Programme Specification

Mathematics with Qualified Teacher Status
[Sep][FT][Frenchay][3yrs]

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Contents

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Mathematics with Qualified Teacher Status [Sep][FT][Frenchay][3yrs]

Highest award: BSc (Hons) Mathematics with Qualified Teacher Status

Interim award: BSc Mathematics with Education Practice

Interim award: DipHE Mathematics with Education Practice

Interim award: CertHE Mathematics

Awarding institution: UWE Bristol

Teaching institutions: UWE Bristol

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

School responsible for the programme: FET Dept of Engineering Design & Mathematics, Faculty of Environment & Technology

Professional, statutory or regulatory bodies:

Office for Standards in Education, Children's Services and Skills (Ofsted)

Modes of delivery: Full-time

Entry requirements: For the current entry requirements see the UWE public website.

For implementation from: 01 September 2022

Programme code: G1XG-SEP-FT-FR-G1X9

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The programme will produce self-reliant and independent individuals with experience of a variety of problem solving situations, both academic and professional. The principal aim of the award is to produce mathematics subject specialists who can teach at secondary level. The mathematics modules provide the academic rigour and the sense of enquiry required of a teacher. The delivery and assessment strategies are design so that students explore and deepen their understanding of the subject and are able to communicate their technical expertise.

The collaboration with the Education Department ensures that students gain direct experience of professional practice where ethical issues of teaching with diverse cultural environments will form an essential element of the education and personal development. The programme is designed to meet the relevant statutory requirements for Initial Teacher Training (ITT) and is delivered in partnership between the University and a range of educational institutions and professional settings; these include schools, colleges and academies serving diverse groups of young people in the Secondary age range.

The mathematical content follows three strands Pure Mathematics, Applied Mathematics and Statistics. Students are exposed to core topics in number systems, sets, functions, linear algebra, calculus, computational methods, graph theory and probability and will develop logical thinking, ideas of proof, problem solving and mathematical modelling. In the final year, the Mathematical Sciences Project provides the opportunity to carry out an extended mathematical investigation, further developing ideas and applications within these mathematical strands.

School placements provide the opportunity to put into practice theories of learning and to reflect on this experience. In their final year, students conduct an audit of their mathematics subject knowledge against the subject knowledge required by the KS3 and KS4 mathematics National Curriculum and the A-level mathematics framework.

These audits will inform (1) individual subject knowledge study plans for each student and (2) the content of focused mathematics subject knowledge seminars and workshops. Students' progress towards ensuring deep, secure mathematical understanding of the GCSE and A level curricula.

The programme provides a strong focus and preparation towards a specific graduate outcome, namely teaching while preserving the versatility and advantages that mathematics graduates hold in the graduate job market. Those who choose to enter the teaching profession will be prepared for the professional demands of that outcome and will be recommended for Qualified Teacher Status (QTS) enabling them to enter the profession as a Newly Qualified Teacher (NQT).

Features of the programme: Versatile, modern digitally enabled Mathematics and Statistics learning space

Working in partnership with local schools and the community

Immersive Programme Weeks

Integrated Learning Framework and use of problem-based and project-based learning.

Field Trips

Applied curriculum encompassing key sectors for mathematical sciences graduate employment.

Strong Mathematics Education thread in preparation for careers in teaching

Extensive outreach/community work opportunities

Mathematical Sciences community engagement – LMS Summer Schools, Tomorrow's Mathematicians Today and other student conferences, R Users meetings.

Professional and personal development embedded throughout all levels of the programme.

Educational Aims: The educational aims are for the student to:

Develop a strong foundation in advanced mathematical and statistical concepts and methods and be able to apply their knowledge and skills in different application domains.

Demonstrate through a range of professional evidence that the Teachers' Standards have been met at a level appropriate for a teacher at the point of recommendation for the award of Qualified Teacher Status, through successful completion of teaching practice in educational settings

Work as an effective member of a team, be a creative problem solver and communicate mathematical and statistical information to both technical and non-technical audiences.

Process and evaluate data using industry-standard mathematical and statistical software.

Demonstrate an understanding of the competencies and social responsibilities required by a professional teacher and acquire the necessary skills for lifelong continuing professional development.

Acquire the requisite academic knowledge, skills and preparation for progression to postgraduate study.

Programme Learning Outcomes:
On successful completion of this programme graduates will achieve the following learning outcomes.

Programme Learning Outcomes

PO1.   Analyse and solve real-life problems using mathematics, statistics, and operational research techniques.

PO2.   Plan, conduct, and lead a mathematical or statistical enquiry in a professional and effective manner.

PO3.   Select, apply, and evaluate appropriate technology for assisting a mathematical or statistical analysis, including writing computer programs, the use of computer-aided visualization, and statistical software.

PO4.   Communicate any or all aspects of a mathematical or statistical investigation, altering the format or content to suit the needs of the audience.

PO5.   Reflect on the cultural, ethical, or sustainability impact, strengths, and limitations, of mathematical applications and mathematical career pathways.

