MATH 5140 - Fourier Analysis

Fall 2026

Syllabus

- **Instructor:** Sean Li, sean.li@uconn.edu.
- **Office hours:** TBD or by appointment. Webex: https://uconn-cmr.webex.com/meet/sel17005
- **Course grades:** Two homeworks. Final presentation.
- **Topics to be covered:** Fourier series, Fourier transform, Schwarz class and tempered distributions, maximal functions, Hilbert transform, singular integrals, Riesz transform, T1 theorem.
- **Textbook:** We will follow lecture notes provided by Vasilis Chousionis which will be made available on HuskyCT.
- **Recommended books:** You may find the following books helpful although they are not required:
  - *An introduction to Harmonic Analysis*, Y. Katznelson. Cambridge University Press 2004.
  - *Singular Integrals and Differentiability Properties of Functions*, E. Stein. Princeton University Press 1970.
- **Homework:** There will be homeworks due on weeks 5 and 10. You may work and submit solutions in pairs! You may also consult with others, but please keep discussion at a higher level. **Homeworks must be written in LaTeX!** Solutions will be provided sometime after the homework is collected.

  Overleaf allows you to use Latex without installing anything. They also have tutorials.
- **Academic Integrity:** https://ugradresearch.uconn.edu/academic-integrity/