

**MATH 295A - ELEMENTARY ANALYSIS
WINTER 2011**

TR: 1:10 - 2:30 P.M. (HATHORN 314)

Instructor: Peter Wong

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Office hours: 10:00 - 11:00 T, 11:00 - 12:00 W or by appointment

Grading: Attendance/Class Participation - 30%, Oral Presentations - 30%, Written Assignments - 30%, Final Project - 10%

Prerequisites: Math s21

The objectives of this course are: (i) to give students an opportunity to work together on topics of common interest; (ii) to allow students to develop research skills in mathematics; (iii) for students to gain experience in communicating mathematics through oral presentation and writing.

To achieve these goals,

- (i) after reviewing most of Calculus I/II in the first few weeks, students will form groups of 2 or 3 and each group will take turn presenting material (from journal articles) each week;
- (ii) each lecture will be written up for distribution two weeks later;
- (iii) frequent short writing assignments will be given and corrected (by peers);
- (iv) special topics will be presented at the end of the semester as final projects.

The necessary conditions (but not sufficient) to *successfully complete* this class consist of:

1. achieving a minimum of 90% class attendance rate;
2. making ALL the deadlines for written assignments such as exercises, abstracts of talks, lecture notes, etc..

Tentative Syllabus

Week 1-2: Review of Calculus I material

Week 3: Review of Calculus II material

Week 4-5: Series (review)

Week 6-9: presentations (different proofs of $\sum_{k=1}^{\infty} \frac{1}{k^2} = \frac{\pi^2}{6}$)

Week 10 - 12: final projects

Most of the Calculus I/II material can be found in the following textbook.

REFERENCES

- [1] A. Ostebee and P. Zorn, "Calculus (Single Variable)," (2nd ed.), Houghton Mifflin, 2002.