ; UG = 2931), but has less courses than the UG curriculum (PG= 119 ; UG = 192).

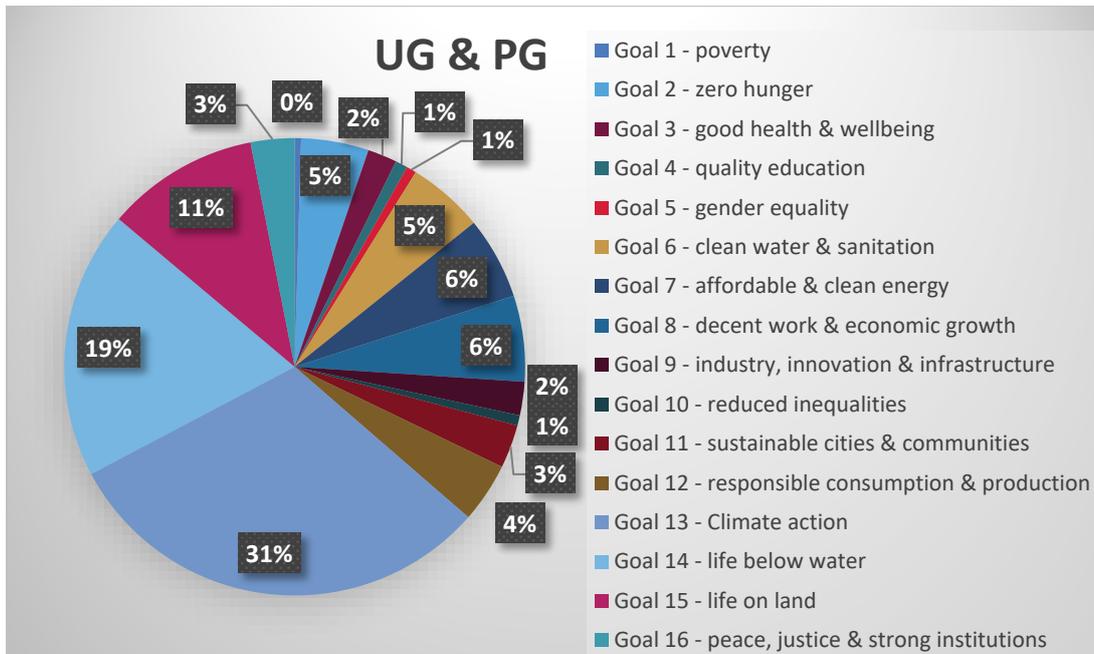


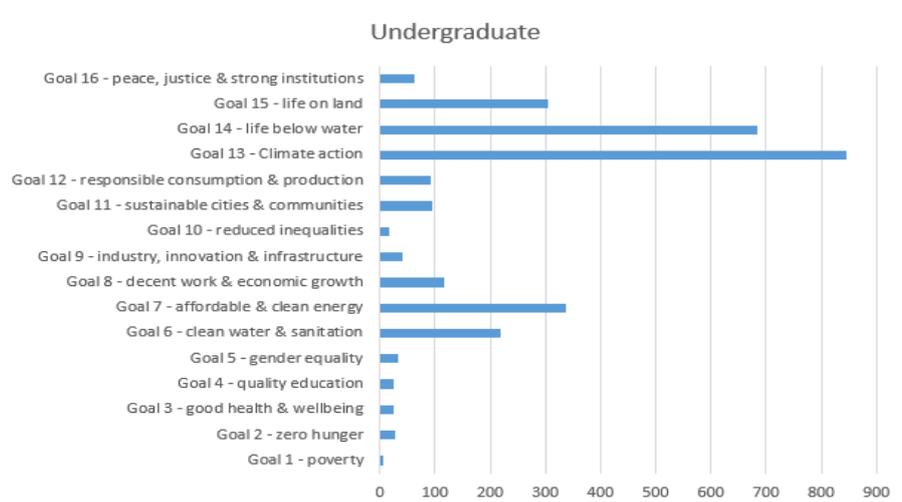
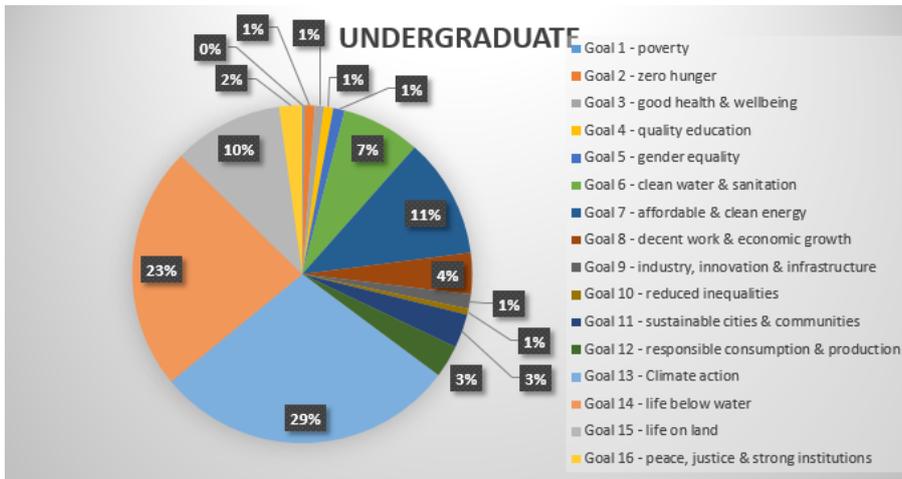
Figure 1: The breakdown of mentions per goal in UG & PG curriculum.

