## Galois Theory                M838

*Presentation pattern        October to June*

*This module is presented in alternate even-numbered years.*

*Programme information*

Most of the MSc modules are based on guided reading of an individual set textbook and wrap around notes.  Students need to successfully complete six modules worth 180 points to be awarded the degree.

*Module description*

Galois Theory, developed in the 19th century and named after the unlucky Évariste Galois who died aged 20 following a duel, uncovers a strong relationship between the structure of groups and the structure of fields in the Fundamental Theorem of Galois Theory. This has a number of consequences, including the classification of finite fields, impossibility proofs for certain ruler-and-compass constructions, and a proof of the Fundamental Theorem of Algebra. Most famous, however, is the connection it brings between solving polynomials and group theory, culminating in the proof that there is no "quintic formula" like there is a quadratic formula.

*Person specification*

The person specification for this module should be read in conjunction with the [generic person specification](#) for an associate lecturer at The Open University.

As well as meeting all the requirements set out in the generic person specification, you should:

- have a good honours degree in mathematics or subject directly relevant to the module contents
- normally *either*
    (i)    have (or be studying for) a PhD in mathematics or in an allied subject; *or*
    (ii)   have a good master's degree in mathematics; *or*
    (iii)  have taught pure mathematics effectively at final-year bachelor's or master's level for at least three years
- have evidence of having worked in an area directly relevant to the module content
- be able to provide evidence of a complete understanding of a large proportion of the material covered in the module (by, for example, successfully completing a pre-interview written task) and demonstrate the ability and willingness to quickly develop an understanding of the remainder of the material
- have appropriate IT equipment and skills
- be willing to use elearning facilities, such as:
    o    the module website, and other University websites, to download essential material and to retrieve other information
    o    the University systems for the purposes of monitoring students' progress

- o email and University forums for asynchronous communication with students, tutors, and other staff
- o The university's online tutorial software (training provided) to communicate with students where applicable
- o on-screen marking of electronically submitted (in pdf format) student assignments (eTMAs).

It would be an advantage to have:

- a PhD in a relevant area
- experience of teaching and examining, particularly in distance education at postgraduate level
- teaching experience in abstract algebra and/or Galois theory at postgraduate or third year level.

*Additional information*

As students on this module will have the choice to submit their TMAs electronically, via the University's online TMA/EMA service system, you will be required to mark and provide feedback on TMAs submitted electronically and to return the marked work as an electronic file, in the prescribed form, to the online TMA/EMA service. You may also need to mark paper TMAs. If you are invited for an interview and the latter involves an electronic marking exercise, some guidance will be given for this. Further information and advice will be available should you be appointed to the role.

The exact nature of e-learning facilities and University systems for monitoring student progress and handling TMAs will evolve in future, and you will need to be prepared to adapt accordingly. Please note that, in accordance with usual University policy, tutors will be expected to use their own equipment for all aspects of e-learning.

*Module related details - a full explanation can be found on the website*

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| Credits awarded to the student for the successful completion of a module: | 30 |
| Number of assignments submitted by the student: | 4 |
| Method of submission for assignments: | 1a |
| Level of ICT requirements: | 2 |
| Number of students likely to be in a standard group: | 20 |
| Salary band: | 3 |
| Estimated number of hours per teaching week: | 2.5 |