network for excellence in mathematics and statistics support

NEWSLETTER

Issue 16: Autumn 2018

2018 Annual General Meeting of the sigma Network

David Bowers
Chair | sigma Network
chair@sigma-network.ac.uk

The 2018 Annual General Meeting of the **sigma** Network was held on 5th September 2018 at the University of Glasgow. As a constituted professional association, we are accountable to our members, and we look forward to the opportunity to share our achievements and future plans each year at an AGM.

The meeting was attended by 71 attendees from 46 higher education institutions. Minutes and associated papers are available to view on our website http://www.sigma-network.ac.uk/constitution-and-agms/ . Here is a brief summary:

The Chair's Report focused on how the **sigma** Network has demonstrated sustainability and impact over the past two years, after HEFCE funding ceased in 2016. A thriving community of practice in mathematics and statistics support has emerged, with a growing mailing list, a varied programme of networking and professional development events, and active special interest groups (SIGs) who are publishing resources and organising training.

The Secretary's Report confirmed the plans for an Individual Membership scheme for the **sigma** Network in the coming year. Originally this was foreseen for the year just ended, but was delayed by concerns around data protection and the new GDPR requirements. We are grateful to the University of Bath for agreeing to securely host the membership database now.

The Treasurer's report, which stated the very small bank balance, highlighted the generosity of institutions who host events without charge and individuals who contribute to meetings and present at events freely. This demonstrates a sustainable and supportive community of practice. Nevertheless, we will focus in the coming year on identifying possible sources of external funding to allow development of more substantial projects on behalf of the sector.

The meeting ratified the membership of the **sigma** Network Steering Group for 2018/19.

Finally, the meeting was asked to suggest ideas for activities that the **sigma** Network could organise for the benefit of maths and statistics support practitioners across the HE sector. Twelve suggestions were received, and these will be considered by the Steering Group over the coming year.

Editor's Note

I am delighted to bring to you the Autumn 2018 edition of the **sigma** Network newsletter. As we look forward to the start of the new academic year, you may be interested in reading the experiences that our colleagues have shared in this edition. This issue also features several new resources that you could use in your maths support centre. If you have recruited new members of staff or student Peer Assisted Learning (PAL) mentors, you will find out about the training sessions run by the **sigma** Network in the 'Future Events' section.

Thank you to all authors for their contributions to this edition. The deadline for contributions for the next edition (Spring 2019) is **1st March 2019**. We welcome contributions on any topic that may be of interest to practitioners and academics supporting higher education students in their learning of mathematics and statistics. To submit an item, see http://www.sigma-network.ac.uk/sigma-newsletters/ .

Finally, as usual, the views expressed do not necessarily constitute recommendations from the **sigma** Network Steering Group or any associated parties.

– Hansa Bissoondeeal
(University of Essex)

Jeff Waldock retired from his position of Head of Mathematics at Sheffield Hallam University in August 2018.

From the whole **sigma** Network, we wish him a very happy and enjoyable retirement.

The Chair's piece: membership and belonging

David Bowers
Chair | sigma Network
chair@sigma-network.ac.uk

We are now entering the third year of the **sigma** Network as a self-regulating constituted professional Association, following the end of HEFCE project funding in July 2016. Over the past two years it has been a pleasure to work with fellow Steering Group members to keep the **sigma** "brand" alive and to maintain a programme of events and activities for the benefit of everyone working in HE mathematics and statistics support.

Over the past two years we have organised and run 19 professional development and networking events at various locations around the country, which attracted 353 attendees from a total of 64 institutions. In addition there have been meetings and working days held by our Special Interest Groups. Our Jiscmail email list now numbers over 360 individuals from the UK and beyond, and is growing by the month. This demonstrates that there is a thriving community of maths support practitioners who are keen to maintain their professional standing and share ideas and experiences. Thank you all for your involvement and contribution!

The Constitution of the **sigma** Network now requires us to put a more formal membership arrangement in place. There are good reasons for doing so. It will be important to be able to evidence a sound membership base when seeking future collaborations or funding opportunities. And the membership will be entitled to take part in deciding the future direction of our Association though voting rights at our AGM. Over the past few months we have sought legal and data protection advice, and are now in a position to introduce an Individual Membership arrangement.

I must stress here that Individual Membership of the **sigma** Network is intended primarily as a way for you to evidence your professional commitment to mathematics and statistics support, and entails no obligation. We currently do not intend to charge a membership fee – any future levy would require full consultation and AGM approval. Application for Individual Membership will be very light touch. Details have recently been announced via our Jiscmail list, and there is a direct link to the membership application form on the homepage of our website.

I sincerely hope that you will take a moment to apply for Individual Membership of the **sigma** Network. As mentioned above, we already have a community of several hundred supporters who attend our network events and subscribe to our mailing list. This sense of belonging to the cause of HE mathematics and statistics support is already strong, and the **sigma** Network is committed to retaining and expanding the professional recognition of our thriving community. Your role in helping to shape this will be greatly valued.

