

MATH 757: Fourier Analysis (Spring 2012)
MWF 9:00-9:50 Minard 336

Instructor: Maria Alfonseca

Office: Minard 412B

E-mail: maria.alfonseca@ndsu.edu

Phone: 231-8254

Office Hours: MWF 10:00-11:30 am and by appointment. Please talk to me after class or send me an e-mail to set up appointments.

Text: *Fourier Analysis, an introduction*) by E.M. Stein and R. Shakarchi, Princeton University Press.

Topics: Fourier Analysis arose in the XIX century as a method to solve the heat and the wave equations, two of the most representative second order partial differential equations. It requires to decompose a function as an infinite sum of trigonometric functions, and thus immediately introduced the problem of studying which functions can be written in this way, and in which sense the trigonometric series is convergent. In this course we will study these representation and convergence problems, and some applications. Fourier analysis has proven useful not only for PDEs, but also in functional analysis, geometry (tomography) and number theory.

Attendance: Attendance is expected and required. There will be weekly student presentations. You are responsible for all the material covered in class and all the assignments and announcements made. If you need to miss class due to sickness or other reason, please email me.

Grading policy: There will be no final exam. The grade will be based on weekly class presentations and on three sets of problems that will be collected on the following dates.

- Wednesday, February 22.
- Wednesday, March 28.
- Wednesday, April 25.

The overall grade will be calculated according to the following rule:

- Class presentations (including attendance): 40%
- Each Problem Set: 20%

Special Needs: Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible.

Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.

Academic Honesty: The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.