

Syllabus for Math 182, Spring 2012

Partial Differential Equations

Please read this syllabus carefully. You will be responsible for all the information given here, and for any modifications to it that may be announced in class. Updated information and handouts can be accessed at my website: www.math.ohio-state.edu/~kao/

Instructor: Chiu-Yen Kao

Texts: Applied Partial Differential Equations, Fourth Edition, by Richard Haberman.

Lecture: MWF 11:00-11:50am @ Roberts North 103

Course Description: Fourier Series, Fourier Transforms, Distributions. Partial Differential Equations: Heat, Wave, Laplace's, Transport, Schrödinger, Reaction-diffusion equations, solitons, and numerical methods. Prerequisites: Math 60 and Math 111.

Office Hours: MWF 10:00-11:00am @ Adams 206 and by appointment

E-mails: Ckao@claremontmckenna.edu or kao@math.ohio-state.edu

Tentative Schedule: (See my website for detail schedule)

1. Heat Equation (chapter 1)
2. Separation of Variables (chapter 2: 2.3.1-2.3.4)
3. Laplace's Equation (chapter 2: 2.3.5)
4. Fourier Series (chapter 3)
5. Wave Equation (chapter 4: 4.1-4.5)
6. Sturm-Liouville Theory / Adjoint Operators (chapter 5: 5.1-5.7)
7. PDEs in more than one space dimension (Cartesian coordinates) (chapter 7: 7.1-7.6)
8. Non-Homogeneous PDEs / Method of Eigenfunction Expansion (chapter 8: 8.1-8.4)
9. Introduction to Green's Functions and the Fredholm Alternative Theorem (chapter 9: 9.1-9.4)
10. Fourier Integral Solution to Heat Equation over Infinite Domain (chapter 10: 10.1-10.4)

Grading: midterm (Fri. Feb 24, 20%, Wed. Apr 4, 20%), final exam (Mon. May 7 9:00am, 30%), class participation (5%), and homework and quiz (25%). The letter grade will be with an approximately 90(A)-80(B)-70(C)-60(D) scale.

Class Participation: You are expected to attend all lectures, and are responsible for all information given out during them. Excessive absences without any medical reasons will result in points lost from your class participation grade. Activities such as sleeping, reading, listening to headsets, browsing the web, conversing with other students, and so on do not constitute class participation. Students engaging in such behavior during the lecture will be counted as absent.

Homework: I encourage students to discuss HW with each other. However, you should still write your own answers. No late HW will be accepted.

Examination: final exam will be held on Mon. May 7, 9:00am. University regulations require that you take it at that time. It will cover all sections listed in the class schedule. All tests must be taken at the scheduled times, except in extraordinary circumstances. If you cannot take a test at the scheduled time, you should contact me in advance. Check the grading of your exams carefully when they are returned; all grading errors should be brought to my attention as soon as possible. **No calculators will be allowed during any exams.**

***Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. If you have any other questions related to Disability Support Services at Claremont McKenna College, please contact Julia Easley in the Dean of Students Office at 909-621-8114**
<http://www.cmc.edu/dos/DSS/disabilitysupport.php>