



# Teaching Discrete Mathematics 1 (TD1)

## Online and Coventry

19th September 2019

### Overview

Discrete maths features in all AS/A level Further Mathematics specifications, albeit under different titles:

- Discrete Mathematics - AQA and OCR A
- Decision Mathematics - Edexcel
- Modelling with Algorithms - OCR B (MEI)

Teaching Discrete Mathematics 1 (TD1) is a [sustained professional development course](#) for teachers wishing to build their confidence in teaching this content, and covers the discrete maths material common to all AS level Further Mathematics specifications.

TD1 features:

- nine live online tutorials
- two study days
- access to online teaching and learning resources
- email support from tutors and access to an online group forum

Towards the end of the course a short assignment is issued, for which support and guidance are provided. Course certificates will be available for those participants completing the assignment.

After TD1, participants have the opportunity to continue to [TD2](#), which will further expand understanding of teaching discrete maths content.

### Aims

- Gain a deep understanding of the application of algorithms to a wide range of problem
- Develop skills with using standard algorithms to solve optimisation problems
- Learn project planning processes which minimise overall costs and make the best use of available resources
- Develop confidence with incorporating practical work within maths teaching
- Link topics in discrete maths with other areas of maths

## Who will benefit from attending?

TD1 is designed for A level Mathematics teachers who are new to teaching discrete/decision mathematics, or those that have previously taught D1 but wish to broaden and deepen their understanding.

Our sustained courses enable teachers to broaden and deepen their subject, pedagogical and pedagogical content knowledge. Teachers, with enhanced subject knowledge, are therefore better equipped to make links between topics, address students' misconceptions and confidently challenge learners at all attainment levels. Our course aims and intended outcomes are consistent with the principles set out in the Education Inspection Framework.

## Content

TD1 covers the discrete/decision mathematics content for AS/A level Further Mathematics. This includes the following topics:

- Graph Theory
- Algorithms
- Algorithms on Networks
- Critical Path Analysis
- Linear Programming: Graphical
- Game Theory
- Allocation
- First Order Recurrence Relations
- Binary Operations
- Mathematical Preliminaries

These topics appear within the Further Mathematics specifications of the reformed Mathematics A levels for first teaching from September 2017.

## Materials and Equipment

A computer with a reliable internet connection will be required to attend the online tutorials. In addition, a headset with a microphone is suggested to get the best experience of the online tutorials.

## Frequently Asked Questions

### Do I need to have taught A level Mathematics before doing the TD1 course?

There is no requirement that applicants have taught A level Mathematics before undertaking TD1.

### How much time will I need to devote to studying?

It is difficult to be specific as this will depend on previous experience. In the past, delegates have reported spending between 1 and 4 hours studying each week. Ideally, delegates should aim to study regularly for a few hours each week however, in reality many working teachers have weeks when this is difficult and they use out-of-term time to catch up.

### Do I have to hand in any work during the course?

The TD1 assignment is the only work that delegates hand in. To receive a certificate at the end of your TD1 course you will need to submit and pass the TD1 assignment. Certification is optional but we strongly encourage you to submit an assignment anyway to help you consolidate what you have learnt. In the past most teachers have chosen to submit an assignment.

Teachers working at state-funded schools/colleges need to demonstrate that they have engaged with the course unit to trigger a course fee reimbursement at the end of the course. If you have missed either study day you may be required to submit the TD1 assignment in order to qualify for the course fee reimbursement whether or not you wish to certify.

### When do the TD1 course fees have to be paid?

An invoice for course unit fees is issued after enrolment at the start of the course unit. Invoices are issued no later than one month after a delegate has started their course.

### How does the subsidy for teachers in state-funded schools/colleges work?

The AMSP is supported by the Department for Education and therefore only course fees for teachers working in state-funded schools/colleges in England are eligible for a subsidy. If the course fee is paid by the applicants school/college then the same school/college will receive the subsidy when the course is completed by the applicant.

