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Speaker 1 [00:00:04] Hello and welcome to the Talking Geosciences Podcast, brought to you by the School of Geosciences at the University of Aberdeen. Over the course of this series, we will hear staff and students discuss how their teaching and research is helping us understand and address contemporary global challenges, including sustainability and climate change. In this episode, Dr. Lorna Philip and Dr. Tim Mighall discuss two new first year courses recently introduced by the Department of Geography and Environment, creating the Anthropocene and the UN Sustainable Development Goals. These two courses together offer a unique perspective on sustainability and the interlinked nature of environmental, social and economic challenges. So Lorna, why did geography decide to introduce these two new courses?

Speaker 2 [00:00:56] As a subject, geography offers a unique perspective on sustainability challenges because we can bring in perspectives from across the physical sciences, environmental sciences, social sciences and the humanities. And we've designed our two first year courses to make them explicitly relevant to contemporary debates around really important global and local issues, mostly about sustainability, broadly defined. And we wanted to present these two courses in a way that was accessible to students who have come to university with an intention of studying geography. But we also wanted to make them attractive to students pursuing other degrees within the university. And to do that, we have to package the information in an accessible and hopefully an interesting way. And when we think back about what it was that motivated the content of the courses, there were a number of key debates going on, perhaps Tim, you can talk a bit about the development of the Anthropocene as an idea.

Speaker 3 [00:02:05] Yes, I mean, the two courses are designed to be closely connected. So the Anthropocene is maybe not a term that you hear too much about when you're at school, but it's become more widely accepted in the academic community. And people like politicians also are now aware of it. And really, the Anthropocene is or was meant to be just finding a geological marker on the geological timescale that marks the time which humans became the dominant force on the earth. So the human activity that we see today exceeded any natural process and had a larger and detectable impact on the Earth's natural systems. And we felt as a department, we needed the courses to reflect that and really creating the Anthropocene we teach first. And that's all about introducing students to how we got to where we are now, how we created the environmental challenges that we've got now and then the Sustainable Development Goals course in the second part of the first year is looking at how maybe we can mitigate and solve environmental issues like ocean acidification, like the increase of plastic pollution, like the loss of biodiversity. And of course the big one that everybody talks about is how we can maybe mitigate climate change and start changing people's perceptions about this and also persuading them to just do things differently, which will reduce our burden on greenhouse gases and other things related to the climate change debate. So the Anthropocene was a good place to start, and then we plan to build on that, a foundation that both courses in the in the first year create throughout our degree program. And that really that allows us to have that core to our degree program centred around sustainability, which is now so important.

Speaker 2 [00:04:50] We know that a lot of students come to university already aware of the UN Sustainable Development Goals and many of the ideas around. The concept of sustainable development. And we thought that having a course that was explicitly about the UN Sustainable Development Goals that could bring in perspectives from the physical environment and social sciences would be attractive to students. But we also thought it

was really important that students could understand why particular topics are being addressed and the Sustainable Development Goals. And that's where the link between the two first year courses really comes to the fore in the creating the Anthropocene course. As Tims said, we lay the foundations that describe how we've got to the mess that we're in, to put it quite crudely. And then we move into the UN Sustainable Development course by picking up on this and saying, knowing how we got to where we are, what do we then try and do about it? How do we try and mitigate against these problems? So in both courses we have members of staff with specialisms that span a wide variety of topics in the physical, environmental and social sciences coming together to offer research led insights, expert led insights into a wide range of topics. So, for example, in the UN Sustainable Development Course, we structured it along the lines of the Stockholm Resilience Centres wedding cake model of sustainable development, which is one where you need to bring together perspectives from understanding the biosphere and how you manage the physical environment alongside understanding issues to do with society on the wider economy. You need to bring that holistic perspective to many of the challenges we face globally and locally today. And that means we have staff who talk about issues to do with managing water resources, managing natural hazards and the effects of sea level rise. But we also talk about how we can reduce inequalities in the global North and the global South, how we can promote good health and well-being, how we can move together to create a more sustainable relationship between economic development and the natural environment going forward. Now, of course, we can't talk about every single topic that's related to the UN Sustainable Development Goals, but we can give a really good foundation that covers many of the challenges that we're facing today. And then further on in the curriculum, we pick up on a number of these issues in more detail.

