



The 6th eSTEeM Annual Conference
STEM Futures – Supporting Students to Succeed
25-26 April 2017

FINAL PROGRAMME

Day 1: 25 April 2017

Time	Session	Venue
9.00 – 9.30	Registration and Coffee	Bay Reception/ Medlar and Juniper
9.30 – 9.35	Welcome and Introduction Clem Herman and Diane Butler, eSTEeM Directors	Hub Lecture Theatre
9.35 – 9.45	Opening Address Josie Fraser, Executive Dean, STEM Faculty	Hub Lecture Theatre
9.45 – 10.15	Opening Keynote Presentation Nicola Turner MBE, Head of Skills, HEFCE STEM Skills: The Big Picture The availability of STEM skills in the labour market will influence the success of major Government policies such as Brexit, the Industrial Strategy and the reform of Apprenticeships and Technical Education. How big is the STEM skills gap and what is the role of Higher Education in closing that gap? If STEM skills are in such high demand why are some subjects suffering from poor graduate outcomes? What strategies can improve outcomes?	Hub Lecture Theatre
10.15 – 10.30	Coffee-to-go	Medlar and Juniper

10.30 – 11.45	Parallel Session A: Short Oral Presentations – Supporting Students & Equality and Diversity in STEM			Library Seminar Rooms 1-2
Session A Chair: Clem Herman	Janet Haresnape, Fiona Aiken and Nirvana Wynn	ByALS-ForALs: an online AL Staff Development programme in the STEM Faculty	This regular programme of online sessions, delivered by ALs for ALs, provides opportunities for STEM ALs to meet online to share good practice in supporting their students. Moreover, it aims to foster community spirit among ALs, which is crucially important as more of our modules move to online delivery.	
	Rachel Hilliam, Alison Bromley and Carol Calvert	Understanding and supporting the career pathways of Mathematics and Statistics Associate Lecturers	The School of Mathematics and Statistics are considering how to best support associate lecturers through their career pathway and understand what work package would be attractive to associate lectures in the future.	
	Chris Douce and Sarah Chyriwsky	Understanding online teaching practice: the importance of the observation	Due to the advent of the GTP, a lot of tuition is now delivered online. This presentation is about exploring how best to understand and observe online tuition and share good practice.	
	Carol Calvert, Rachel Hilliam, Linda Brown and Colin Fulford	Success against the odds and the follow through - the interesting routes student feedback can open up	Asking for, and then flexibly using student feedback, can lead to interesting and valuable initiatives. Such initiatives are not necessarily confined to the modules where the initial feedback is gathered nor are they confined to either student or University actions. Student feedback is taking us down an interesting route.	
10.30 – 11.45	Parallel Session B: Short Oral Presentations – Online/Onscreen STEM Practice & Technologies for STEM Learning			CMR 15
Session B Chair: Nick Braithwaite	Nicole Lotz, Derek Jones and Georgy Holden	Lurking and Learning: Progression through the Design and Innovation Qualification	Social learning is key to student success in online learning. Throughout the qualification, viewing other students' work is demonstrated to be a stronger (or equal) correlation of student success compared to any other behaviour measured in the OpenStudio. Lurking is a critical part of an ecology of social online learning behaviours.	
	Julie Robson, Julia Cooke,	Evaluating remote access to fieldwork with interactive livecasts for distance-learning students	To support fieldwork, broadcasts used the OU's 'Stadium Live' platform and fieldcast approach with online students and lecturers "on the ground" to investigate a meadow	

	Philip Wheeler, Kadmiel Maseyk and Trevor Collins		environment. This presentation explains fieldwork pedagogy and how this approach compares to other forms of fieldwork education used within distance learning to address accessibility requirements.	
	Jon Roswell	Remote practical-focused tutorials	Find out how the OpenSTEM lab can be used to support remote access to tutor-led practical work in robotics and other technologies.	
	Elaine Thomas, Soraya Kouadri Mostéfaoui and Helen Jefferis	Students' Engagement with Programming: A case study of a visual programming environment	This project explores whether using a visual programming environment in TU100 'My digital life' promotes student engagement with programming. In this session, we report the initial findings from our analysis of students EMA scores for programming questions in comparison with their grades for the other Computing and IT topics.	
10.30 – 11.45	Parallel Session C: Short Oral Presentations – Supporting Students & Pedagogy Evaluation			CMR 11
Session C Chair: Diane Butler	John Butcher, Elaine McPherson, Carlton Wood and Anactoria Clarke	Eureka! How well does Y033 prepare students to succeed on Level 1 Science?	This presentation outlines a cross-faculty approach to scholarship, particularly looking at how an additional preparatory stage (Access module) can support students and prepare them to successfully study Level 1 science.	
	Prithvi Shrestha and Claire Kotecki	Academic literacy and communicating assessment to students on L1 Science Modules: student perceptions	Academic literacy or academic language is widely considered as central to scientific knowledge building and success. It can thus pose challenges to science students at risk of underachievement. This talk reports on a study that investigated student perceptions of how assessment is communicated to Level 1 science students and supported.	
	David King, Jon G Hall, Lucia Rapanotti,	Developing a framework for measuring qualification effects of a new pedagogy which embeds learning and assessment activities	Want to incorporate authentic learning into your modules and evaluate how it contributes to qualification outcomes? Gain from our experience on a post-graduate Computing qualification. We will share how we selected	

