MA303, 偏微分方程中英双语班, Fall 2023

Syllabus

Lectures:

- Tuesdays of odd weeks 16:20 – 18:10. Room 102, **Teaching Building 3**
- Fridays of every weeks 16:20 – 18:10. Room 102, **Teaching Building 3**

Instructor: Shaochuang Huang 黄少创

E-mail: huangsc@sustech.edu.cn

Office: Room 206, Taizhou Building

Office Hours: Thursday 18:30 - 21:30 or by appointment

TA: Linfeng Xu 徐临风 12232859@mail. sustech.edu.cn

QQ Group: 924791210

Homework Box: No. 54

Textbook: *Lecture Notes on Partial Differential Equations,* Tao Tang and Xuefeng Wang.

Course Objectives: Partial Differential Equations (PDEs) is a branch of mathematics which is concerned with the establishment of mathematical models, the theoretical analysis and interpretation of objective phenomena and the solution of practical problems. This course will provide students with the basic concepts, theories and methods of PDEs, with emphasis on the understanding of PDEs models and their applications in other disciplines.

Learning Outcomes: Through this course, students will master some basic concepts, theories and methods of Partial Differential Equations. Master the physical background and mathematical derivation of transport equation, heat equation, Laplace equation, Poisson equation and wave equation. Master the method of characteristics, method of separation of variables, energy methods, method of fundamental solution, method of Green's function and d'Alembert formula. Master the maximum-minimum principle and its applications.

Prerequisite: Ordinary Differential Equations A (MA201a) or Ordinary Differential Equations B (MA201b)

Assessment: Grades will be calculated as follows:

- **Assignments** (**20%**): There will be around eight homework assignments. **Late homework will not be accepted. Copying other's work is absolutely not acceptable.**
- **Midterm** (**30%**): There will be one midterm exam. **There will be no makeup midterm.** If you are not able to take the test, an excuse note from your doctor or the dean is required for my record at least one day before the test.
- **Final** (**50%**): The final exam will be a comprehensive, departmental exam. Everyone must take the final exam otherwise you will get F (FAIL) for this course automatically.

Grading:

Here is the grading scale:

A+	97 – 100	B+	87 – 89	C+	77 – 79	D+	67 – 69	F	0 – 59
A	93 – 96	B	83 – 86	C	73 – 76	D	63 – 66		
A-	90 – 92	B-	80 – 82	C-	70 – 72	D-	60 – 62		

All grades will be posted on Blackboard. Each student is responsible for monitoring his or her recorded grades to ensure that they correspond to the scores received. If a grade has been incorrectly posted or is disputed, it is the responsibility of each student to raise the issue promptly.

Academic Honesty: It is the obligation of each student to understand the University's policies regarding academic honesty and to uphold these standards.

Reference:

- 偏微分方程, 周蜀林编著, 北京大学出版社, 2005.
- *Partial Differential Equations: An Introduction*, second edition, Walter A. Strauss, 2008.
- *Applied Partial Differential Equations with Fourier Series and Boundary Value Problems*, fifth edition, Richard Haberman, 2013.