Jeff Waldock retirement

Peter Rowlett
Reader | Sheffield Hallam University
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Jeff Waldock is well-known to the **sigma** Network community, having been involved with recent initiatives such as the **sigma** Employability Special Interest Group and running a successful **sigma** workshop on learning spaces, as well as being a regular attendee at the CETL-MSOR Conference over many years. He retired from his position of Head of Mathematics at Sheffield Hallam University in August 2018.

Jeff started his career with a first degree and PGCE in Mathematics and a PhD in Physics. He worked for six years as a doctoral research associate in Ionospheric Physics at Leicester University before arriving at the Sheffield City Polytechnic, now Sheffield Hallam University, in 1987.

Jeff has a keen interest in many aspects of teaching and learning practice, including learning technology, learning spaces and employability skills development. He created a departmental website and was instrumental in designing a new shared informal learning space for Mathematics at Sheffield Hallam, all of which helps create a shared community of learning, an important factor in maximising student engagement and achievement. He has also created numerous interactive learning tools to help students explore various aspects of the mathematics curriculum. Jeff is interested in all aspects of skills development, but particularly in encouraging mathematics students to acquire better employability skills, and to take advantage of the wider, extra-curricular opportunities available at University. He has been actively involved in spreading practice in this area across the sector through initiatives such as the Centre for Excellence in Embedding, Enhancing and Integrating Employability CETL and the Higher Education Academy book *Pedagogy for employability*.

Jeff is a Fellow of the Institute of Mathematics and its Applications, a Principal Fellow of the Higher Education Academy and a National Teaching Fellow. He will continue an association with Sheffield Hallam – on his own terms, as he is keen to stress! – as Emeritus Fellow of the University. On behalf of the **sigma** Network, I thank him for his engagement and wish him well for a happy retirement.

Maths Anxiety: Can Student Maths Mentors Help?

Gareth Woods
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Harry Flynn
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Student mentoring schemes are now an established and successful part of UK Higher Education. Peer mentoring provides pastoral support that includes personal, practical and general academic support and there is evidence of a positive effect on undergraduate transition and retention rates.

Aston University's Learning Development Centre (LDC) has recently run a Maths Mentor Scheme, as a pilot study, to run alongside the well-established Writing Mentors Scheme. The centre employed six students, currently studying an engineering or mathematics degree, to run a series of 'Engineering Mathematics' workshops aimed at first year students. The sessions were run weekly and the topics were chosen so that they would run concurrently with the first-year students' lectures.

The 2017/18 Aston University Maths Mentors.

The mentors were provided with training in both the pedagogy of teaching mathematics and classroom management. They were supported throughout the planning phase of their workshops and left alone (without staff) to teach the workshops, at their request.

Feedback from the students that made use of the workshops was excellent with 71% of the students who attended the sessions finding them *very* useful, 95% of them saying that they had learnt during the sessions and 69% of them were *very* satisfied with their experience. Those who attended the sessions were generally ones who had not previously made use of the maths support services that the LDC offers. Those who attended were very engaged once the workshops commenced, asking questions throughout and initiating discussions about their learning. We believe all of this gives further weight to the notion that student maths mentors can be a very useful tool in reaching students who may not make use of other, staff led, support services to overcome their maths anxiety.

Due to the overwhelming success of the pilot study, the LDC is to expand the Maths Mentor Scheme for the next academic year. In addition to that offered this year it will include specific support for the mathematics required by students on a business degree course.

My personal reflections on a decade of mathematics support

Dr Robert Jenkins
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I spent a decade supporting students with mathematics and statistics at University of East Anglia (UEA). It was exhausting, exhilarating, challenging and rewarding…all those things. When I began, Mathematics Support Centres were few and far between; the scene has now changed. UEA was great as my post was a fulltime position and I was free to explore how best to tackle this big unseen problem of students struggling with mathematics. I often commented to colleagues who supported academic writing that we often have to support students in learning to read, write and spell (basic grammar comes later); that's a skill, you know – it's really hard and BBC Bitesize isn't really designed for University students. As I delved deeper, the position grew and I gained tremendous colleagues. We made resources, used social media, developed embedded support in schools of study but most importantly we met students, listened to their stories and helped them improve their mathematics (and statistics). I became a Fellow of the HEA, finding that the skills and experience I had developed sat squarely within the framework; it was just writing it down that was difficult (us mathematicians aren't that reflective, I find). I improved my writing with the support of colleagues (I worked with writing tutors for goodness sake, so why not take advantage?). So don't be put off from trying (I am willing to share my application if you contact me).