	Steven Self and Mark Slaymaker	within each student's rich professional context of practice	data, conducted analysis, and developed semi-automatic tools to assist with data classification and extraction, and our pilot results.	
	Martin Reynolds	From competence to capability: learning laboratories in the new world of postgraduate education	Prevailing mainstream postgraduate education often focus on developing 'competences'. A conceptual distinction between capacity, competence, and capability is exemplified through an ongoing eSTeEM inquiry. The inquiry signals the needs and requirements in shifting attention towards capability enhancement through enactment of learning laboratories as an alternative pedagogy.	
11.45 – 12.00	Coffee-to-go			Library Seminar Rooms 1-2 and CMRs 11 and 15
12.00 – 13.15	Parallel Session D: Workshop/Demonstration – Supporting Students			Library Seminar Rooms 1-2
Session: D	Christine Pearson, Susan Pawley, Nick Chatterton, Elaine Moore, Catherine Halliwell, Louise MacBrayne, Anne-Marie Gallen, Alison Mortiboy and Ellena Benson	Show and tell: Innovations in 'between module' support for Qualification progression	In our named qualifications there is often the need for students to be prepared for the curriculum that comes next in the qualification. This is an invitation for colleagues to bring along examples of how we support students moving between modules and levels.	
12.00 – 13.15	Parallel Session E: Workshop/Demonstration – Supporting Students			CMR 15
Session: E	Vikki Haley-Mirnar, Diane	What drives active student participation in online tutorials?	Online tutorials reduce some barriers to attendance and offer flexibility but may be less useful to the student since	

	Butler and Lynda Cook		the opportunity for active participation in learning is limited. We have developed a prototype method to evaluate tutor's online tutorials to recognise good practice with regard to active student participation.	
12.00 – 13.15	Parallel Session F: Structured Discussion/Briefing – Supporting Students			CMR 11
Session F	Martin Hlosta, Zdenek Zdrahal, Michal Huptych and Jakub Kuzilek	How can OU Analyse be beneficial for all tutors at STEM and the whole OU?	The discussion will be focused on providing feedback of the existing OU Analysed system, being about to be available for all the modules at The OU. Participants will be asked about the difficulties that they currently have and how to improve the system and their work with the students.	
13.15 – 14.30	Poster Presentations and Lunch			Hub Lecture Theatre/Medlar and Juniper
	Delegates are invited to vote for the best poster. The winning poster will be announced during the closing keynote session.			
14.30 – 16.00	Parallel Session G: Workshop/Demonstration – Technologies for STEM Learning			CMR 1
Session G	Andrew Smith and Amanda Closier	You too can have your fifteen minutes of fame – a workshop on using Facebook Live for student and community engagement	The Library and Cisco Networking teaching team from STEM are presenting on the use of Facebook Live in different teaching contexts. Exploring benefits, affordances and potential disadvantages. As well as offering a workshop how and where to use this technology within the context of teaching and outreach. PLEASE NOTE: the presenters plan to broadcast live from this session.	
14.30 – 16.00	Parallel Session H: Workshop/Demonstration – Supporting Students			CMR 15
Session H	Frances Chetwynd, Helen Jefferis and Fiona Aiken	Bridge Over Troubled Waters – Would your students benefit from a bridging course to help them transition to second year?	In this workshop we will present some of the existing research on the benefits of bridging courses for students transitioning from Level 1 to Level 2 studies. Delegates will gain an understanding of the types of bridging courses available and how to use a bridging course in their subject area.	

