



Advanced Mathematics  
Support Programme®

Continuing Professional  
Development  
Standard

National Centre  
for Excellence in the  
Teaching of Mathematics



## Further Mathematics Conference

London

27th February 2019

### Overview

A free one-day professional development and networking conference, dedicated to the teaching of AS and A level Further Mathematics.

The current Education Inspection Framework requires that 'leaders take on or construct a curriculum that is ambitious and designed to give all learners ... the knowledge and cultural capital they need to succeed in life' (Ofsted, 2019). The chance to study Further Mathematics is important for many students, and these conferences are designed to support schools and colleges in embedding this opportunity within their provision.

**The 2020 conferences have now taken place.** Copies of presentations and resources from the sessions can be found [here](#).

### Aims

- Experience interesting and stimulating ways of introducing Further Mathematics topics in the classroom
- Network and share ideas with fellow teachers

### Who will benefit from attending?

These conferences are suitable for any teacher who is currently teaching AS or A level Further Mathematics, or who expects to do so in the near future. The content will be relevant to all of the Further Mathematics specifications.

We welcome first time or returning Further Mathematics Conference delegates. Every year offers something new, so please feel free to sign up if you have attended a previous conference.

# Content

The day consists of a mixture of plenary and optional sessions exploring specific aspects of A level Further Mathematics.

Optional sessions that were offered at the 2020 Further Mathematics Conferences are detailed below.

## Session Title

## Session Description

Introduction to complex numbers for beginners (Pure)

In this session we will look at the basic concepts underpinning complex numbers for students. This session is aimed at teachers with limited experience.

Teaching activities for vectors in Further Pure

A variety of activities for teaching vectors in Further Pure with a focus on problem solving in Mathematics.

Calculus in Further Maths: making connections with other topics (Pure)

The calculus topics in Further Pure can appear very 'dry' to students. This session will be made between some of the integration methods and other topics to engage students. Teachers who are already familiar with the calculus techniques will find this session particularly useful.

Student use of technology for studying matrices (Pure)

In this session we will investigate using scientific calculators and spreadsheets. Attendees are requested to bring an example of the calculator their students use. We will also use GeoGebra (i.e. a phone, tablet or laptop). This hands-on session will focus on using technology to solve problems.

Analysing bivariate data (Statistics)

An exploration of approaches to teaching correlation and regression. We will use spreadsheet software and either GeoGebra or Desmos.

Getting a feel for Further Mechanics

In mechanics, students need a firm grasp of the fundamental concepts. In this session we will look at how these apply as students move on to more complex specifications. We will also explore when to trust, and when to question, a result.

Centre of mass: From balancing to sliding and toppling (Mechanics)

In this session we will use a variety of techniques, including practical work, to explore the sense of centre of mass. To get the most out of the session, attendees should bring a solid required to find the centre of mass of a solid or a lamina.

The maths in university admissions tests

Due to the decline in the number of students sitting AS level Mathematics, many universities offer for their maths courses. In this session, we will focus on the types of questions they know, how they are expected to think and what the universities are looking for in the problems to solve.

Offering Further Mathematics

There are many challenges and decisions faced by schools when offering Further Mathematics. Although we don't claim to have all the answers, this session will explore the structures and options available. We will also consider strategies for supporting the support offered by the AMSP.

Introduction to the Simplex algorithm (Discrete Mathematics)

For linear programming problems in more than two variables, the Simplex method is now a required topic within the discrete/decision mathematics syllabus. This session will be appropriate for teachers with some experience of previously taught the Simplex method.

Extending the Simplex algorithm (Discrete Mathematics)

The Simplex method can be adapted to deal with a range of cases. This session will focus on the solution of cases where the origin is not in the feasible region. Attendees should bring a laptop for the basic Simplex or who have attended the previous session 'Introduction to the Simplex algorithm'.

Using GeoGebra to create teaching files for Further Mathematics

GeoGebra can be used to support the teaching of a large number of topics in Further Mathematics. This session will show how to make files for use in the classroom as well as giving attendees a chance to try a laptop for this session.

## Materials and Equipment

Please note that an electronic device will be required for the following sessions - further details can be found in the corresponding session description:

- Student use of technology for studying matrices (Pure)
- Analysing bivariate data (Statistics)
- Using GeoGebra to create teaching files for Further Mathematics (London only)

## Eligibility

Priority will be given to teachers from state-funded schools and colleges.

## Programme

09:30 – 10:00 Registration and refreshments

10:00 – 10:20 Welcome and introduction

10:20 – 11:30 Optional session 1

11:30 – 11:50 Tea/coffee

11:50 – 13:00 Optional session 2

13:00 – 13:50 Lunch

13:50 – 14:20 The importance of Further Mathematics: a university perspective

14:20 – 15:30 Optional session 3

15:30 – 15:40 Tea/coffee

15:40 – 16:00 Closing thoughts and feedback

## Cost

This conference is free of charge.

Schools and colleges located within [Priority Areas](#) are eligible to receive a subsidy of £250 to contribute towards costs related to attendance.

## Key Facts

<b>Event ref:</b>	#5373
<b>Audience:</b>	Teachers
<b>Curriculum focus:</b>	A level Further Mathematics
<b>Mathematical focus:</b>	Mechanics, Statistics, Pure, Discrete, Use of technology, Curriculum planning
<b>Event format:</b>	Conference
<b>Event length:</b>	1 day
<b>Region:</b>	London and South East
<b>Venue:</b>	NCVO, 8 All Saints Street, London, N1 9RL
<b>Date:</b>	Wed 27th Feb 2019
<b>Course times:</b>	09:30 - 15:45
<b>Fee:</b>	Free
<b>Priority Area subsidy:</b>	£250

## Registration

For more information, or to register for this event, please visit <https://amsp.org.uk/events/details/5373>