

# EP304-15 Introduction to Secondary Mathematics Teaching

23/24

**Department**

Centre for Teacher Education

**Level**

Undergraduate Level 3

**Module leader**

Holly Heshmati

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

This module takes place in term 2 and is specially designed to introduce you to Mathematics curriculum and pedagogy in the Secondary school age range. You will explore your subject from a new perspective through engaging sessions at university led by teaching fellows and visiting teachers. Practical workshops will examine the content of Secondary Mathematics National Curriculum and how to address barriers to learning in Mathematics through the development of effective teaching approaches and resources.

The module is hosted by the Centre for Teacher Education (currently rated 'Outstanding' by OFSTED). Anyone who completes the module is automatically eligible for an interview for the Postgraduate Certificate in Education (PGCE) initial teacher training course (providing all entry requirements for Initial Teacher Training are met).

[Module web page](#)

### Module aims

1. To develop knowledge of Mathematics teaching in the UK education system and some of the approaches to learning that support secondary students in the subject.

2. To develop knowledge and understanding of mathematics education and the secondary curriculum.
3. To develop key transferable skills through engagement with 11-18 education.
4. To develop skills in personal reflection on professional practice.
5. To relate educational theory to education practice.

## **Outline syllabus**

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The theory which underpins the practice of mathematics teaching is explored through seminars led by CTE Teaching Fellows. The seminars begin by discussing the current context of the UK education system and national curriculum before exploring a range of key themes in education such as how students learn, how ideas develop in the school curriculum and using assessment for learning and specific aspects of pedagogy relating to the teaching of mathematics.

As part of the module you engage in mathematics education through developing materials, resources and teaching approaches to support learning in Mathematics. You will develop your practical understanding of the teaching of mathematics. Indicative activities might include: developing learning resources, providing exemplar materials to a professional brief, producing online learning resources.

To prepare for and support you for this you will participate a series of workshops at the university. These are highly interactive, practice based sessions, delivered by visiting teachers from local secondary schools. Sessions cover topics such as pitching and sequencing resources to support learning, overcoming barriers to learning and effective questioning.

## **Learning outcomes**

By the end of the module, students should be able to:

- LO1 Critically analyse and reflect on key issues in mathematics education in school.
- LO2 Critically reflect on practice in teaching mathematics in school.
- LO3 Apply learning theory to school mathematics teaching practices.
- LO4 Demonstrate professional skills in supporting learning in Mathematics.

## **Indicative reading list**

The key readings found through above Talis Aspire link are advised. Key readings for University sessions will also be detailed on the session plan and will be available prior to the session. You should also ensure that you regularly read other relevant educational literature such as the Times Education and the Guardian Education supplements along with any other subject specific reading lists which have been provided.

[View reading list on Talis Aspire](#)

## **Interdisciplinary**

Through exploring the teaching and pedagogy of your subject you will consider and build connections between your subject, educational theory, the psychology of learning and cognition and also consider elements of policy, society and sociology. You will develop your written communication skills in producing both academic and professional evidence-informed rationales for practice.

### **Subject specific skills**

You will develop skills relevant for teaching and the development of practice such as communication, peer and professional collaboration and reflection. You will also develop skills relevant to the academic study of education such as analysis and critique. The module will also develop your skills in the pedagogy of your subject.

### **Transferable skills**

Critical Thinking  
Reasoning and Problem Solving  
Active Lifelong Learning  
Communication (verbal and written)  
Teamwork and working effectively with others  
Information literacy (research skills)  
ICT Literacy  
Citizenship (local and global)  
Ethical Values  
Inter-cultural learning and diversity awareness  
Professionalism  
Organisational awareness

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## **Study**

### **Study time**

<b>Type</b>	<b>Required</b>
Lectures	2 sessions of 1 hour (7%)
Seminars	7 sessions of 2 hours (47%)
Practical classes	7 sessions of 2 hours (47%)
Total	30 hours

### **Private study description**

No private study requirements defined for this module.

## **Costs**

No further costs have been identified for this module.

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## Assessment

You must pass all assessment components to pass the module.

### Assessment group A1

	Weighting	Study time
A critical review on an issue in Mathematics Education	50%	60 hours
A short (1000 word, approximately 4 sources) annotated bibliography on a chosen issue in Mathematics Education followed by a 500 word discussion and conclusion on the implications for teaching Mathematics.		
Poster	50%	60 hours
A poster presentation of a learning resource, artefact or materials designed to support children's learning in Mathematics with a supporting rationale relating to , secondary mathematics curriculum, learning or pedagogic theory.		

### Feedback on assessment

Formative: During the course of the module students will have the opportunity to submit one critical review entry.

Summative: A written feedback sheet and in-text comments will be provided on each component.