Two years ago, I landed a lectureship in a discipline far away from my subject specialism but rooted in mathematics and statistics. It turns out that many schools of study find teaching mathematics to students with lower GCSE standards in maths difficult and that the skills I had developed as a Mathematics Tutor were needed. I use them every day; sure it's writ large and I have marking to do and assessment to set and so on, but I regularly sit with one or two students, with a portable whiteboard doing maths. We write together, think about maths, talk about maths, validate maths and hopefully, they improve their maths. The enthusiasm for maths I had to embody as a tutor is essential in my new job, as are my people skills, my resource knowledge and curation, my ability to empathise and get to the nub of a problem quickly and then offer a range of techniques to help. The long list of skills developed as a Mathematics Support Tutor – It made me a far better teacher, listener and human.

Are you applying for HEA fellowship?

sigma Network has produced 'Mathematics Support Mapped Against Professional Standards' (MS-MAPS) aimed at maths and statistics support tutors in higher education who are working towards professional recognition in the form of an HEA Fellowship. This resource breaks down the dimensions of the UK Professional Standards Framework (UKPSF) and cross-references them to tasks that maths support practitioners typically undertake.

MS-MAPS is freely available to download on the sigma network website.

Do you have a favourite resource you wish more people knew about?

Peter Rowlett
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I attended a recent **sigma** network meeting which discussed storage and use of legacy resources. That is, high quality resources which were created by projects that are no longer operating. There are many such resources out there produced by our community, offering huge potential benefit to readers of this newsletter, but I am not sure how likely these are to be discovered without signposting.

I am attempting to start a feature in *MSOR Connections* to bring attention to favourites. To kick things off, I wrote an introduction to the series (Rowlett, 2018a) and a first review (Rowlett, 2018b) in the new issue of *MSOR Connections*.

Please consider supporting this initiative by writing a short review of a favourite legacy resource of yours. You can submit this to *MSOR Connections* in the usual way (see https://journals.gre.ac.uk/index.php/msor/about/submissions).

Please get in touch if you have an idea you would like to discuss, or have any questions.

References

Rowlett, P. (2018a). Review a legacy resource: a new feature in MSOR Connections to aid discovery of hidden gems. *MSOR Connections*, 16(3), pp. 55–57. https://doi.org/10.21100/msor.v16i3.813

Rowlett, P. (2018b). Review a legacy resource: Industrial Problem Solving for Higher Education. *MSOR Connections*, 16(3), pp. 58–59. https://doi.org/10.21100/msor.v16i3.814

We would love you to share your experiences of using new resources or learning activities. Make sure you let us know if you run or attend an event that would be of interest to the mathematics and statistics support community.

See http://www.sigma-network.ac.uk/sigma-newsletters/ for full details on how to submit an item.

Want to host a training event?
Get in touch! Drop an email to chair@sigma-network.ac.uk.

Free resources from CORE Economics

Steve Grundy
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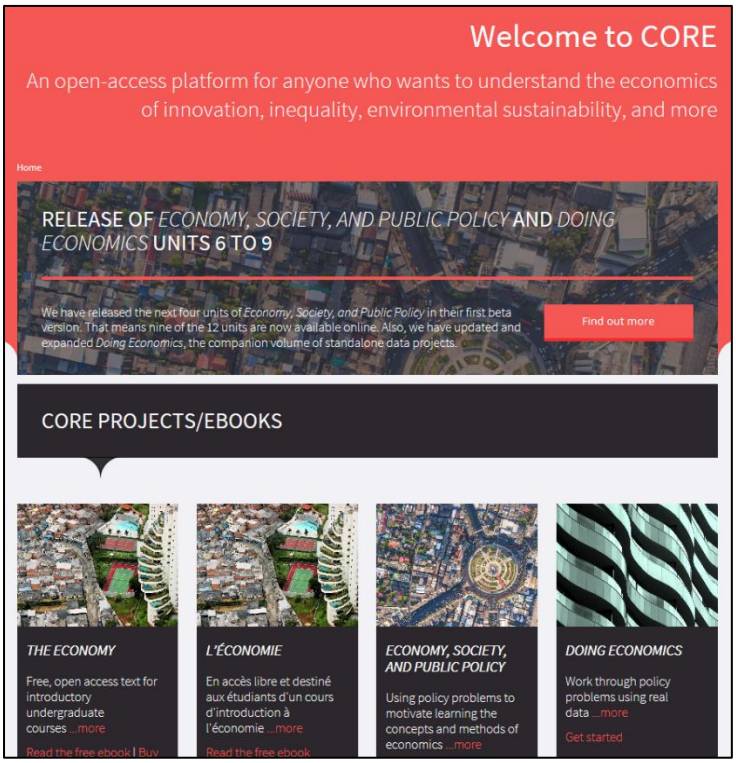
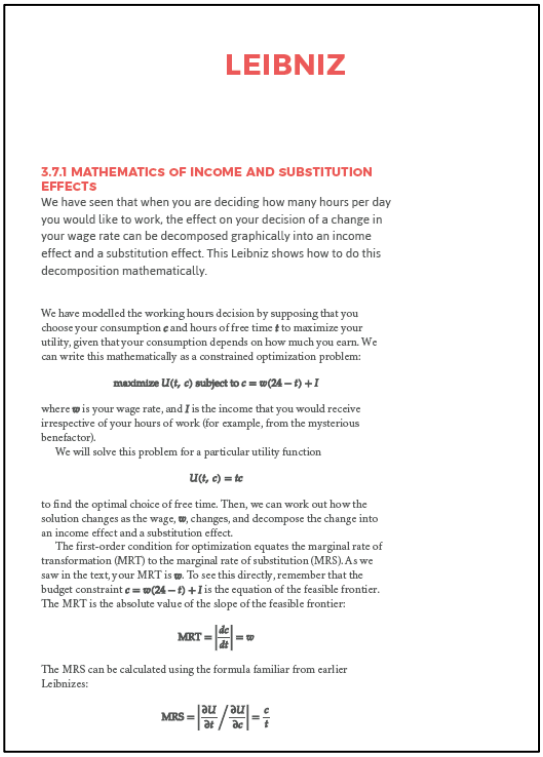
For the small price of providing your email address and making up yet another password in order to register, it is possible to access a wealth of free maths-related teaching and learning resources from CORE-Econ .

