

Math 601: Methods of applied mathematics I
(section 601) **Spring 2014**

Lecturer: Dr. Zhizhang Xie

Lectures: TR 12:45-2:00pm, ZACH 119D

Office: Milner 203

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Office Hours: Fridays 1:30 - 3:30 pm or by appointment

Final Exam: May 7 (Wednesday), 8:00 – 10:00 am, ZACH 119D

Prerequisites: Math 308 or equivalent.

Course Outline:

The course is intended to give students an introduction into the tools and methods used throughout applied mathematics. The course covers two large topics: linear algebra and complex variables. An outline of topics to be covered is as follows:

• Linear algebra:

- 1) Introduction to vector spaces and matrices
- 2) Change of basis and similarity
- 3) Eigenvalues and spectral theory
- 4) Diagonalization and canonical forms.

• Complex analysis:

- 1) Introduction to functions of a complex variable
- 2) Harmonic functions and the Cauchy-Riemann equations –
- 3) Analyticity
- 4) Cauchy's theorem and the Cauchy integral formula
- 5) Conformal maps
- 6) Laurent series and residue calculus
- 7) Harmonic functions and applications to potential theory.

Textbooks:

- *Linear Algebra*, by S. Lipschutz and M Lipson. Schaum's outlines, **4th edition**.
- *Complex Variables*, by Spiegel, Lipschutz, Schiller & Spellman, Schaum's outlines, **2nd edition**.

Course Homepage:

Homework assignments and other course information will be posted at the course webpage: <http://www.math.tamu.edu/~xie/teaching.html>

Grading Standards:

Final grades will be determined based on:

weekly quizzes	midterms	final
30%	20% each	30%

Tentative schedule for midterms (subject to change):

- February 18th, Tuesday
- April 1st, Tuesday

Letter Grades			
A	B	C	D
≥ 90%	80% - 89%	70% - 79%	60% - 69%

Policies:

- **Make-up policies:** Students must make arrangements in advance if they expect to miss an exam or quiz. Exam absences due to recognized university-related activities, religious holidays, verifiable illness, and family/medical emergencies will be dealt with on an individual basis. In all cases of absence from exams a written excuse is required. Ignorance of the time and place of an exam will not be accepted as an excuse for absence.
- **Academic integrity:** The usual rules of academic integrity apply. In particular, the Aggie Honor Code “An Aggie does not lie, cheat or steal, or tolerate those who do” should be self-evident, see

<http://aggiehonor.tamu.edu/>

Students may, and are encouraged to, work together and discuss homework problems with each other. However, copying work done by others is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy.

- **Disabilities:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit

<http://disability.tamu.edu>