

PhD Math Brush-up

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1 Topology

Metric spaces, Sequences and convergence, Open and closed sets, Boundedness and compactness, Completeness

2 Continuity

Continuity, The Weierstrass' theorem, Hemi-continuity, The Maximum theorem

3 Convexity

Convex sets, Convex functions

4 Differentiability

Derivatives, Differentiability, Inverse function theorem, Implicit function theorem

5 Static Optimization

Convex constraint set, The Lagrange problem, The Kuhn-Tucker problem, The envelope theorem, Saddle point theorem

6 Integration

The Riemann and the Riemann-Stieltjes integral, The Fundamental theorem of Calculus

References

CARTER, Michael. Foundations of mathematical economics. MIT Press, 2001.

DE LA FUENTE, Angel. Mathematical methods and models for economists. Cambridge University Press, 2000.

OK, Efe A. Real analysis with economic applications. Princeton University Press, 2007.