### Can I pay my own course fee?

Yes, you may choose to pay your own course fee. Applicants who are teachers working in state-funded schools/colleges in England are still eligible for a course fee subsidy. If the course fee is paid directly by the applicant then the applicant will receive the fee reimbursement on completion of the course. It is a requirement that the applicant submits an email address that has been issued by the state-funded school/college where they are employed and that the applicants email address is substantiated.

### What happens if I can't attend one or more of the study days?

Teachers on the course enjoy the study days and appreciate the chance to meet up with other teachers on the course. Study day materials are shared with all course delegates afterwards. If you are a teacher working at a state-funded school/college then to be eligible for a course subsidy you will need to demonstrate that you have engaged with the course, which includes the expectation that you will attend the face-to-face study days.

If you are unable to attend a study day and this is due to unforeseen or special circumstances then the course fee reimbursement may still be granted at the discretion of the Course Leader. You may be required to submit the TD1 assignment as additional evidence of engagement with the course. If you pass the end of unit assignment, you will still be eligible for a TD1 course certificate.

## Cost

The course fee for TD1 is £300.

If you are working in a state-funded school or college, participation in this course attracts a reimbursement of course fees, subject to engagement and completion of the course.

Schools and colleges located within [Priority Areas](#) are eligible to receive a further subsidy of £500 to support staff cover and travel costs.

## Study Schedule

### Study days

Study day 1:

#### Coventry

Saturday 19 October 2019

Study day 2:

#### Coventry

Saturday 11 January 2020

Venue details:

| Venue    | Address  |
|----------|--|
| Coventry | Centre for Teacher Education, Westwood Lecture Theatre, Kirby Corner Road, Westwood Campus, University of Warwick, Coventry, CV4 8EE |

### Online sessions:

Online sessions are conducted live and recordings are available for playback

| Evening online tutorials (19:00-20:15) | Study content                    |
|--|----------------------------------|
| Thursday 19 September 2019             | Course introduction              |
| Thursday 26 September 2019             | Graph Theory                     |
| Thursday 10 October 2019               | Algorithms on Networks 1         |
| Thursday 7 November 2019               | Algorithms                       |
| Thursday 21 November 2019              | Algorithms on Networks 2         |
| Thursday 5 December 2019               | Critical Path Analysis           |
| Thursday 19 December 2019              | Linear Programming: Graphical    |
| Thursday 16 January 2020               | Allocation                       |
| Thursday 30 January 2020               | First Order Recurrence Relations |

### Assignment:

During January and February you will work toward completing an assignment. The deadline for this assignment is 1 May 2020.

Unit certification: 1 June 2020 (or before)

### Participant feedback

??

*I found the course so useful, the online recordings, consolidation exercises, study days and assignments really ensure that you put the effort in.*

??

*Very clear with varied explanation and useful tips.*

??

*The tutors were very knowledgeable and were able to answer questions in depth.*

??

*Loved all of it.*

??

*Good stretch and challenge activities.*

??

*I thoroughly enjoyed the course. The passion that all the lecturers have is amazing.*

## Key Facts

|                               |  |
|-------------------------------|--|
| <b>Event ref:</b>             | #5963  |
| <b>Audience:</b>              | Teachers                                     |
| <b>Curriculum focus:</b>      | A level Further Mathematics                  |
| <b>Mathematical focus:</b>    | Discrete                                     |
| <b>Event format:</b>          | Sustained Professional Development           |
| <b>Event length:</b>          | 6 months                                     |
| <b>Study days:</b>            | 2  |
| <b>Online sessions:</b>       | 9  |
| <b>Region:</b>                | National                                     |
| <b>Venue:</b>                 | Online classroom with study days in Coventry |
| <b>Start date:</b>            | Thu 19th Sep 2019                            |
| <b>Fee:</b>                   | £300   |
| <b>State-sector subsidy:</b>  | £300   |
| <b>Priority Area subsidy:</b> | £800   |

## Registration

For more information, or to register for this event, please visit <https://dev.amspace.org.uk/events/details/5963>