

Module title: Real Analysis

Module Code:

Module Credit: 4

Term: First Term 1397-98

Lecturer: Mojtaba Bakherad  
(Mojtaba.bakherad@yahoo.com)

Lecturing time: Sat. (9:30-11) and Mon. (9:30)

Assessments: 40% mid-term 1 exam  
60% final exam

Class attendance: **REGULAR ATTENDING IS IMPORTANT AND EACH SESSION YOUR ATTENDANCE WILL BE CHECKED**

References: CALCULUS

JAMES STEWART

McMASTER UNIVERSITY

## Module Subjects:

1<sup>st</sup>. week: Sigma algebra and Measures

2<sup>nd</sup>. week: Outer Measures and Borel Measures

3<sup>rd</sup>. week: Measurable functions

4<sup>rd</sup> week: Integral of nonnegative functions

5<sup>th</sup>. week: Integral of complex functions

6<sup>th</sup>. week: Modes of Convergence

7<sup>th</sup>. week: Product Measures

8<sup>th</sup>. week: The Lebesgue Measure

9<sup>th</sup>. week: Signed Measures

10<sup>th</sup>. Week: Functions of Bounded Variations

11<sup>th</sup>. week: Elementary of Functional Analysis

12<sup>th</sup>. week: Normed vector spaces

13<sup>th</sup>. week: Linear functionals

14<sup>th</sup>. week: Banach and Hilbert space

15<sup>th</sup>. week:  $L^p$  space and its duals

16<sup>th</sup>. week: Some useful inequalities