### Undergraduate Curriculum

In the Undergraduate curriculum, the top three courses are Goals 7 Affordable & clean energy (336 mentions), Goal 13 Climate action (845), and Goal 14 (684).

The goals with the least mentions are Goal 1 Poverty (6), Goal 10 Reduced inequalities (17), and Goal 3 Good health & wellbeing (25). In the whole UG curriculum, there were no mentions of two of the Goal 1 search terms - income distribution or wealth distribution.

Figure 2: The proportion of search term hits related to each goal in the undergraduate curriculum.



### Postgraduate Curriculum

In the postgraduate curriculum, the top three courses are Goal 13 Climate Action (917 mentions), Goal 14 Life below water (406), and Goal 15 Life on land (315). Of the courses with more than 1 SDG mention, 61% (101 courses) had less than 10 mentions and only 3% had above 41 mentions.

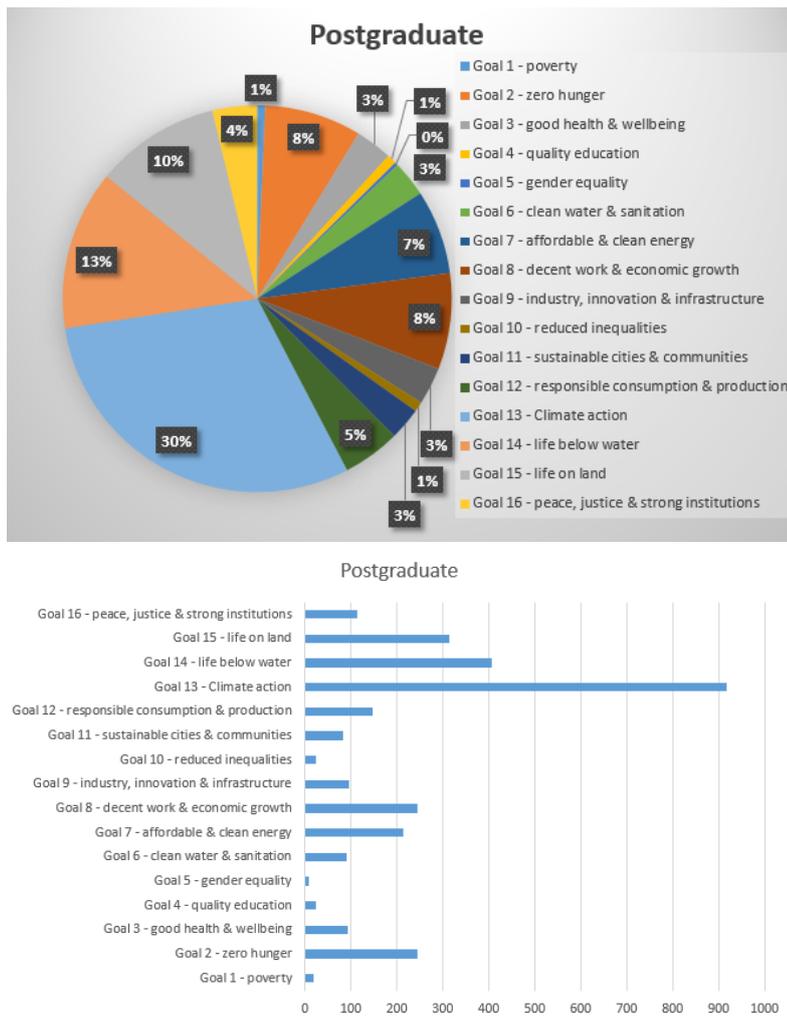


Figure 3: The proportion of search term hits related to each goal in the postgraduate curriculum.

## Staff Survey

The survey was distributed at the end of the review period, in line with academic staff’s calendar and workload. We managed to get 17 responses despite several all school mail outs by the project champions within Geosciences, again Covid 19 was cited as a major factor in low uptake.

However, the results we did get were insightful, and most useful;

*‘Everything we do must support achieving these UN goals. I cannot understate the importance of engaging with these goals in every activity that we pursue in the School of Geosciences.’*

The majority of academics felt they had a good understanding of the SDG’s and were delivering them in their teaching albeit not always explicitly.