14.30 – 16.00	Parallel Session I: Workshop Demonstration – Technologies for STEM Learning		OpenScience On-Campus Teaching Labs, Venables A Wing
Session I	Mark Hirst, Ulrich Kolb, Tim Drysdale, Nick Braithwaite and James Smith	The OpenSTEM Labs	Demonstrating facilities in the new OpenSTEM Labs: come and explore remote controlled experimentation in the OpenScience Observatories, the OpenEngineering Laboratory and the OpenScience Laboratory.
16.00 – 16.15	Afternoon Tea-to-go		CMRs 1, 15 and Venables Café
16.15 – 16.45	Closing Keynote Presentation		Hub Lecture Theatre
	Michael Grove, Reader in STEM Education, University of Birmingham		
	<p>Is there a role for pedagogy in enhancing the STEM student experience?</p> <p>Within the UK there is an increasing focus for higher education institutions to provide evidence of the impact of their efforts to ensure all students have access to a high quality learning experience (through the Teaching Excellence Framework) and in enabling fair access (through the OFFA Access Agreements). At the same time, there are an increasing number of academic staff who are choosing to focus their careers upon a teaching and learning pathway. For such staff there are many advantages, both personal and professional, in developing a scholarly profile, but making this transition can be challenging. In this presentation I will explore how their disciplinary skills and training may be adapted to enable an enquiry-based approach to teaching and learning innovation and enhancement.</p>		
16.45	Close		

Towards a Framework for Inclusive STEM Education

Day 2: 26 April 2017

Time	Session	Venue
9.30 – 10.00	Registration and Coffee	Bay Reception/ Medlar and Juniper
10.00 – 10.10	Welcome and Introduction	Hub Lecture Theatre
	<p>Clem Herman & Diane Butler, eSTEEeM Directors</p> <p>Many STEM departments in UK universities are now actively engaged in equality and diversity work, in particular as a result of Athena SWAN which has required close scrutiny of gender metrics, processes and cultures. But how do we go beyond this to think about Equality Diversity and Inclusion as a framework for STEM education which involves active participation of academics, students as well as support staff?</p> <p>This workshop will bring together diversity experts and STEM educators to consider how we can create a vision of inclusive STEM education for the 21st century. What are the principles that should underpin our approach? What are the specific equality challenges and opportunities presented by distance and online learning? How can we sustain and embed equality work in times of austerity and funding pressures?</p>	
10.10 – 11.15	<p>Inclusivity in Action – Worldwide Case Studies: Part 1</p> <p>A selection of UK and international case studies demonstrating new approaches to diversity and inclusion in STEM education.</p>	Hub Lecture Theatre
	<p>Ann Holmes, Ann Holmes & Associates</p> <p>Framing inclusion: two Canadian initiatives</p> <p>The WinSETT Centre’s Leadership Program is a series of 5 day-long sessions designed for early to mid-career female engineers, scientists, tradespeople and technologists. The program invites participants to consider how</p>	

	<p>they can lead from whatever point they are in their careers. The skills developed are useful for all women, especially those considering study or work in STEM.</p> <p>Gender-based Analysis+ is an analytical tool used within the government of Canada to assess the potential impacts of policies, programs, or services on diverse groups of women and men, taking into account gender and other identity factors. Its framework of sustainability can be adapted to any organization's structure and needs.</p> <p>Reflections on both initiatives will draw out ways to support inclusive STEM education.</p>	
	<p>Jan Peters MBE, Katalytik</p> <p>Setting the scene for inclusion in engineering. Day 1 The participation of women in engineering at undergraduate level has changed little for 20 years. Engineering departments are simply not achieving Athena SWAN awards at the same rate as science departments and engineering as a whole has failed to grasp diversity and inclusion. This talk will explore the outputs of the HE STEM project, Set to Lead and how it has helped shape the Integrated Engineering Programme at UCL at helping to address the underrepresentation of women in the STEM workforce, without mentioning women.</p> <p>The Set to Lead project developed resources and good practice around team working to help students build an inclusive team culture by listening to each other and valuing each other's contributions through the Gallup Strengthsfinder tool. Jan continues to support the IEP through the use of the Gallup Strengths Finder Tool to aid student communication and collaboration. The presentation will highlight the outputs of the Set to Lead project, impacts of using strengths thinking in teams and the development of a new framework for engineers to look at addressing inclusion.</p>	
	<p>Mary Ayre, University of South Australia</p> <p>Introducing and revisiting a gender inclusive engineering curriculum. A case study from Australia Following a brief outline of her experience with a gender inclusive engineering education project in Australia, Mary will suggest some questions which might be considered at this afternoon's workshop.</p>	

