

*Presentation pattern*      *October to June*

*Module description*

This module develops the theory of functions of a complex variable, emphasising their geometric properties and indicating some applications. Book A covers complex numbers, complex functions, sequences and continuity, and differentiation of complex functions. Book B covers integration of complex functions, Cauchy's Theorem and Cauchy's Integral Formula, Taylor series, and Laurent series. Book C covers residues, analytic continuation, zeros of complex functions, Euler's gamma function and Riemann's zeta function, and conformal mappings. Finally, Book D covers fluid flows, complex dynamics, Julia sets, and the Mandelbrot set. Students need a sound knowledge of differentiation and integration of real functions for this module.

*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 a related subject
- be able to provide evidence of a complete understanding of most of the material covered in the module (by, for example, successfully completing a pre-interview marking exercise) and demonstrate the ability and willingness to quickly develop an understanding of the remainder of the material
- have experience of successfully teaching mathematics at second year/level 2 or higher in complex analysis or a related subject
- be able and willing to give face-to-face and online tutorials, using materials that you may need to produce, that are appropriate for the module and students
- have appropriate IT equipment and skills
- be committed to keeping your skills and knowledge updated
- be able and willing to use e-learning facilities such as:
  - o the module website, and other University websites, to download essential material and to retrieve other information
  - o 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)
  - o on-screen marking of electronically submitted student assignments in pdf format.

It would be an advantage to have:

- a higher degree in mathematics or to be studying for one
- experience of teaching third year/level 3 pure mathematics to mature students and/or to students from a broad range of educational backgrounds

### *Additional information*

As students on this module will have the choice to submit their TMAs electronically via the University's online TMA/EMA service, 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*

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:	1b
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:	3.30