Core-Econ provides resources to support the development of quantitative economics skills for non-economists. Resources include online textbooks, slides and videos.

There is also a comprehensive set of Leibniz Maths Supplements covering essential "maths-infused" economics topics such as convex and concave functions, average and marginal productivity, quasi-linear preferences, the Pareto efficiency curve and many more.

You owe it to yourself to register and check out the free resources available from this innovative project. Because you're worth it! Visit CORE-Econ to find out what's available.





Examples of free resources available from Core-Econ

New issue of MSOR Connections published

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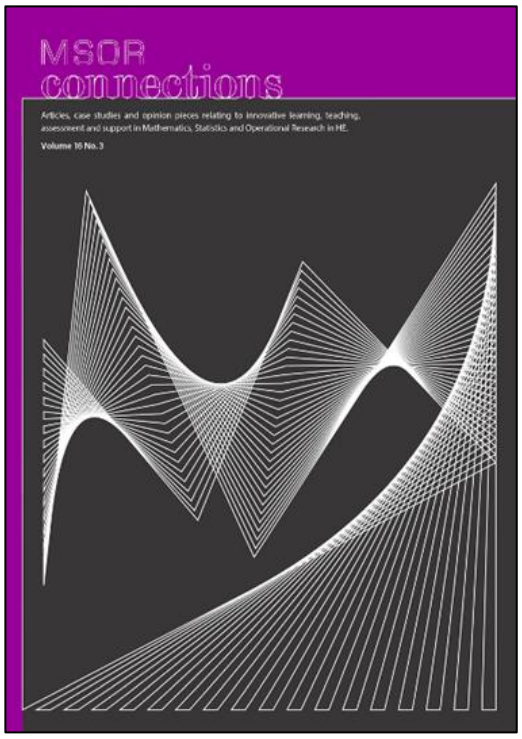
The new issue of *MSOR Connections* (Vol 16 No. 3) is now available. *MSOR Connections* is a practitioner journal that aims to publish peer-reviewed articles by and for those involved in learning, teaching, assessment and support of mathematics, statistics and operational research in higher education.

I think there are several articles in the new issue that may be of interest to members of **sigma**.

- An article from the Scottish Mathematics Support Network surveys maths and stat support provision in Scotland and gives an overview of provision in the rest of the UK and Ireland as well. This is potentially useful to see how others run maths and stats support.
- An article from Mark Hodds and Aiping Xu reviews the activities of the Mathematics Support Centre at Coventry. Hopefully this contains ideas and inspiration for others.
- Cosette Crisan and Melissa Rodd provide an account of providing a short course on teaching mathematics for graduate teaching assistants.
- Helena Barbas and Thomas Schramm discuss diagnostic testing of incoming STEM undergraduates in Hamburg.
- Dave Smith writes about methods for writing mathematics lecture notes that are flexible and accessible.



MSOR Connections
Volume 16 No. 3

We are always looking for contributions to MSOR Connections and details of how to submit can be found on the website. Submissions could include case studies, opinion pieces, research articles, student-authored or co-authored articles, resource reviews (technology, books, etc.), short updates (project, policy, etc.) or workshop reports. Please consider contributing and encourage others you know to contribute also.

You can also volunteer to review articles for MSOR Connections by registering with the website. Please provide a brief statement when requested saying what types of articles you are willing to review.

