

**Tennessee Technological University**  
**Mathematics Department**

**MATH 6410-6420: Real Analysis I-II**

**I. COURSE DESCRIPTION FROM CATALOG:**

Theory of Lebesgue measure and integration,  $L^p$  spaces. Integration in locally compact space.  
Lec.3-3. Cr.3-3.

**II. PREREQUISITE(S):**

MATH 6410: C or better in MATH 4120 or MATH 5120.  
MATH 6420: C or better in MATH 6410.

**III. COURSE OBJECTIVE(S):** This course is designed to introduce the student to the study of analysis of real-valued functions of one or several variables, with an emphasis on Lebesgue measure and Lebesgue integration on the real line and  $\mathbb{R}^n$ . Topics in the area of point-set topology are included to allow the development of general measure and integration theory.

**IV. TOPICS TO BE COVERED:**

- (6410) Basics of Set Theory and the Real Number System, Measure and Lebesgue Integration, Differentiation,  $L^p$  spaces
- (6420) Metric Spaces, Topological Spaces, including Compact and Locally Compact Spaces, General Measure and Integration Theory

**V. ADDITIONAL INFORMATION:**

**VI. POSSIBLE TEXTS AND REFERENCES:**

*Real Analysis*, 4th edition, by Royden

**VII. ANY TECHNOLOGY THAT MAY BE USED:**

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). 1  
An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119.