	<p>Mustafa Ali, The Open University</p> <p>Decolonizing Computing Does computing need to be decolonised, and if so, how should such decolonisation be effected? Isn't it somewhat of a stretch to describe computing as colonial, especially since colonialism as a phenomenon tied up with imperial structures of domination and settlement is a thing of the past? How can computing be colonial if the 'age of empires' is over and we live in a postcolonial world? In this talk, I will argue that computing is inherently colonial in some sense because, as a modern phenomenon, it is founded upon, and continues to embody aspects of, colonialism. After presenting some examples of colonial computing, I will offer some suggestions as to how to computing might be decolonized.</p>	
11.15 – 11.30	Morning Coffee Break	Medlar and Juniper
11.30 – 12.15	<p>Inclusivity in Action – Worldwide Case Studies: Part 2</p> <p>A selection of UK and international case studies demonstrating new approaches to diversity and inclusion in STEM education.</p>	Hub Lecture Theatre
	<p>Trevor Collins, Anne-Marie Gallen and Nick Braithwaite, The Open University</p> <p>Embedding and sustaining inclusive STEM practices National student data has shown a range of attainment gaps for specific groups across Higher Education, specifically for: students from low socio-economic groups, students from black and minority ethnic groups, and students with disabilities (HEFCE, 2015). Consequently, the Higher Education Funding Council for England are funding 17 projects under the Catalyst programme to help address these inequalities. Building on prior experience, The Open University is leading a project with colleagues from the University of Leeds and Plymouth University, to evaluate and promote inclusive educational practices within the STEM disciplines.</p> <p>Integrating accessibility within teaching and learning requires universities to embed and sustain module design and delivery practices that consider the diverse needs of all students. As more of our teaching and learning is being mediated through technologies, this brings opportunities as well as potential pitfalls, when it comes to inclusive education. Digital access to learning resources introduces opportunities for the use of assistive technologies and alternate formats that enhance the accessibility of learning resources for students with disabilities, but care needs to be taken to ensure the pace of innovation and interaction matches that of accessibility and inclusion.</p>	

	<p>Across the STEM disciplines there are particular challenges associated with fieldwork, labwork and notations. However, with changes to the Disabled Students Allowance Scheme, universities are increasingly responsible to ensure that the education they provide is accessible and inclusive. Within this presentation we'll consider the role of eSTEEem in inclusive education at the OU; we'll describe some of the processes and approaches used in OU modules, and we'll discuss how case studies and recommendations on inclusive practices might be produced and shared across the STEM disciplines.</p>	
	<p>Anita Shervington, Community Perspectives CIC</p> <p>Science with and for (a diverse) Society?</p> <p>The underpinning principles of public engagement with science and the breadth of approaches out there are fantastic. However, in our attempts to build an engaged citizenry, we have failed to serve key groups of people and have unintentionally widened the gap between those that engage with science and those that don't. If we were to 'map the gaps' depicting the distribution of informal science activity outside of the classroom, we would see deserts, and hot-spots across the country, confirming what we already know – science isn't accessible to everyone.</p> <p>My idea is to expand the science engagement sector to include a diverse, inclusive and asset based, leadership model, with the mission to fill those gaps across the country. We must ensure that equity, culture and social justice play a bigger role in the whole process – in particular when granting access to funding, developing leaders and deciding on locations for community-driven engagement.</p> <p>We must keep asking ourselves who is missing? What are their needs, aspirations and ideas, and how can the STEM agenda be creatively utilised to respond and contribute to their priorities? Inclusivity isn't just about who turns up, or who delivers. It's also about the content and context.</p> <p>There are already a huge number of committed people leading community STEM initiatives designed around specific audiences, but sadly these initiatives typically receive little, to no, support from the STEM funding sector – this is what needs to change.</p> <p>Reaching new audiences doesn't require reinvention, but it does require focus on the re-distribution, re-design and resourcing of what we have now, to make it applicable to all communities, so that we can achieve our ambitious goal of science with and for (a diverse) society.</p>	

	<p>Claudia Morrell, Morrell Consulting</p> <p>Closing the Empathy Gap Ms. Morrell has spent the last three years developing a new educator professional development program entitled, "Closing the Empathy Gap." Launched in 2017, this research-based program highlights the increasing levels of local, national, and international distrust and alienation spreading among diverse groups and the role technology and the information society play in both creating and addressing cultural apathy, disinterest, and discord. Concurrently, technology and social media are also expanding individual engagement and empowerment leading to the emergence of new voices, the amplification of calls for social justice, and an increased energy to solve shared global challenges.</p>	
12.15 – 13.00	Does inclusion just happen? The nature of prejudice and how it can thwart the best of intentions	Hub Lecture Theatre
	Jiten Patel, The Open University	
13.00 – 14.00	Lunch and Posters	Medlar and Juniper
14.00 – 15.30	Workshop Activity: What does inclusivity look like? Developing an inclusive framework to inform OU Redesign	Hub Lecture Theatre
	Clem Herman and Diane Butler, The Open University	
15.30	Afternoon Tea and Networking	Medlar and Juniper
16.00	Close	