MSOR Connections website:
https://journals.gre.ac.uk/index.php/msor

Tackling the issues of learning and teaching maths in a chemistry context

Dr Gita Sedghi
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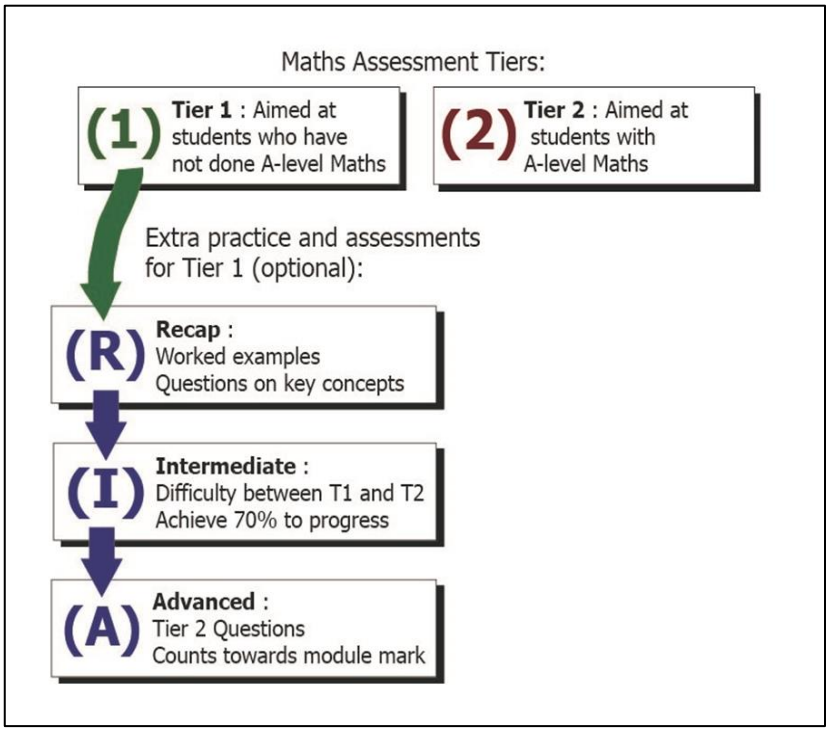
Maths teaching in Chemistry has been a recognised problem for over 20 years. Being the module leader of "Maths in Chemistry", I recognised poor performance and lack of confidence of our Year 1 students in maths, a common issue in HE institutions. A-level maths is not an entry requirement to our chemistry programmes so students of very different mathematical backgrounds make the teaching of this module challenging.

In 2014, I changed the modes of delivery and assessment of my module. Despite the common issue of learning maths in a chemistry context, there are no structured online tests in this area available to HE institutions. My idea to create online context-based assessments was based on Biggs and Collis's SOLO taxonomy, a method of evaluating the quality of learning, which suggests the structural increasing complexity of online assessments enhances student learning. In addition to this, the formative feedback and grading of answers helped students' self-assessment and independent learning.

The impact of the new modes of delivery and assessment was measured quantitatively. Evaluation of the changes to the Year 1 module showed noticeable improvement in students without A-level maths with 16% increase in the average class test marks and 48% decrease in the number of failed students.



Structure of maths online assessments with increasing complexity

The diagnostic maths test taken at the beginning of Year 2 showed the transformation of students' maths skills due to the changes in the Year 1 module. The average of the Year 2 diagnostic maths test has been increased by 20%.

Please contact Dr Gita Sedghi at g.sedghi@liverpool.ac.uk if you would like to create a similar online assessment in your course. I am happy to share the bank of questions available in both Word and Respondus formats which could easily be transferred in to any virtual learning environment.

Maths Sparks Problem Solving Workshops: Resource Booklet Volume II

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We are delighted to announce that Volume II of the Maths Sparks booklet of resources for the workshops conducted in 2017 has now been published and is freely available to download here http://www.ucd.ie/t4cms/UCD17088-Maths-Sparks-II-Workbook-online.pdf.

Working on maths problems with undergraduate volunteers

This booklet is intended as a resource for educators conducting outreach or public engagement events including informal Maths Clubs or as a starter activity to motivate some branch of mathematics/statistics. The booklet can also be utilised in teaching extra-curricular content to students in their schools and includes a lesson plan and resources for each workshop. The booklet contains workshops on "The Handshake Puzzle", "The Birthday Problem", "Infinity, Number and Shapes", "Logic" and "Astronomy".

The booklet was created during the 'Maths Sparks Problem Solving Workshops' 2017 series held by the UCD School of Mathematics and Statistics for secondary pupils from schools designated as disadvantaged in the vicinity of the university. Each workshop was designed and presented by a team of undergraduate students under the guidance of academic staff. While the majority of content in these workshops is not taught as part of the second level mathematics curriculum in the Republic of Ireland, the activities are designed to cultivate students' mathematical thinking and problem solving skills. The workshops are also designed to encourage a more collaborative approach to teaching and learning mathematics, where students work in pairs or small groups in making sense of specific tasks.

