Lei Zhang (https://people.clas.ufl.edu/leizhang/)
Department of Mathematics

Course 1 (Spring 2024) MAP 4413 Fourier Series and Transformations

Course Number: 13509 Section: 7521
Time and Location
MWF 6, Little Hall 223 12:50pm-1:40pm

Office Hour: Thursday 11:00am-12:00pm.

Credit: 3

Prerequisites: Calculus, Linear Algebra and Elementary Differential Equations

Description and Goals
This course covers the basic theory of Fourier Analysis assuming little mathematical maturity of students. I will present basic properties of Fourier series followed by the discussion of convergence, transform on R and R^d (d is the dimension of the space). Finally I will explain the Finite Fourier Analysis and applications of Fourier Series in medical sciences.

Homework/Textbook
Homework will be regularly assigned.

The textbook we shall use is Fourier Analysis: An Introduction (Princeton Lectures in Analysis, Volume 1)
by Elias M. Stein and Rami Shakarchi

Final Grades: There will be three mid–term exams (20% each) and a comprehensive final exam (30%), all based on suggested homework problems. All the homework grades will be factored as 10% of the total grade.
The tentative arrangement for the four exams is

Exam 1 January 31 (Wednesday)

Exam 2 February 23 (Friday).

Exam 3 April 1 (Monday)

Final exam: TBD

A weekly schedule of topics and assignments:
Weeks 1 Chapter 1. week 2-5 Chapter 2, Week 6-8 Chapter 3, Week 8-11 Chapter 4, Week 12: Chapter 5, Week 13-16 Chapter 7.

Grading Scale:

Grades will then be assigned based upon the following scale: A 88% – 100% B+ 83% – 87% B 77% – 82% C+ 72% – 76% C 67% – 71% D 55% – 66% E 0% – 54%

Attendance and Late Policy

Attendance of lectures is voluntary. Make-up exams can be allowed if the student can provide documents to verify the EXTREMELY urgent nature of his/her absence.

ABSOLUTELY NO MAKEUPS WITHOUT MEDICAL DOCUMENTATION. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at :

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Students that need accommodation

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Information on current UF grading policies for assigning grade points:

https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Information on course evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://gatorevals.aa.ufl.edu/ Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Requirements on class attendance, make–up exams and other things:

Students are strongly encouraged to attend all the lectures. Make-up exams can only be given under extremely rare situations and the students must provide convincing documents to show the extremely urgent nature of absence. Look at the following link for guidance:

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Edit (https://people.clas.ufl.edu/leizhang/wp-admin/post.php?post=593&action=edit)

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Course 1 (Spring 2024) MAP 4413 Fourier Series and Transformations (https://people.clas.ufl.edu/leizhang/courses/course-1-fall-2016-map-2302-elementary-differential-equations-section-5592-2-2-2-2-2/)

https://people.clas.ufl.edu/leizhang/courses/course-1-fall-2016-map-2302-elementary-differential-equations-section-5592-2-2-2-2-2/   2/3

Course 2 (Spring 2024) Linear Algebra MAS 4105 (https://people.clas.ufl.edu/leizhang/courses/course-2-fall-2016-linear-algebra-mas-4105-section-6137-2-2-2-2/)

Publications (https://people.clas.ufl.edu/leizhang/publications/) | **Research (https://people.clas.ufl.edu/leizhang/research/)**

Curriculum Vitae (https://people.clas.ufl.edu/leizhang/curriculum-vitae/)

Blog (https://people.clas.ufl.edu/leizhang/category/blog/) | **Teaching (https://people.clas.ufl.edu/leizhang/teaching/)**

Course 1 (Spring 2020) MAP 4413 Fourier Series and Transformations section 7521 (https://people.clas.ufl.edu/leizhang/courses/course-1-fall-2016-map-2302-elementary-differential-equations-section-5592-2-2/)

Course 1 (Summer, 2016) MAP 4305/5304 DIF EQUA EG & PHY SCI/INTERMED DIFF EQUATNS sections 0642/0643 (https://people.clas.ufl.edu/leizhang/courses/course-1-summer-2015-map-43055304-dif-equa-eg-phy-sciintermed-diff-equatns-sections-55295546/)

Teaching (https://people.clas.ufl.edu/leizhang/teaching/)

Course 1 (Spring 2019) MAP6357 Partial Differential Equations 1 /Section 366A Class # 17291 (https://people.clas.ufl.edu/leizhang/courses/course-1map6357-pde1-section-1h79-2-2/)

Course 1 (Spring 2020) MAP 4413 Fourier Series and Transformations section 7521 (https://people.clas.ufl.edu/leizhang/courses/course-1-fall-2016-map-2302-elementary-differential-equations-section-5592-2-2/)

Course 2 (Spring 2020) MAP6357 Partial Differential Equations 2 /23426 (https://people.clas.ufl.edu/leizhang/courses/course-2map6356-pde1-section-1h79-2-2/)