COURSE DESCRIPTION
PARTIAL DIFFERENTIAL EQUATIONS I
MA 4/555 – 2D
FALL 2020

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Dr. Nandor Simanyi
Office: UH 4014
Phone#: (205) 934-2154 (Math Dept)
E-mail: simanyi@uab.edu
Zoom Office Hours: MW 5:30 PM – 6:30 PM. Meeting ID: 962 7069 1689 Passcode: 485482

Class Meeting times: TR 12:30 PM – 1:45 PM
Class Meeting location: ZOOM Meeting ID: 994 6808 9012 Passcode: 516384
Prerequisite: Grade of C or better in MA 126, MA 226 or equivalent. Taking MA 252 before this course is recommended.
Credits: 3 semester hours
Textbook: *Applied Partial Differential Equations*, Third Edition, by J. David Logan, Springer, New York, 2015.
Topics to be covered can be found in Chapters 1 — 5.

Important dates:

First day of classes: Monday, August 24.
Labor Day Holiday: September 7.
Last Day to Drop/Add (Without paying full Tuition or Fees): August 31.
Last Day to Submit Undergraduate Application for Degree: August 31.
Last Day for full term withdrawal for 75% refund: September 8.
Last Day for full term withdrawal for 50% refund: September 22.
Last Day for full term withdrawal for 25% refund: October 6.
Thanksgiving Break: November 23–29..
Last day of classes: December 4.
Last Day to withdraw with a Grade of W: December 4.
Final exam: Thursday, December 10.

Course policies:

- Please make sure that you are able to receive e-mail through your Blazer-ID account. Official course announcements may be sent to that address.

- If your are contacted by the Early Alert Program, you should consider taking advantage of the services it offers. Various services to assist you are also listed in the *Student Resources* section of the *BlazerNET* web site.
- Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) 934-4205, visit their website, or their office located in Hill Student Center Suite 409.
  - **Homework.** Homework will be assigned regularly. (Ten assignments altogether.) It is strongly recommended that you attend classes on a regular basis and complete all homework assignments when due (no late homework/assignment will be accepted, for any reason). Each homework is worth 10 points.
  - **Two midterm tests** including short questions for which either full credit or no credit is awarded (Part I) as well as problems requiring in depth understanding (including word-problems) for which partial credit is awarded where appropriate. Each of them is 100 points.
  - **A comprehensive final examination** including Part I and Part II type problems. 200 points.
  - For the 500-level students a project will be assigned during the term. A passing grade "P" obtained for the project is a prerequisite for those students to get a non-failing grade in the class.

Course content:
- PDE Models (Conservation Laws, Diffusion, Vibrations and Acoustics, *Quantum Mechanics*, Classification of PDEs)
- PDEs on Unbounded Domains (Heat Equation, Wave Equation, Semi-infinite Domains, Laplace Transforms, Fourier Transforms)
- PDEs on Bounded Domains (Separation of Variables, Orthogonal Expansions, Fourier Series, Sturm-Liouville Problems, Laplace's Equation)
- Applications in Life Sciences (Traveling Waves Fronts, Equilibria and Stability)

- Your course performance is the maximum of your course average (including the final exam score), and your final exam grade (each is a number between 0 and 100).
- Your final grade is determined according to the following table:
  A: 88-100, B: 80-87, C: 65-79 D: 50-64, F: below 50.