Understanding the Mobius Strip as part of the Infinity Workshop

Further information on the Maths Sparks Problem Solving Workshops, sponsored by Science Foundation Ireland, can be found here: http://www.ucd.ie/mathstat/mathsparks/.

Please feel free to share this resource with your colleagues and any interested parties. Please contact anthony.cronin@ucd.ie or aoibhinn.nishuilleabhain@ucd.ie with any queries or feedback you may have.

Tutor training workshop – 5 October 2018, Cardiff University

Robert Wilson
Dean of Education Innovation | School of Mathematic - Cardiff University
wilsonrh@cardiff.ac.uk

Tutor Training workshop

Date: 5th October 2018

Location: Cardiff University

The sigma Network is offering a FREE one-day training workshop for new maths and statistics support tutors on Friday 5th October 2018, at Cardiff University.

PROGRAMME OUTLINE

10:30 Welcome and introductions

10:45 Mathematics support – what is it?

11:15 Problem solving session

12:00 Principles of mathematics support – do's and don'ts

12:30 Lunch

13:30 Offering statistics support

14:00 Tutoring in mathematics support centre – exploring possible scenarios and student needs

14:45 Resources and networking

15:15 Question and answer session

15:30 Close

Anyone interested in attending please contact Robert Wilson (wilsonrh@cardiff.ac.uk) noting any special dietary or access requirements.

For those working towards HEA Fellowship, engagement with this event and reflection on the implications for your professional practice can help provide evidence towards the following dimensions of the UKPSF: A1, A2, A3, A4, A5, K2, K3, K4, V1, V2, V3, V4.

Tutor training for statistics support – 26 October 2018, Coventry University

Alun Owen
Associate Head of School of Computing, Electronics and Mathematics | Coventry University
aa5845@coventry.ac.uk

Tutor Training for statistics workshop

Date: 26th October 2018

Location: Coventry University

The sigma Network's Special Interest Group in Statistics Support is hosting a free one day workshop on developing the skills needed for providing effective statistics support. This is aimed at anyone who gives statistical advice and wishes to improve their skills in providing this type of support.

The statistics support needs of many students usually relates to the application of statistics to an individual project which those new to statistics support can often find challenging. The event, led by experienced statistics tutors, will concentrate on developing the additional skills required for this type of support along with tips for dealing with common issues. The workshop will use scenario based training to allow delegates to build confidence through practical activities, discussion and sharing ideas.

- Aspects of statistics support which will be covered include:
- Listening and questioning skills
- Choosing the right test
- Explaining key concepts
- Providing support rather than a consultancy
- Tailoring to the individual
- Dealing with difficult situations

This free workshop, including lunch and refreshments, is being hosted by the sigma Mathematics Support Centre at Coventry University on Friday 26th October 2018, from 10.00 am to 4.00 pm.

If you are interested in attending please register via this link:
https://shusls.eu.qualtrics.com/jfe/form/SV_dn8S0tsAofE62pL

If you have any questions about the event please email one of the organisers:

Alun Owen at Coventry: aa5845@coventry.ac.uk
Ellen Marshall at Sheffield Hallam: ellen.marshall@shu.ac.uk
Mark Hodds at Coventry: ab7634@coventry.ac.uk

For those working towards HEA Fellowship, engagement with this event and reflection on the implications for your professional practice can help provide evidence towards the following dimensions of the UKPSF: A1, A2, A3, A4, A5, K2, K3, K4, V1, V2, V3, V4.

Tutor training workshop – 7 November 2018, University of Essex

Hansa Bissoondeeal
Mathematics and Statistics Tutor | University of Essex
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Tutor Training workshop

Date: 7th November 2018

Location: University of Essex

The **sigma** Network is offering a free one-day training workshop for new maths and statistics support tutors on Wednesday 7th November 2018, at the University of Essex.

PROGRAMME OUTLINE

10:00 Arrive

10:30 Introductions and aims of the day.

11:00 Maths support – what is it, why do we need it, how does it differ from traditional teaching?

11:30 Problem solving sessions.

12:30 Principles of maths support – dos and don'ts.

13:00 Lunch

13:30 The special case of statistics support

14:00 Dealing with challenging situations.

15:00 Resources available for maths support centres

15:30 Q & A. Coffee and networking

For those working towards HEA Fellowship, engagement with this event and reflection on the implications for your professional practice can help provide evidence towards the following dimensions of the UKPSF: A1, A2, A3, A4, A5, K2, K3, K4, V1, V2, V3, V4.

This training day is generously hosted by the Talent Development Centre and the Department of Mathematical Sciences at the University of Essex, and will be delivered by David Bowers, Chair of the **sigma** Network.

Anyone interested in attending, please contact Hansa Bissoondeeal noting any special dietary or access requirements.