Speaker 3 [00:07:28] And geography is well-placed to do this, because geography is about looking across a broad spectrum of subjects that provide different perspectives on the environmental issues that we're talking about. And therefore, we feel that we bind together an economic viewpoint, a political viewpoint, a scientists viewpoint. And that's something that other subject areas don't really do an economics degree of is economic insight, politics, political insight. But somewhere, if we're going to solve these problems and deal with them in the right way, we've got to integrate them and look at across a broad spectrum of different viewpoints. And I feel that geography is best place to do that. And that's what geographers simply do as part of their research or part of their learning. And we want to sort of communicate that to our students, because when we've talked to employers and and got a feel for what employers want from their geography. Student, the the main thing that comes back to us is that they love the fact that geography gives a student a broad perspective on these things, and they're not just inward looking from a particular perspective. And if we're going to solve the challenges that we now face, the only way to do that is to engage across every walk of life with every individual and consider every perspective. So you've got to understand, for example, why Donald Trump wants to ignore climate change. But if you speak to Al Gore or Barack Obama, they recognise that that is a challenge and one of the biggest challenges facing humanity. But you've got to engage both sides of the debate to find a path forward to deal with these kind of issues.

Speaker 2 [00:09:43] And what if we're trying to develop solutions to some of the challenges we're facing? We then have to learn how to use data and information effectively. And one of the things that we've built into both our first year courses is core geographical skills. And we introduce, for example, environmental datasets under analysis in small group teaching and link them to pieces of assessed work that students do to ensure that all our students have good data handling skills and data analysis and

presentation skills. We also like our students to get hands on experience of phenomenon in the real world and in the UN Sustainable Development Goals linked to moving towards the energy transition and what that means in the city of Aberdeen. We send students out in small groups to do independent fieldwork in the city, where they can look at ways in which the cities are embracing the. We can look to students, the city's embracing a carbon neutral approach to energy generation. How they, how we're now using active travel and other sustainable forms of travel in our attempts to really shift ourselves away from our reliance on private cars and hydrocarbon fuelled aspects of today's economy. And students like the opportunity to get out and about and to see the world that they're living in. But we think that gives people important skills because it makes them more observant about what's going on in the world around them. And if you can be observant and understand what's happening, you're better placed to be able to offer solutions to some of the challenges that we have today.

Speaker 3 [00:11:33] We also ask you and really require you to challenge what's being said as well and not be scared of actually questioning what's going on. And just to touch upon an example, the law on this just talked about trying to achieve a low carbon economy and also that implicit in that is changing the way that we view transportation, moving away from petrol and diesel fuelled cars to maybe public transport to reduce our carbon footprint through not flying as much. But a lot of people don't realise that electric cars, which are viewed as the future, also have an environmental problems. The metals that are required to build the batteries that electric cars are run on involve deep sea mining to extract the metals from the ocean floor and that process is destroying those ecosystems. So how green is green? How do we come to make the trade off in lowering carbon emissions to have more electric cars? With destroying an ecosystem in the deep ocean we know very little about and could actually play fundamental roles in other aspects of our environment and our marine ecosystems that we don't fully know. And again, we want to challenge our students to think about these issues more broadly so hopefully they can come to a reasoned decision on where we're going, what we're doing, is it the right way forward rather than just listening to a politician or an economist or or even a scientist saying, No, this is what's happening, this is the way it is, this is how it should be. But we've got to challenge that to make sure that actually we do make the right decisions, because it's come to a point now where we can't afford to make any more mistakes. If you look at the climate change agenda and the COP27 that took place in Egypt, the leader of the UN has openly admitted that now we're at a tipping point. We getting to a point where if we don't do something, the changes that are occurring with our climate will be irreversible. And to do that, you've got to be aware of all the evidence and be able to evaluate that in a scientific point of view, but also how it affects people all over the world in very different situations. And climate change, for example, can mean very different things to different cultures, different parts of the world, different economies, difficult, different political viewpoints. And that's why these courses matter. These courses matter. That's why we need to to talk about them through lectures, through seminars and practicals. That alone is spoken about, but also doing it is fun. And I think most of the staff, all the staff who teach in this course are genuinely interested in it and enjoy talking about it and enjoy challenging you to engage with it.

Speaker 1 [00:15:31] So the two courses you've mentioned here are first year courses that geography students take in the first year and are also open to students from other degree programmes. For a geography student in the first case who then wants to build on this topic or their interest in this area further on in later years in their geography programme. How how does that essentially link through, like how, what can you then go on as part of

as a geography student to do in your two, three and four that would build on some of the foundational, you know, aspects here covered in year one?

Speaker 2 [00:16:08] In second year we offer five geography courses, and if a student at that stage is still committed to pursuing a degree in geography, they have to do four of the five courses that we offer. We recognise that some people are more interested in the physical and environmental sciences and others are more interested in social science perspectives. So to accommodate that, we have a physical geography focussed course and a human geography focussed course in the first term of second year. And both of these courses pick up on topics that are introduced in the two level one courses. Of course, what you pick up on will be determined by whether you're going to follow a physical or a human geography pathway. So for example, from a human geography pathway, we introduce in the UN Sustainable Development course, some ways in which transport and infrastructure have been transformed. And those issues about transport and how that relates to geographical understandings of the world we live in, they're picked up on. In level two. We also introduce students to more advanced content about climate change and other ways in which major environmental changes are occurring at the global level, but also at more local scales. And then we also introduce more key geographical skills. And second year students have an opportunity to change a residential field course, which we prepare them for by introducing them to data analysis approaches. As students design their own projects, collect their own data, analyse their data and report it as part of that course, and that prepare students for the more independent study that we expect from them in their third and fourth years.