**59% of Geoscience academic respondents reported that they felt able to teach some of the goals with the remaining 41% aware of the goals but uncomfortable with incorporating them into their teaching.**

Barriers to making SDG teaching explicit within courses were mainly around time pressures of course development, teaching practice and other demands of academic professional life;

*'I don't know where to start and wish I had more time. I am really keen on trying to include the SDG more in my teaching, but the covid-19 crisis has thrown a big spanner in the works. Being able to teach something decent when term start in September will already be a massive achievement!'*

**59% of respondents agreed a half day workshop or a participatory online course guiding them on successful SDG inclusion in their curriculum teaching would be valuable and welcomed.**

A last interesting reflection was from an academic who felt both they and their students benefited from co-created learning, namely in the form of living lab dissertation/course projects. This was a good model for applied SDG student learning and helped academic teaching practice.

Full survey data is available outwith this written report.

## *Student Engagement Routes*

For the student survey route, the school of Geosciences are interested in developing Top Hat quiz app surveys for their lectures in semester one. It is suggested that student engagement with these online surveys will be relatively easy given they are commonly used already. These short surveys will give an insight into large cohorts of students perception of the teaching that meets the SDGs. Uptake may be easier given the online or blended nature of teaching into the coming year

## Conclusion and next steps

Using this two-part method, our review and mapping exercise was successful in identifying courses that are engaging with the SDGs. We anticipate the results of the staff survey will validate the results and we would hope to provide data analysis of the staff survey at the end of July 2020.

Conducting this research during the closure of the University, and in a busy calendar point for academic colleagues is perhaps not the best time to have run the project. The Project Coordinator would like to see the discussions continued into the coming year, either as part of her everyday business or part of the wider teams remit to help report on how we as a University engage and deliver on our pledge to the SDG Accord.

In the last online meeting of the steering group we had interest in keeping the group dynamic as a Community of Practice going. A desire to provide guidance, or at least understand what makes a good SDG curriculum is still a desired outcome and one that exists within Geosciences. There has also been a revived interest from Business school staff so with expertise among academic staff and professional services staff it would be an ideal project to open out this academic year. This combined with strong links in IAD will help the SDG Community of Practice identify and discuss best practice.



Student engagement options for this project are many and will be an embedded part of core business for the Project Coordinator and other team members into the coming academic year. Suggestions include SDG teaching and learning within the Sustainability Leadership Student Programme, and within the Sustainability Champions network. We will also continue to work with schools and partners around the University to ensure we engage students on SDGs within our offerings.

*Next Steps*

- Invite staff respondents who expressed in future engagement to join the Community of Practice.
- Continue to plan for SDG engagement activities in our student planning for the year
- Engage with Geosciences as a school and with their Sustainability Group for ideas on SDG teaching and learning
- Continue to engage across schools for both peer learning and to find collaborative opportunities for SDG learning and teaching
- Work with course organisers within Geosciences on suggested ways to deliver guidance and training



## Appendix 4 – Additional information gathered for each module during curriculum review

- College School
- UG or PG
- Course DRPS URL
- Module Name
- Module Code
- Availability
- Semester
- SCQF Credits
- SCQF Level
- Course Organiser Email
- Pre-requisites
- Co-requisites



Appendix 5 - Staff Survey Any text shown in red indicates questions or response options, which have been added based on feedback from the review. All question responses that allow for 'Other' to be selected have an optional section after for respondents to elaborate.

#### Survey Purpose:

Following the proposal of the United Nations Sustainable Development Goals (SDGs) in 2015, Higher Education Institutions developed the SDG Accord. The SDG Accord encourages universities to “localize” SDGs by embedding them into the curriculum, campus, and university ethos. University of Edinburgh signed this accord, committing to the aims set out in the SDG accord, and has also reinforced this commitment through principles presented in the 2030 Strategic Plan.

To promote the alignment of intent and action at our University, the Department of Social Responsibility and Sustainability has developed this curriculum mapping project to analyse the inclusion of the SDGs in the curriculum of a trial school. The School of Geosciences has been selected as the second trial school for this project due to its sustained efforts to include sustainability and social responsibility topics in its curriculum.

We see this project as an opportunity to illustrate the current inclusion of SDGs in the second trial school’s curricula, provide a framework for mapping and monitoring of SDG inclusion at other schools, and, most importantly, **support staff and students in learning and teaching themes related to these goals.**

We decided to distribute this survey anonymously, so that you might feel comfortable answering these questions without fear of judgement.

