MA3486: Syllabus For Examination at the Annual Examination 2016

Section 1: Ordered Fields and the Real Number System

This section is not examinable.

Section 2: Real Analysis in Euclidean Spaces

This section is not examinable.

Candidates should however be familiar with the statement of the multi-dimensional Bolzano-Weierstrass Theorem, as this is frequently used in later sections of the course. Also candidates should be familiar with other fundamental results from this section in the contexts in which they are applied in examinable sections of the module.

Section 3: Open Covers, Lebesgue Numbers and Compactness

Candidates should be familiar with the statement and proof of Proposition 3.1 and the definitions that precede the statement of this proposition.

Section 4: Correspondences and Hemicontinuity

Candidates should be prepared to be examined on all material in this section, with the exception of material specifically excluded under the following more detailed specifications:—

- Candidates should be familiar with the statement and at least one proof of Proposition 4.9. (It is not necessary to be familiar with all proofs, provided that a proof can be supplied if required in an examination question.) **Note that an error in the statement of Proposition 4.9 in previously distributed lecture notes has been corrected.**

- Candidates should be familiar with the statement and at least one proof of Proposition 4.12. (It is not necessary to be familiar with all proofs, provided that a proof can be supplied if required in an examination question.)

- The proof of Proposition 4.17 is not examinable.

- The proofs of Proposition 4.18 are not examinable.

- The Proof of Corollary 4.19 is not examinable

- The Proof of Proposition 4.20 is not examinable

- The Proof of Proposition 4.21 is not examinable

- The second proof of Theorem 4.24 (Berge's Maximum Theorem) using companion sequences is not examinable.

Section 5: Simplices

All material is examinable.

Section 6: Simplicial Complexes and the Simplicial Approximation Theorem

All material is examinable.

Section 7: The Brouwer Fixed Point Theorem

All material is examinable.

Section 8: Convexity and the Kakutani Fixed Point Theorem

All material is examinable, with the exception of the material specified as follows:

- Lemma 8.3 is non-examinable.

- Proposition 8.4 is non-examinable.

- Proposition 8.5 is non-examinable.

- The proof of Theorem 8.6 (The Kakutani Fixed Point Theorem is non-examinable.

Section 9: Exchange Economies

This section is non-examinable.