Speaker 3 [00:17:54] And a lot of the projects that they do on their field course related to what's happening currently with our relationship with the environment. So the impact of tourism as Lorna's suggested the move to more sustainable forms of transportation. In Stirling, we offer a project looking flooding and its relationship with climate change. And we've also got a second year course called Environment and Society, which picks up on some of the issues that we've talked about in our first year courses, but develops and further and particularly focuses on the approaches to understanding environmental issues and looking at the different perspectives and viewpoints that people have that I mentioned earlier and exploring the reasons why people have those viewpoints in a lot more detail. Because as I tell our students, science can't fix these problems. Science can provide the evidence and the data that the climate is changing. Things are getting warmer, that the oceans are getting more acidified. But that doesn't solve the problem. Just to solve these problems, you go into the social sciences and you have to consider people's viewpoints and beliefs etc. to come up with those solutions. So we build on the Sustainable Development Goals and we look at more closely in it in evaluating how some of the attempts to mitigate or alleviate some of these environmental issues have been successful or not, for example, acidification of the land. And there's quite a lot of things we've done over the last 30 years and the impacts that that cause and our reversing the big one is the ozone hole over the of the poles. Solutions were found in the late 1980s. Collectively countries agreed to phase out chlorofluorocarbons, CFC's, and we're now seeing signs of recovery in the ozone. So we can do it when we want to, but. you need to understand why things are successful sometimes and why things like solving climate change are more complicated and learn from the successful things, but also learn from the not successful things and try and change course and make them successful. So that's what we sort of do start doing in our level one courses, we continue that level two and then when you go into this program, there's more specific research based courses, both physical and human geography, that develop those things further. And of course we have students to do a

dissertation and I would say Lorna, more and more of these students choose dissertations, which are linked to some of the challenges that we posed to students from level one.

Speaker 2 [00:21:27] I think a lot of the students pick up on local examples of some of these global challenges in their own dissertation research. That's an independent research project that all students do in their final year, their fourth year of the undergraduate degree. So we have students who look at topics such as water quality and river management. We've had projects recently for students have been looking at the reintroduction of species like the Beaver to Scotland and what the environmental impacts of that are and potentially what the impacts on tourism of species reintroductions could be. We also have students who look at population change and how that changes communities, and that's that's a topic that has an inherent link with sustainable communities because some areas are under incredible pressure where other areas are experiencing population decline. And that introduces a new set of challenges throughout a lot of that work. Although the students aren't directly evaluating policies, government policies, a lot of their work speaks to current policy priorities at the local level, the national level, and indeed the international level. And students have that opportunity to think about how society is responding to global challenges and make their own critique of that. And some of them may well go into employment when they graduate in various forms of government or in organisations that contribute to the development of public policy. And we think a lot of the skills and experiences they have an undergraduate degree as geography students makes them very well placed to move into that post-graduation.

Speaker 1 [00:23:11] Based on the conversations or feedback you've received from students, how do you feel they have benefited from in terms of how they're thinking about issues around climate, climate change, sustainability? What has been the feedback from from students?

Speaker 2 [00:23:28] I think they appreciate the fact that they've been able to go into more detail about a lot of these challenges and they would have done if they hadn't studied our courses. And I think they also realise how interlinked a lot of the challenges are that you've got to think about linkages between environmental, social, economic challenges if you're going to develop appropriate and equitable solutions. Very often we sit in disciplinary silos in the university that you're interested in the economy or you're interested in population or you're interested in climate change. But what geographers can do if you bring together the expertise of staff in the department as a whole is we can offer different perspectives on the same issues. And if you, as a student, become aware of these different perspectives, you not only understand the complexity, but you can start to think about ways through these problems. Knowing about the interrelationships allows you to develop appropriate solutions. And if you think about what you're going to do after you graduate, you may not consider yourself a geographer, but the geographical skills and experiences you've been introduced to will hopefully make you better placed to make an active contribution to the community you live in and to the professional environment you go on to work in because you've got that ability to take on board multiple perspectives from the sciences and the social sciences and make sense of them and come to an informed conclusion.

Speaker 1 [00:25:05] You've been listening to the Talking Geosciences Podcast from the School of Geosciences at the University of Aberdeen. For more information about our teaching and research, visit our website www.abdn.ac.uk/geosciences or follow us on Twitter or Facebook.