Statistics Training for Mathematics and Statistics Support Tutors – 20 April 2018, Coventry University

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Ellen Marshall
Senior Lecturer in Statistics Support | Sheffield Hallam University
ellen.marshall@shu.ac.uk

On 20th April this year the **sigma** Network Special Interest Group (SIG) in Statistics Support organized a statistics workshop which was hosted by the **sigma** Mathematics Support Centre at Coventry University. The workshop focused on meta-analysis and factor analysis, which had been identified as two commonly occurring topics of requests for statistics support but which support staff typically have less knowledge of.

In the morning, David Bowers, Chair of the **sigma** Network, gave an excellent overview of meta-analysis, covering the general principles and underlying theory, how to use computer software for meta-analysis and illustrating these with examples and case studies. After a networking lunch, Jonathan Gillard from Swansea University followed this up with an equally excellent overview of factor analysis. This covered the general ideas behind factor analysis, how to implement a factor analysis in SPSS and R and examples of when a factor analysis would be appropriate. In both sessions there was also a strong focus on commonly asked questions from students and how to answer those questions, which was particularly valuable to the participants almost all who worked in mathematics and/or statistics support.

The workshop was extremely well-attended by 31 participants from 21 different institutions (see photograph) and a thoroughly enjoyable and valuable day of learning was had by all.

The day actually ended with a discussion on emerging issues in mathematics and statistics support and sharing of other topics that would be of interest for future statistics training workshops of this nature. Watch this space for details of these workshops.

David Bowers teaching us all about meta-analysis

Mathematics and Statistics Support for Economics and Finance – 21 May 2018, Bournemouth University

Marta Disegna
Senior Lecturer in Statistics and Econometrics | Bournemouth University
disegnam@bournemouth.ac.uk

This workshop was hosted at Bournemouth University, and organised by Marta Disegna, leader of the "Math & Stat Clinic" within the Department of Accounting, Finance and Economics. The event attracted 12 people from 9 different institutions.

Marta Disegna and Zara Ghodsi (Bournemouth University) started the discussion with the introduction of common challenges we are all facing with our students, regardless of the kind of university and the type of programme. Firstly, everyone highlighted that the mathematical knowledge of first year students has dramatically changed over the years causing enormous problems in both delivering units and developing supporting materials. Secondly, students enrolled in Economics or Finance programmes need more practical examples to see the "maths at work", to clearly understand theoretical concepts, and to see how they can apply mathematical and statistical tools in both their academic and non-academic career. In this respect, there is a need to better link the "pure" Maths and Stats units to the Econometrics unit.

Francis Duah (University of York, soon moving to University of Chichester) introduced the **math**centre community project preparing a series of Help Sheets with economics examples. This project had received initial funding from **sigma**. Attendees were keen to get involved with reviewing and proofreading these resources prior to publication.

Martin Greenhow (Brunel University) explained the efficiencies of computer-aided assessment in providing structured exercises to consolidate mathematical competencies in a non-threatening environment. The METAL Project along with Maths E.G provides a huge bank of questions with feedback on different economics applications that both teachers and students can freely use.

Steve Grundy (Nuffield Foundation) outlined the Q-Step initiative to make the quantitative social sciences more accessible. The CORE project has recently launched an introductory Economics course for non-specialists with a focus on empirical real-world data, which is freely available online.

The day finished with a round-table discussion. Issues included how to support students in Economic or Finance programmes who panic before the exam due to the amount of formulae to remember. In this respect, some useful suggestions, as for instance the use during the exam of a formula sheet individually created by students during their revision, were presented. This event made attendees aware that we are all struggling in engaging students and gave attendees the opportunity to expand their knowledge of existing online resources freely available.

An audio recording of the day, and copies of the main presentations, are available on the **sigma** Network website: http://www.sigma-network.ac.uk/mathematics-and-statistics-support-for-economics-and-finance-21st-may-2018/

The 10th Annual Scottish Maths Support Network Meeting – 1 June 2018

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Shazia Ahmed
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The 10th Annual Meeting of the Scottish Maths Support Network (SMSN) took place on Friday 1st of June 2018, at Robert Gordon University, in Aberdeen. To mark the 10th anniversary of the Network, we also held a conference dinner on the 31st of May 2018.

The annual meeting was attended by 24 delegates from Higher Education Institutions across Scotland and the rest of the British Isles. We welcomed two guest speakers; Michael Grove from the University of Birmingham, and Ciaran Mac an Bhaird from Maynooth University (Ireland).

Michael Grove, a reader in STEM Education, gave a thought-provoking presentation on how mathematics support is changing in higher education, due to the ever-increasing demand from a diversifying student population. Ciaran Mac an Bhaird presented a qualitative and quantitative analysis on mathematics learning support at Maynooth University.

Furthermore, we hosted ten contributing talks covering a wide range of topics, including maths anxiety, school to university transition, numeracy and statistics in the Biomedical Sciences, e-assessment, and measuring the impact of Maths Support in HE. The agenda and links to the presentations can be found at https://sites.google.com/site/scottishmsn/events/2018-1.

