

**Math 311 Syllabus (141)**

Dr. K. M. Furati

<b>Course Title:</b>	Advanced Calculu I
<b>Textbook:</b>	Introduction to Real Analysis, Robert G. Bartle & Donald R. Sherbert, 4th
<b>Course Description:</b>	The Real Number System, Limits and Continuity, Basic Properties of Functions on R, Elementary Theory of Differentiation, Elementary Theory of Integration, Sequences and series of real numbers.

Wk	Date	Sec.	Topic
1	Aug 31 - Sep 4	2.1	The algebraic and order properties of R
		2.2	Absolute value and real line
2	Sep 7 - 11	2.3	The Completeness Property of R
		2.4	Applications of the Supremum property
3	Sep 14 - 18	3.1	Sequences and their limits
		3.2	Limit Theorems
4	Sep 21 - 25	3.3	Monotone Sequences
		3.4	Subsequences and Bolzano-Weierstrass Theorem
5	Oct 12 - 16	3.5	The Cauchy Criterion
		3.6	Property Divergent Sequences
6	Oct 19 - 23	4.1	Limits of functions
		4.2	Limit Theorems
7	Oct 26 - 30	5.1	Continuous functions
		5.2	Combinations of Continuous functions
		5.3	Continuous functions on Intervals
8	Nov 2 - 6	5.4	Uniform continuity
		5.6	Monotone and Inverse functions
9	Nov 9 - 13	6.1	The Derivative
		6.2	The mean value Theorem
10	Nov 16 - 20	6.3	L'Hospital's Rules
		6.4	Taylor's Theorem
11	Nov 23 - 27	7.1	The Riemann Integral
12	Nov 30 - Dec 4	7.2	Riemann Integrable Functions
13	Dec 7 - 11	7.3	The Fundamental Theorem
14	Dec 14 - 18	3.7	Introduction to Infinite series
		9.1	Infinite Series: Absolute convergence
15	Dec 21 - 25	9.2	Tests for Absolute Convergence
		9.3	Tests for non-absolute convergence