

## 42002 Introduction to Analysis II (3)

### **Knowledge**

Students must know topics studied in Introduction to Analysis I, MATH 42001. In addition student should understand the concepts infinite series, convergence and uniform convergence of real valued functions and series of functions, further study of Integration and Differentiation theory as well as learn basic concepts of metric spaces.

### **Comprehension**

Students should understand the definitions, statements and proofs of main facts about infinite series, convergence and uniform convergence of sequences of real valued functions; Generalized Riemann Integration.

### **Application**

The general theory covered in this course is useful and provide the base for study of all further advanced MATH classes. It is also required in economics, engineering, finance, natural and social sciences.

### **Analysis**

Students should understand the connections between sequences of real valued functions, convergence, derivatives, and integrals. Should be able solve theoretical problems related to the above notions.

### **Synthesis**

Students should be able to use their knowledge of the above topics to provide proves of basic classical facts in analysis be able to construct example or counterexamples to questions about infinite series and sequences of real valued functions.

### **Evaluation**

Students should be able to determine appropriate techniques and knowledge necessary to solve mathematical or applied problems involving basic knowledge of infinite series, sequences of real valued functions, generalized Riemann integration.

### **Class Activities**

Lecture/discussion of appropriate topics in Analysis; weekly home works, including theoretical problems which can be worked out individually or in groups; and exams.

### **Out of class Activities**

Reading and studying the text; daily homework problems from the text/lecture notes; writing assignments on concepts covered in class.