

- A. Enrollment History: In the fall 2014 semester we have approximately 2 students who registered for Summations, Sequences & Series Honors.
- B. Honors courses in mathematics were developed to provide mathematically talented students the opportunity to obtain a level of rigor not currently available in existing courses. Topics in this course were selected to supplement and enrich the curriculum of precalculus courses by providing additional theory and applications of the fundamental concept of limit as it was used by Newton and Leibniz in the development of calculus. This course has been designed as an additional one credit component to the existing precalculus courses.
- C. Transferability.
 - 1. This course generally transfers as a free elective.
 - 2. This course generally transfers as a mathematics free elective.

IV. Place of Course in College Curriculum

- A. This course serves as a free elective.
- B. This course serves as an Honors program math course.
- C. Course transferability: for New Jersey schools go to the NJ Transfer website, www.njtransfer.org. For all other colleges and universities go to their individual websites.

V. Outline of Course Content

- A. General Sequences and Sums
- B. Arithmetic Sequence and series
- C. Geometric Sequence and series
- D. Infinite Series
- E. The Binomial Theorem
- F. Mathematical Induction
- G. Counting Principles
- H. Applications of the Counting Principles, Sequences and Series

VI. Educational Goals and Learning Outcomes

A. General Education Learning Outcomes

At the completion of the course, students will be able to:

- 1. use mathematical induction as a method of proof. (GE-NJ2)
- 2. state the properties of an arithmetic sequence and a geometric sequence and find the n th term and the sum of each. (GE-NJ2)
- 3. define a sequence, a sequence of partial sums, and an infinite series and distinguish between all three mathematical objects. (GE-NJ2)

4. define the Binomial Theorem and use it to expand a binomial expression and find its n th term (GE-NJ2)
5. apply the counting principle and the formulas for combinations and permutations to problems. (GE-NJ2)

B. Course Learning Outcomes

See above

C. Assessment Instruments

- A. Teacher written exams
- B. In-Class quizzes
- C. Labs and/or Projects
- D. Student Oral Presentation
- E. Final examination

VII. Grade Determinants

- A. Tests
- B. Quizzes
- C. Projects
- D. Laboratory products
- E. Homework
- F. Final exam

Primary formats, modes, and methods for teaching and learning that may be used in the course:

- A. Lecture/discussion
- B. Small-group work
- C. Graphing Calculator assisted instruction
- D. Student oral presentations
- E. Student Collaboration
- F. Independent study

VIII. Texts and Materials

The following text and materials are required for the course:

- A. Suggested Textbook: *Precalculus* by Blitzer, published by Pearson Prentice Hall
- B. Graphing calculator is required. TI-84 is recommended.

Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

XI. Resources

No additional resources are needed.