Fall Semester 2008
MATH 3353: Methods of Applied Mathematics

Instructor: Dr. Vu Kim Tuan
Time & Location: TTh, 11:00 AM - 12:15 PM, Boyd 304
Office: Boyd 325
Office Hours: Tuesdays + Thursdays, 12:15 PM-3:15 PM, 5:00 PM-7:00 PM, or by appointment. Please contact me only through campus MyUWG e-mail or in person.
Phone: 678-839-4135
E-mail: vu@westga.edu
Hours Credit: 3 hours
Prerequisites: MATH 3303


Course Description: This course is concerned with some of the most important methods of applied mathematics. When you have finished this course you will be able to solve most of the ordinary and partial differential equations that you are likely to encounter in practice, and, just as importantly, you will understand what to expect from the solutions, which might emerge in a mysterious fashion from a computer at your workplace. You will also learn techniques that are useful in other contexts – Fourier series and Fourier transform, special functions, and functions of complex variables. The student is assumed to know some basic facts in Ordinary Differential Equations and Linear Algebra. We will cover Chapters 8-10, 13-15, and 18 with emphasis on Problem Solving.


Learning Outcomes: the student will be able:
- To understand the notion of Linearity
- To use Frobenius method to solve differential equations near singular points
- To work with the Bessel functions
- To compute contour integrals
- To evaluate real integrals by means of residues
- To derive 2nd order PDEs from physical problems.
- To discuss and solve the heat equation in some cases.
- To discuss and solve the wave equation in some cases.
- To understand Fourier series and Fourier transform and apply them to solve PDEs.
Tests and Final Exam: There will be two in-class tests and two take-home tests worth 100 points each. Take-home tests are supposed to be completed individually. The lowest of these test scores will be dropped. You can miss at most one test, and that test will be considered to be the test with the lowest score to be dropped. The final is comprehensive and counts 150 points. No make-up for missing tests and final exam.

Important Dates:
9/9: Test 1 (Take home) Due 9/11 at 11 AM
10/7: Test 2 (In class)
10/28: Test 3 (Take home) Due 10/30 at 11 AM
11/20: Test 4 (In class)
12/9: Final, 11 AM – 1 PM

Grading: The final letter grade will be determined by the following scale:
A = 405-450, B = 360-<405, C = 315-<360, D = 270-<315, F = below 270

W Deadline: October 8th is the last day to withdraw with grade W

Homework: This is an important part of the course. At the end of most classes you will be given a list of problems – these are the minimum that you should work on. These problems will not be graded. Some of these problems will be gone over in the next class session and some will be included into the in-class tests. Practice is important. I encourage you to use my office hours if you have any questions about them. You should make sure to set aside some time every class day to work problems.

Disabilities: Students with documented disabilities (through West Georgia’s Disability Services) will be given all reasonable accommodations. Students must take the responsibility to make their disability known and request academic adjustments or auxiliary aids. Adjustments needed in relation to test-taking must be brought to the instructor's attention well in advance of the test (at least one week prior).

Attendance Policy: You are expected to attend every class. Although absences are not penalized, if a class is missed, you are responsible for all material and assignments.

Academic Honesty: You are expected to achieve and maintain the highest standards of academic honesty and excellence as described in the Undergraduate Catalog. In short, be responsible and do your own work.