#### Course Description Questions

1. What is the name of your course?
2. When was the last time you updated your course description?
3. What do you see as the purpose of your course description?
  - a. Provide minimal information
  - b. Fully describe course proceedings
  - c. Attract students
  - d. **All**
  - e. Other
4. Was this format prescribed by your school administration?
  - a. Yes
  - b. No

#### Prior Knowledge of the SDGs

**Section note:** For 'Feel able to teach some of the SDGs' and 'Feel able to teach all of the goals,' **you do not need to have *already* integrated the SDGs into your course.** We would like to know what you *might* be comfortable with integrating. There will be a question in the next section on what you have already integrated into your course.

5. How familiar are you with the SDGs?
  - a. Not aware of the SDGs prior to this survey
  - b. Aware of the SDGs prior to this survey
  - c. Understand the principles of the SDGs, but not comfortable with incorporating these goals into my teaching
  - d. Feel able to teach some of the goals
  - e. Feel able to teach all of the goals
  - f. Other



6. If you 'Feel able to teach some of the SDGs,' please specify which ones.  
a. [List Each Goal]

### Current Teaching Related to the SDGs

**Section Note:** This question is a vital question for our review, so please take the time to answer to the best of your ability. We thank you in advance!

If you would prefer to answer this for each goal individually, please select '**view as separate questions**'.

**We define the teaching types as follows:**

**Implicitly Taught** - mentioned in passing, but not included in a formal manner

**Explicitly Taught** - planned into discussion/workshop/lecture etc. with specific attention paid to the goal and themes related to it

7. To what extent do you believe you address the goals in your course?
- a. Goal [each number is a separate question]
- Not covered
  - Implicitly Taught
  - Explicitly Taught – by myself
  - Explicitly Taught – by tutors
  - Explicitly Taught – by a guest lecturer
  - Assessed –Optional coursework questions related to the SDGs
  - Assessed –Required coursework questions related to the SDGs
  - Assessed –Group Project
  - Assessed –Optional exam question
  - Assessed –Required exam question

### Teaching the SDGs - Going Forward

8. Do you think there are opportunities for themes related to SDGs **you do not already cover** to be included in your course?
- a. Yes
- If yes, which goals?
    - [List of Goals]
- b. No
- If no, why?
    - I disagree with the ideology of the SDGs
    - I don't feel it is my responsibility
    - Inappropriate to my course
    - Resources no available to include
    - Not enough time to plan to course appropriately
    - Not enough space to include
    - Other
  - (**Include as optional for No respondents only**) To include more SDGs, you would need:
    - More administrative support
    - More professional development
    - Guidance to related resources



4. Other
9. Have you received support or training from your school or the University to help embed SDGs in the curriculum?
- Yes
    - If yes, how?
  - No
10. Have you received support of training from external, professional bodies on embedding SDGs in the curriculum?
- Yes
    - If yes, which body did you receive support from and what was the nature of the support?
  - No

### Question from Learning for Sustainability Scotland

**Section Note:** To provide meaningful support to academic staff, responses to this question will be used by LfSS to draft and develop a more impactful professional development opportunity focused on teaching the SDGs.

11. Would you be interested in further professional development opportunities to teaching in sustainability and the SDGs?
- Yes
    - If yes, which would you be most likely to participate in:
      - Half-day workshop
      - Participative online course
      - Lecture
      - Other
  - No

### Attitudes and Culture

**Section Note:** Answers to the following questions will be used to understand the environment or culture at the Business School as it relates to the SDGs. They are not intended to 'target;' or 'blame' any of the listed parties, but to build an understanding of the culture at the Business School in respect to sustainability and the SDGs.

12. What is your attitude on the SDGs as it relates to the teaching in your course?
- Not interested
  - Not yet aware
  - Aware, but not interested in learning more
  - Aware, and interested in learning more
  - Actively trying to incorporate these topics in my course
13. In your opinion, what is the general attitude on the SDGs as it relates to the teaching among the academic staff?
- Not interested
  - Not yet aware
  - Aware, but not interested in learning more
  - Aware, and interested in learning more
  - Actively trying to incorporate these topics in their courses



14. In your opinion, what is the general attitude on the SDGs as it relates to the teaching among the students?

- a. Not interested
- b. Not yet aware
- c. Aware, but not interested in learning more
- d. Aware, and interested in learning more
- e. Actively trying to engage with these topics

15. In your opinion, what is the general attitude on the SDGs as it relates to the teaching among the senior management?

- a. Not interested
- b. Not yet aware
- c. Aware, but not interested in learning more
- d. Aware, and interested in learning more
- e. Actively pushing for these topics to be embedded in the curriculum

#### **Additional Comments**

Please free to add any additional comments, insights, or initiatives that you weren't able to comment on in this survey. If you are very interested in this project, please leave your email below and we can find a way to get you involved!

#### **Thank you!**

**Thank you for taking the time to fill out our survey! We hope that this survey was an opportunity for you to take time out of your day to reflect on the SDGs and how they relate to your course.**

This publication can be made available in alternative formats on request.

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