

NEWS RELEASE TO SCHOOLS AND COLLEGES, August 2018

Further Mathematics numbers continue to rise in Wales

Wales has achieved a significant increase in the numbers of AS Further Mathematic qualifications awarded this year while the number of A-level Further Mathematics qualifications awarded remained stable. According to the Joint Council for Qualifications (2018) the following changes took place in the number of qualifications awarded in Wales since 2017:

- A-level Mathematics numbers are up from 3931 to 3950, a 0.5% increase;
- A-level Further Mathematics numbers changed from 588 to 587, 0% decrease;
- AS Mathematics numbers have declined from 5409 to 4767, a 12% decrease;
- AS Further Mathematics numbers are up from 498 to 599, a 20% increase.

The proportion of A-level Mathematics students who were also awarded Further Mathematics A-level remained at approximately the same level in Wales, with 14.95% in 2017 and 14.86% in 2018 (JCQ, 2018). The corresponding figures for the results in England are 17.45% and 16.94%, for 2017 and 2018, respectively (JCQ, 2018).

While the number of A-level Further Mathematics qualifications awarded remained around the same level as last year in both England and Wales, the trend for AS Further Mathematics numbers (which included new reformed qualifications awarded for the first time alongside the old qualifications), differed substantially in the two countries. This year's increase in the number of AS qualifications awarded is the highest in Wales since 2009(JCQ, 2018). In England, AS Further Mathematics numbers are down by 35% and AS Mathematics numbers are down by 52% (JCQ, 2018). The new reformed AS qualifications are devolved from the A-level qualifications in England, while they continue contributing to the overall A-level qualification in Wales for both Mathematics and Further Mathematics.

AS Further Mathematics qualifications play an important role in improving students' transition from school to university mathematics, according to a research project carried out by Swansea University in 2016. The project accessed student opinions via a survey of 377 undergraduate students from seven universities in England and Wales, and via individual interviews. The study found that students studying university degrees, as varied as computer science, economics, engineering, earth science and mathematics, perceived the pure mathematics topics studied under AS Further Mathematics as especially helpful or even essential for making good progress with their degree courses (Lyakhova & Neate, 2017; Lyakhova & Neate, *in prep*). By design, AS Further Mathematics qualifications are more accessible than a full A-level in Further Mathematics as the qualification can be studied over two years and with more

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flexibility over a choice of modules to be taken in the first and second year of studies to suit the school's standard A-level Mathematics provision.

Further Mathematics qualifications remain required or preferred for entering some degree programmes in the UK and a few universities require students to take additional and more advanced examinations in mathematics. A former FMSP student who graduated from Penglais School in 2017 said: *"I was very relieved and extremely proud that I had passed my Further Maths exam. Passing it meant that I met the offer conditions to be enrolled on the course of my first choice."*

The Further Mathematics Support Programme was launched in Wales in 2010 and offers teacher professional development courses, online learning resources, enrichment programmes for KS4 and A-level students as well as live online and face-to-face tuition. Since August 2016, supported with further funding from the Welsh Government, the programme has operated in all counties in Wales. Kirsty Williams, the Welsh Cabinet Secretary for Education, outlined the Welsh Government's commitment to FMSP Wales at the opening of the National Network of Excellence in Mathematics (NNEM) in Wales in July of 2017. According to the FMSP Wales data, 71% of state-funded sixth forms supported students studying Further Mathematics in Wales in 2017/18.

Project leader Dr Sofya Lyakhova states, *"The increase in the numbers of the AS Further Mathematics qualifications we have seen in the first year of schools and colleges delivering new reformed qualifications for the first time is very encouraging. But we have also seen greater demand for professional development from teachers across Wales. More than a third of all state funded sixth forms accessed long or short-term FMSP teacher courses in 2017/18. FMSP is committed to working with schools and colleges in building capacity to allow more students to study mathematics post-16"*.

All state-funded secondary schools and colleges in Wales are invited to register with the Programme at <http://www.furthermaths.org.uk/?section=teachers&page=register> and express their interest in tuition assistance by contacting Sofya Lyakhova at 01792 602793.

Notes for Editors

1. The FMSP Wales is managed by The Wales Institute of Mathematical and Computational Sciences (WIMCS) and is in partnership with Mathematics in Education and Industry (MEI, www.mei.org.uk). FMSP Wales is part of the National Network for Excellence in Mathematics in Wales and is funded by the Welsh Government.

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2. More information regarding the Further Maths support programme Wales can be found at: <http://furthermaths.org.uk/wales> . For case studies from students, parents and schools please visit <http://www.furthermaths.org.uk/wales-case-studies>
3. The National Network for Excellence in Mathematics (NNEM) was launched in 2017. NNEM provides a platform for partners from a range of backgrounds and settings in Mathematics education in Wales to work collaboratively with the aim of raising levels of achievement in mathematics for all pupils across all educational settings. For more information please visit <https://hwb.gov.wales/nnem>
4. The Wales Institute of Mathematical and Computational Sciences (WIMCS) is a collaborative partnership between the universities of Aberystwyth, Bangor, Cardiff, South Wales and Swansea. It has been set up by the Welsh Government through the Higher Education Funding Council for Wales. WIMCS aims to enhance the standing of Mathematics and Computation in Wales, to foster links with industry, commerce and business, to generate substantial research funding and to provide a forum for education and public awareness of the Mathematical Sciences (www.wimcs.ac.uk).
5. Selected publications by the Research in Mathematics Education group (Swansea University, Mathematics Department) include:
 - (1) Lyakhova, S. & Neate, A. (in prep.). Further Mathematics, student choice and transition to university: part 2 – mathematics-related degrees.
 - (2) Lyakhova, S. & Neate, A. (2018). Further Mathematics, student choice and transition to university: part 1 - Mathematics degrees. *Teaching Mathematics and its Applications: An International Journal of the IMA*.
 - (3) Lyakhova, S. & Neate, A. (2017). Further Mathematics and the transition between school and university mathematics. Presented at *Mathematics Education beyond 16: Pathways and Transitions*, University of Birmingham
 - (4) Tanner, H., Lyakhova, S. & Neate, A. (2016). Choosing Further Mathematics. *Cylchgrawn Addysg Cymru / Wales Journal of Education* 18(2), 23-40.For more information please visit <http://www.swansea.ac.uk/maths/researchgroups/researchinmathematicseducation/>
6. All the figures in the report are were taken from www.icq.org.uk
7. For more information please contact the FMSP Wales Administrator on 01792 606609 or by email adminwales@furthermaths.org.uk