Instructor: Dr. Filix Maisch
e-mail: maischf@math.oregonstate.edu
Meetings: MWF 12 - 12 : 50 PM
Room: FURM 102
Off. hrs: MWF 10 - 10 : 50 AM (KIDD 332)
Text: Matrix and Power Series Methods, Lee, Scarborough
Web: people.oregonstate.edu/~maischf/
Attendance: Regular attendance will be expected, but roll will not be taken.
Honor Code: Students are expected to be familiar with Oregon State University’s Statement of Expectations for Student Conduct. Please review this statement at the following web link:
http://oregonstate.edu/admin/stucon/achon.htm
Accommodations: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term. Students who believe they are eligible for accommodations should contact DAS immediately at 737-4098.
Course Description: The first half of this course provides an introduction to matrix algebra, determinants, the systematic solution of linear systems, and eigenvalue problems. The second half focuses on the convergence and divergence of series, with emphasis on power series, Taylor series expansions, convergence tests for power series, and error estimates for truncated series used in practical approximations.
Schedule: See web for tentative term schedule.
Evaluation: Your grade is determined recitation quizzes, unannounced true-false discussion quizzes, one in-class midterm and a final exam. Your final percentage (if higher) can replace your midterm. Here is the point breakdown:

- Recitation Quizzes - 160 (Top eight of nine recitation quizzes worth 20 points each.)
- T/F Quizzes - 30 (Top three of four true-false quizzes worth 10 points each.)
- Midterm - 100 (in-class, Feb. 5th)
- Final - 160 (4 PM, March, 19th. Location: TBAD)

Grades will not be harder than:
405 - 450 A/A-, 360 - 404 B+/B/B-, 315 - 359 C+/C, 270 - 314 D, 0 - 269 F.

I do not use blackboard. At the end of this syllabus you have a page on which you can record your scores.
**Resources:** The Math Learning Center is in Kidder 108H and is a great place to drop in for help. It is open from 9 AM to 4 PM, Monday through Friday, from the second week onward. I will be in there on Thursdays.

**Tests:** No calculators are allowed on the midterm/final. You are allowed both sides of one 4x6 inch handwritten note card for the midterm and both sides of one 5x8 inch handwritten note card for the final exam, but no other resources.

**Quizzes:** No resources are allowed on the in-class unannounced true-false discussion quizzes, but you are intended to share your reasoning with fellow students. No resources are allowed on the recitation quizzes, but they will consist of 2 – 3 problems drawn directly from the suggested homework. Starting the second week you will take one recitation quiz per week in numerical order. Your recitation TA will be in charge all policies (grading, make-ups, etc.) regarding recitation quizzes. Do not e-mail your instructor concerning a recitation quiz.

**Specific Learning Outcomes:**

1. Approximate complicated functions using Taylor polynomials or partial sums of infinite series and be able to estimate the error in the approximation.

2. Use the basic comparison test, integral test, alternating series test, ratio test, and root test to determine whether particular series converge or diverge.

3. Determine the radius and interval of convergence for a power series, be able to represent familiar functions by power series, and be able to describe when they can be differentiate and integrated term-by-term.

4. Use matrix notation, basic properties of determinants, and algebraic properties of matrices to express and solve linear systems of equations, and be able to determine linear dependence and independence for a set of $n$ vectors in $n$-space.

5. Find the characteristic polynomial and eigenvalues and eigenvectors of particular (small) matrices and explain the concepts as they apply to square matrices of any size.
Write down your scores!

(1) Quiz 1: ......out of 20

(2) Quiz 2: ......out of 20

(3) Quiz 3: ......out of 20

(4) Quiz 4: ......out of 20

(5) Midterm: ......out of 100

(6) Quiz 5: ......out of 20

(7) Quiz 6: ......out of 20

(8) Quiz 7: ......out of 20

(9) Quiz 8: ......out of 20

(10) Quiz 9: ......out of 20

(11) True-False Quiz 1: ......out of 10

(12) True-False Quiz 2: ......out of 10

(13) True-False Quiz 3: ......out of 10

(14) True-False Quiz 4: ......out of 10

(15) Final: ......out of 160