



Course Description

Year : 2013/2014

First Semester

Course Information	
Course Title	<b>Real Analysis (I)</b>
Course Number	<b>2101211</b>
Course Credits	<b>3 Hours</b>
Course Time& section	<b>Section 1 (9:00: – 10:00)</b>
Course Duration	<b>One semester</b>
Prerequisite(s)	<b>0101151</b>
Instructor	<b>Dr. Sa'ud AL-Sa'di</b>
Office Location	<b>IT, the first Floor, office number 146</b>
Office Phone	
Office Hours	<b>10:00- 11:00 (Sunday, Tuesday, Thursday)</b>
E- mail	<b>saud@hu.edu.jo</b>
Course Web Site:	<a href="http://www.staff.hu.edu.jo/saud">http://www.staff.hu.edu.jo/saud</a>
Text Book	
Title	<b><i>Introduction to Real Analysis</i></b>
Author	<b><i>R.G. Bartle and D.R. Sherbert</i></b>
Publisher	<b><i>John Wiley and Sons, Inc.</i></b>
Year	<b>2000</b>
Edition	<b>3<sup>rd</sup></b>
References(s)	1. Apostol, Mathematical Analysis, second edition, Adison Wesely. 2. Pedrich, A First Course in Analysis, Springer-Verlag, 1994. 3. Berberian, A First Course in Real Analysis, Springer-Verlag, 1994.
Grading plan	
First Exam	<b>25 %</b>
Second Exam	<b>25 %</b>
Other Activeties	<b>--</b>
Final Exam	<b>50 %</b>

Course Objectives
<ol style="list-style-type: none"><li>1. To study the essential properties of real number system such as the algebraic properties, ordering, the completeness property and the supremum property.</li><li>2. To study the meaning of the convergence of sequences of real numbers and to establish some basic results about convergent sequences, and to give a brief introduction to infinite series.</li><li>3. To introduce the notion of limit of function and to obtain results that are useful in calculating limits of functions.</li><li>4. To define the notion of continuity at a point and continuity on a set. Also, to establish the fundamental properties that makes the continuity and some of its applications.</li></ol>

Teaching and Learning Methods
Solving problems with discussion.

<b>Course Contents</b>		
<b>Topics</b>	<b>Section</b>	<b>Week</b>
<b>Chapter 2: The Real Numbers</b>		
The algebraic and Order Properties of the Real Numbers.	<b>2.1</b>	<b>1</b>
Absolute Value and Real Line.	<b>2.2</b>	<b>2</b>
The Completeness Property of $\mathbb{R}$ .	<b>2.3</b>	<b>3</b>
Applications of the Supremum Property	<b>2.4</b>	
Intervals	<b>2.5</b>	
<b>Chapter 3: Sequences and Series</b>		
Sequences and Their Limits	<b>3.1</b>	<b>4</b>
Limit Theorems	<b>3.2</b>	<b>5</b>
Monotone Sequences	<b>3.3</b>	<b>6</b>
Subsequences and the Bolzano-Weierstrass Theorem	<b>3.4</b>	<b>7</b>
The Cauchy Criterion	<b>3.5</b>	<b>8</b>
Properly Divergent Sequences	<b>3.6</b>	
Introduction to Series	<b>3.7</b>	
<b>Chapter 4: Limits</b>		
Limit of Functions	<b>4.1</b>	<b>9</b>
Limit Theorems	<b>4.2</b>	<b>10</b>
Some Extensions of the Limit Concept	<b>4.3</b>	
<b>Chapter 5: Continuous Functions</b>		
Continuous Functions	<b>5.1</b>	<b>11</b>
Combinations of Continuous Functions	<b>5.2</b>	<b>12</b>
Continuous Functions on Intervals	<b>5.3</b>	<b>13</b>
Uniform Continuity	<b>5.4</b>	<b>14</b>
Continuity and Gages	<b>5.5</b>	<b>15</b>
Monotone and Inverse Functions	<b>5.6</b>	