MATH 311

"Real Analysis II"

1. Sequences and Series of Functions
    - Definition of Sequences of Functions, Point Wise Convergence, Uniform Convergence, Properties of Uniform Convergence
2. Riemann Integral
    - Definition of Integral
    - Continuous Functions and Integrability
    - Monotone Functions, Bounded Integrable Functions
    - Lebesgue Theorem
    - Oscillation of Function
    - The Linear Space of Integrable Functions, Integral as Linear Transformation
    - Monotonicity of the Integral, Continuity of the Integral
3. Measure Theory
    - Length of Interval, Length of Bounded Open Sets, Outer
    - Measure of a Bounded Set, Bounded Measurable Sets
    - Non-Measurable Set, Measure of Non-Bounded Set
4. Lebesgue Theory of Integration
    - Lebesgue Partitions, The Definition of V Integral
    - Some Properties of Lebesgue
    - Linear Space of Lebesgue Integral Functions

5. Measurable Function and Integral Function
    - Measurable Function, The Space of Measurable Function
    - Continuity of Lebesgue Integral
    - Some Principles on Measure and Measurable Function

Books:

1. Introduction to Real Analysis, by A. G Naom