

Math 400 Section 101, 2014W

Applied Partial Differential Equations

Instructor: Dong Li

Time: M/W/F 9-10am in LSK 460

Email: dli at math.ubc.ca (Please put MATH 400 in the subject line)

Office Hours

MATH Annex 1104

Mon/Wed, 4:00-5:00pm

References

- W. Strauss, Partial Differential Equations, An introduction. (Optional text)
- R. Haberman. Elementary Applied PDE, Prentice Hall.
- S.J. Farlow. PDE's for Scientists and Engineers, Dover.
- E. Zauderer, Partial Differential Equations of Applied Mathematics, Wiley.
- J.Kevorkian, Partial Differential Equations, Springer.

Course Outline (tentative):

1. Solving First-order PDEs, Methods of Characteristics
2. Review of solution by separation of variables
3. Shocks and applications to traffic flow
4. Classification and how to nondimensionalize equations
5. Eigenfunction expansions and Sturm-Liouville theory
6. Parabolic, elliptic and hyperbolic equations
7. Solution by integral transforms

Midterms and Final

Midterm: in class

Final: TBD

Grading

Homework: 35% (7 Homeworks total)

Midterm: 15%

Final: 50%

Homework Policies

Homework will generally be due one week after it is assigned. All assignments will be posted on this website and I will let you know in class when a new assignment is posted.

All homework must be turned in by the beginning of class on the due date. **NO LATE HW WILL BE ACCEPTED UNDER ANY CIRCUMSTANCES.** Homework can be turned in at class or my office hours. Also, scanned and e-mailed homework will not be accepted. For each assignment, selected problems will be graded thoroughly (usually on a 3, 4, or 5 point scale depending on the complexity of the problem) and the rest will be graded as either attempted or not attempted (for 0 or 1 point). Solutions for ALL assigned problems will be posted.

Begin early. The best time may be shortly following the lecture while the material is still fresh in your mind. This is your time to determine if you understand the concepts. If not, look at the course notes. It is also useful to work with your classmates in order to share ideas and compare results. The work you submit however should be your own.

Keep your work organized and legible. A correct final answer is NOT sufficient to receive full credit on a graded problem. All work must be shown in a CLEAR and NEAT fashion. Problems which are not legible will NOT be graded!

The following policies must be followed on each and every homework assignment.

- Full name written legibly at the top of the first page.
- All pages are STAPLED together at the top left corner. A paper clip does not count, they easily come off and can bind your assignment to others in the stack. I will not have a stapler with me in class, so come prepared!
- Write only on ONE SIDE of each page turned in. Paper tends to be see through, and writing on both sides makes it harder to read.

Other Important Notes

- There are no make-up midterms
- All marks are subject to scaling. This ensures fairness of the final grades.