

MA2K3-10 Consolidation

26/27

Department

Warwick Mathematics Institute

Level

Undergraduate Level 2

Module leader

Richard Lissaman

Credit value

10

Module duration

10 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

Students attend a weekly lecture and classroom style sessions covering material which is the foundation to understanding second year core maths modules.

Each week students complete a workbook. They work on these during the classroom sessions and complete them in their own time. These are for credit. They are marked by lecturers and TAs, detailed written feedback is provided. Verbal feedback is also provided during the teaching sessions.

Module aims

To provide small group attention for students recommended by the First Year Exam Board to improve prospects of a good honours degree.

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.

Functions, Equivalence Relations, Countability

Groups, subgroups, cyclic groups, permutation groups, group homomorphisms, Chinese Remainder Theorem.

Rings, subrings, ideals, factorisation in $F[x]$, quotient rings, ring homomorphisms, modular arithmetic

Suprema/infima/completeness, sequences, series, continuity, IVT/EVT, power series, differentiation, MVT, Taylor's theorem, Riemann integration

Methods to solve ODEs, systems of ODEs (including phase portraits and eigenvalues/eigenvectors methods)

Polar, cylindrical, spherical coordinates; line, surface and volume integrals, change of variables, Green's, Divergence and Stokes' Theorem

Matrix methods, vector spaces, linear maps and bases, rank-nullity theorem, inner products, Gram-Schmidt orthogonalisation, eigenvalues/eigenvectors, orthogonal and symmetric matrices.

Learning outcomes

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

- strengthen students' mathematical comprehension skills
- strengthen students' problem solving skills
- reinforce understanding of mathematics that is useful for second year mathematics core

Subject specific skills

Good subject knowledge of mathematics necessary to successfully study year 2 core mathematics modules.

Good mathematical communication and writing skills.

Transferable skills

Communication and writing skills, ability to think logically and critically.

Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (10%)
Seminars	10 sessions of 2 hours (20%)
Private study	20 hours (20%)
Total	100 hours

Type	Required
Assessment	50 hours (50%)
Total	100 hours

Private study description

Students complete the weekly workbook.

They will also be given reading to do for the following week's sessions.

Total independent study is expected to be 7hrs per week.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time	Eligible for self-certification
Assessment component			
Various ways of Assessment	100%	50 hours	No
Mostly based upon the student's portfolio of workbooks and with a small component for engagement with the classroom style sessions.			

Reassessment component is the same

Feedback on assessment

Written feedback will be provided on the workbooks, as well as general feedback to the whole group during the lectures and classroom style sessions.

Availability

Courses

This module is Unusual option for:

- Year 2 of UMAA-G100 Undergraduate Mathematics (BSc)
- UMAA-G103 Undergraduate Mathematics (MMath)
 - Year 2 of G100 Mathematics
 - Year 2 of G103 Mathematics (MMath)
- Year 2 of UMAA-G1NC Undergraduate Mathematics and Business Studies
- Year 2 of UMAA-GL11 Undergraduate Mathematics and Economics