PO6.   Plan, teach and resource well-structured lessons and reflect systematically on the effectiveness of lessons and pedagogical approaches with a view to improving teaching.

PO7.   Design, execute, and evaluate statistical analyses of data.

PO8.   Define and state mathematical concepts clearly and precisely, and construct rigorous proofs.

Assessment strategy: A range of assessment methods are used to assess technical mathematical and statistical knowledge and to evidence knowledge of relevant pedagogy and teaching practice.

Assessment methods are flexible and varied, leverage online technology where appropriate and make effective use of versatile learning spaces along with the cross-module programme weeks. The assessment strategy is mindful of the workload on students, which is particularly important for this programme where students are required to spend time in professional practice and assessment is designed to ensure that the programmatic flow of the students' learning experience is not interrupted. The assessment load is intended to be sufficient to assess the learning outcomes of the programme and to monitor student progress. The range of assessment has been designed from a programmatic viewpoint so that it is balanced

over time and in its use of space.

Placement-based assessment uses evidence of progress towards meeting the relevant professional Teachers' Standards. The assessments provide appropriate challenge to support engagement with academic, practice-focused and creative opportunities as part of developing professional competence. For teaching practice, the criteria used are the Teachers' Standards and these modules are assessed through observation of practice, teaching portfolios and a professional conversation.

The types of assessment used throughout the programme include:

Controlled conditions, featuring closed-book, partially-seen and open-book examinations; online e-examinations, coursework under controlled conditions, computer-based modelling.

E-assessment for immediate, detailed and tailored explanations for individual students

Individual and group coursework assignments requiring thoughtful application of mathematical and statistical knowledge in organisational contexts.

Presentations including face-to-face in room, via live video-link, or pre-recorded.

Project dissertations, enabling in-depth reporting analysis and discussion.

Professional portfolios, teaching observations and conversations.

Student support: Mentor support in schools.

Specialist training from external speakers

Espresso Maths drop-in support stations

Mathematics diagnostic testing and follow-up interventions early in year 1.

Development of group work skills and attributes.

Academic mentors to provide continuity of support to SpLD students

Academic personal tutors

Video capture of course content delivery

E-assessments for rapid feedback

Part B: Programme Structure

Year 1
The student must take 120 credits from the modules in Year 1.

Year 1 Compulsory Modules
The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFJV-30-1	Calculus and Numerical Techniques 2020-21	30
UFMFHV-30-1	Mathematical Structures 2020-21	30
UFMFKV-30-1	Statistical Investigations 2020-21	30
UFMFLV-30-1	The Professional Mathematical Scientist I 2020-21	30

Year 2
The student must take 120 credits from the modules in Year 2.

Year 2 Compulsory Modules
The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFNV-30-2	Calculus and Numerical Analysis 2021-22	30
UFMFMV-30-2	Graphs, Algebra and Algorithms 2021-22	30
UTLGSW-15-2	Mathematics Education 2021-22	15
UTLP69-15-2	Professional Practice 2021-22	15
UFMFPV-30-2	Statistical Applications 2021-22	30

Year 3

The student must take 120 credits from the modules in Year 3.

Year 3 Compulsory Modules

The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UTLGVW-30-3	Learners and Teachers 2022-23	30
UFMER1-30-3	Mathematical Sciences Project (QTS) 2022-23	30
UTLGWA-15-3	Practice A 2022-23	15
UTLGWB-15-3	Practice B 2022-23	15
UTLGW5-30-3	Subject Studies 2022-23	30

Part C: Higher Education Achievement Record (HEAR) Synopsis

The programme blends academic study with practical experience for students committed to a teaching career in secondary education. On completion you will be recommended for Qualified Teacher Status (QTS) enabling entry to the profession as a Newly Qualified Teacher (NQT). The first two years cover the core learning in the BSc (Hons) Mathematics programme ensuring that students have the depth of

mathematics subject knowledge for secondary education level teaching and other graduate outcomes for highly numerate graduates.

Part D: External Reference Points and Benchmarks

QAA UK Quality Code for HE (May 2018)

Framework for higher education qualifications (FHEQ) (October 2014)

Subject benchmark statement for Higher Education qualifications in Mathematics, Statistics and Operational Research (October 2019)

Strategy 2030

University policies

Staff research projects

Relevant PSRB requirements: Tim is there an IMA document that informs accreditation or is it simply the QAA HE Benchmark?

The programme is compliant with the requirements for Initial Teacher Training and makes explicit reference to the professional Teachers' Standards (September 2012). The programme is informed with reference to the personal and professional conduct requirements of the professional Teachers' Standards.

The Teaching Agency (TA), an executive agency of the Department for Education (DfE), is body responsible for the following activities in England:

The award of Qualified Teacher Status (QTS)

The issue of induction certificates

Hearing induction appeals

The regulation of the teaching profession

Department for Education's (DfE) ITT criteria

Part E: Regulations

Approved to University Regulations and Procedures.