

0259531

REAL ANALYSIS
SPRING 2012/13

INSTRUCTOR: ERHAN ÇALIŞKAN

TIMETABLE: Monday 09:00-11:50

CONTACT: ercalis@yahoo.com.tr

ASSESSMENT:

PRE-REQUISITES:

PRINCIPAL TEXTBOOK: R. Bartle, The Elements of Integration, New York, J. Wiley & Sons, 1966.

PROGRAMME

WEEKS	SUBJECTS TO BE COVERED
1 & 2	Measurable spaces. Measurable functions. Sequences of measurable functions. Simple functions
3 & 4	Measure spaces. Integration of simple functions. Integration of positive functions
5 & 6	Integration of real functions. Functions depending one parameter. Normed spaces. Linear operators
7 & 8	Hölder inequality for sums. Hölder inequality for integrals. Banach $L^p(X, \Sigma, \mu)$ spaces
Will be announced	Mid-term Exam
9 & 10	Decompositions of real measures. Radon-Nikodym theorem
11 & 12	Riesz representation theorem. Measures in algebras
13 & 14	Extensions of measures. Product of measures. Integration on product space
Will be announced	Final Examination

SUGGESTED READING:

- A.N. Kolmogorov, S.V. Fomin, Introductory Real Analysis, Dover Publications, Inc., New York, 1975.
- H.L. Royden, P.M. Fitzpatrick, Real Analysis, 4th Edition, Pearson College Div, 2010.
- W. Rudin, Real and Complex Analysis, New York McGraw- Hill, 1966.
- G. Folland, Real Analysis: Modern Techniques and Their Applications, Second Ed., Wiley, 1999.
- P.R. Halmos, Measure Theory, Springer-Verlag, New York, 1974.
- I.P. Natanson, Theory of Functions of a Real Variable, Volume I, Frederick ungar publishing co. New York, 1961.