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## Availability

### Courses

This module is Optional for:

- Year 2 of UESA-H315 BEng Mechanical Engineering
- UECA-3 Undergraduate Economics 3 Year Variants
  - Year 3 of L100 Economics
  - Year 3 of L100 Economics
  - Year 3 of L100 Economics
- USTA-G300 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics
  - Year 3 of G300 Mathematics, Operational Research, Statistics and Economics
  - Year 4 of G300 Mathematics, Operational Research, Statistics and Economics
- USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)

- Year 3 of G1G3 Mathematics and Statistics (BSc MMathStat)
- Year 4 of G1G3 Mathematics and Statistics (BSc MMathStat)
- USTA-G1G4 Undergraduate Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)
  - Year 4 of G1G4 Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)
  - Year 5 of G1G4 Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)

This module is Option list A for:

- Year 2 of UESA-H335 BEng Automotive Engineering
- Year 2 of UESA-H161 BEng Biomedical Systems Engineering
- Year 2 of UESA-H216 BEng Civil Engineering
- Year 2 of UESA-H63W BEng Electronic Engineering
- Year 2 of UESA-HH75 BEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-HH35 BEng Systems Engineering
- Year 2 of UESA-H336 MEng Automotive Engineering
- Year 2 of UESA-H163 MEng Biomedical Systems Engineering
- Year 2 of UESA-H217 MEng Civil Engineering
- Year 2 of UESA-H63X MEng Electronic Engineering
- Year 2 of UESA-HH76 MEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-H316 MEng Mechanical Engineering
- UESA-HH31 MEng Systems Engineering
  - Year 2 of HH31 Systems Engineering
  - Year 2 of HH35 Systems Engineering
- USTA-G302 Undergraduate Data Science
  - Year 2 of G302 Data Science
  - Year 2 of G302 Data Science
- Year 2 of UESA-H605 Undergraduate Electrical and Electronic Engineering
- Year 2 of UESA-H606 Undergraduate Electrical and Electronic Engineering MEng

This module is Option list B for:

- Year 2 of UESA-H335 BEng Automotive Engineering
- Year 2 of UESA-H113 BEng Engineering
- Year 2 of UESA-HH35 BEng Systems Engineering
- UESA-H112 BSc Engineering
  - Year 2 of H112 Engineering
  - Year 2 of H112 Engineering
- Year 2 of UESA-H114 MEng Engineering
- UESA-HH31 MEng Systems Engineering
  - Year 2 of HH31 Systems Engineering
  - Year 2 of HH35 Systems Engineering
- UMAA-G105 Undergraduate Master of Mathematics (with Intercalated Year)
  - Year 2 of G105 Mathematics (MMath) with Intercalated Year
  - Year 4 of G105 Mathematics (MMath) with Intercalated Year
- Year 2 of USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics

- UMAA-G100 Undergraduate Mathematics (BSc)
  - Year 2 of G100 Mathematics
  - Year 2 of G100 Mathematics
  - Year 2 of G100 Mathematics
  - Year 3 of G100 Mathematics
  - Year 3 of G100 Mathematics
  - Year 3 of G100 Mathematics
- UMAA-G103 Undergraduate Mathematics (MMath)
  - Year 2 of G100 Mathematics
  - Year 2 of G103 Mathematics (MMath)
  - Year 2 of G103 Mathematics (MMath)
  - Year 3 of G100 Mathematics
  - Year 3 of G103 Mathematics (MMath)
  - Year 3 of G103 Mathematics (MMath)
- UMAA-G106 Undergraduate Mathematics (MMath) with Study in Europe
  - Year 2 of G106 Mathematics (MMath) with Study in Europe
  - Year 3 of G106 Mathematics (MMath) with Study in Europe
- Year 2 of UMAA-G1NC Undergraduate Mathematics and Business Studies
- Year 2 of UMAA-G1N2 Undergraduate Mathematics and Business Studies (with Intercalated Year)
- Year 2 of UMAA-GL11 Undergraduate Mathematics and Economics
- Year 2 of UECA-GL12 Undergraduate Mathematics and Economics (with Intercalated Year)
- USTA-GG14 Undergraduate Mathematics and Statistics (BSc)
  - Year 2 of GG14 Mathematics and Statistics
  - Year 2 of GG14 Mathematics and Statistics
  - Year 3 of GG14 Mathematics and Statistics
  - Year 3 of GG14 Mathematics and Statistics
- UMAA-G101 Undergraduate Mathematics with Intercalated Year
  - Year 2 of G101 Mathematics with Intercalated Year
  - Year 4 of G101 Mathematics with Intercalated Year
- USTA-Y602 Undergraduate Mathematics, Operational Research, Statistics and Economics
  - Year 2 of Y602 Mathematics, Operational Research, Stats, Economics
  - Year 2 of Y602 Mathematics, Operational Research, Stats, Economics
  - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics
  - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics
- Year 4 of USTA-Y603 Undergraduate Mathematics, Operational Research, Statistics, Economics (with Intercalated Year)

This module is Option list C for:

- UPXA-GF13 Undergraduate Mathematics and Physics (BSc)
  - Year 2 of GF13 Mathematics and Physics
  - Year 2 of GF13 Mathematics and Physics
- UPXA-FG31 Undergraduate Mathematics and Physics (MMathPhys)
  - Year 2 of FG31 Mathematics and Physics (MMathPhys)
  - Year 2 of FG31 Mathematics and Physics (MMathPhys)