Our next annual meeting will take place on 7th June 2019 at the Abertay University, Dundee. The SMSN would like to acknowledge and thank the Glasgow Mathematical Journal Trust Learning and Research Support Fund for their generous support.



Left to right: Morag McFadyen, Anne Savage, Shazia Ahmed, Ciaran Mac an Bhaird, Michael Grove, David McConnell, Pamela Docherty, Chris Graham, Chetna Patel, John Little, Ewan Russell, Calum Macdonald

Using Social Media for Mathematics and Statistics Support – 27 June 2018, Staffordshire University

Angela Evans
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The event aimed to offer inspiration and ideas, while also providing hands-on experience of using a variety of social media tools. It was hoped that delegates would be able to identify tools and techniques that could fit within their own framework of maths support provision. Consideration was also given to avoiding potential problems when using social media in a professional context.

Event opening by Mary Bishop, Dean of Students

The event was attended by 20 delegates from 17 institutions and started with a keynote speech by Sue Beckingham (NTF) from Sheffield Hallam University entitled 'Social media for learning'. Sue outlined her internationally renowned work and provided a multitude of ideas and interesting insights. Workshops were delivered by Helen Walmsley-Smith (Technology Enhanced Learning Team), Julie Adams (Academic Skills Tutor, IT) and Angela Evans followed by presentations from Fiona Knight and Shaun Reeves from the School of Computing and Digital Technologies. Fiona spoke about GitHub, an online classroom that could be suitable for use with maths problems, as well as raising awareness of some of the realities of working with students through social media. Shaun gave some good advice about the use of professional social media networks for staff and students. The event was closed by David Bowers, **sigma** Chair.

Delegates received the event very positively, finding the Google Docs extension EquatIO, making then uploading videos to YouTube and TweetDeck particularly useful. Blogs, Facebook and Padlet were also explored. The resources from the event are available here:
https://padlet.com/helen_walmsleysmith/socialmedialearning

Feedback indicated that there is still an appetite for more examples of case studies detailing the use of social media in maths support and members would be most welcome to share their experiences. Sue Beckingham is also looking for suitable case studies for inclusion in a book she is writing – please get in touch if you wish to explore this opportunity further.

Sue Beckingham, National Teaching Fellow

Finally, we really enjoyed hosting the event and meeting colleagues from different institutions. We hope to host another **sigma** Network meeting in the future.

CETL-MSOR 2018: Evidencing Excellence in the Mathematical Sciences – 5 to 6 September 2018, University of Glasgow

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CETL-MSOR 2018 and Beyond – No longer a Vision!

Several years ago I wrote in this very newsletter my thoughts, musings if you will, on how the CETL-MSOR conference might be sustained after the end of the Higher Education Funding Council for England (HEFCE) support for the sigma Network. Now, two years on, I am delighted to write "we did it"! September 2018 marked the beginning of a new era for CETL-MSOR conference and one that ensured it has continued uninterrupted since the first event at Loughborough University in September 2006.

On the 5th and 6th September over 120 colleagues involved in the teaching and learning of mathematics within higher education from around the world gathered in the wonderfully historic surroundings of Glasgow University. That's right, participants were welcomed from around the world – CETL-MSOR has become truly global.

So what was different about CETL-MSOR this year when compared to the others? After all, there were the same mix of inspiring keynote sessions (thank you Noel-Ann Bradshaw and Gavin Brooks), a wealth of informative and insightful presentations and workshops from colleagues doing wonderful things to enhance the student learning experience, and, as always an entertaining and reflective closing plenary from Joe Kyle. Well, there was a lightning presentation session where fortunately no ducks were harmed (if you were there, you will understand!) and the post-dinner ceilidh, but this is not what I mean.

CETL-MSOR 2018 marked the first time that it was organised by the mathematics and statistics community without any externally funded support or infrastructure to do so. All costs for the conference needed to be covered, all sponsorship raised, and all organisational time given willingly and for free. There are many people that deserve great thanks for their efforts during CETL-MSOR 2018 including all delegates, presenters, session chairs and reviewers. It is impossible to name all here but there are a few who I personally wish to mention: Rob Wilson (Cardiff) and Ciarán Mac an Bhaird (Maynooth) in particular deserve praise for their hard work and expertise over the year as part of the organisational group. However, enormous praise must go to Shazia Ahmed and her colleagues at Glasgow University. Organising something on the scale of CETL-MSOR is a challenge, and making it successful is even harder. On behalf of the entire community, many thanks to Shazia and her colleagues for making CETL-MSOR 2018 one of the best ever.

The challenge now passes to Eabhnat Ní Fhloinn and her colleagues at Dublin City University where CETL-MSOR 2019 will take place on the 5-6 September 2019. This marks another new first; the first time CETL-MSOR will have left the UK. I know Eabhnat and her colleagues will make this meeting another fantastic success!