Applied Analysis (I)

Week 1 (9/13, 9/15): No classes this week (9/15 Holiday).

Week 2 (9/20, 9/22): Motivations, Basic properties of Fourier series

Week 3 (9/27, 9/29): Uniqueness, Convolution, Summability

Week 4 (10/4, 10/6): Summability, Poisson’s kernel

Week 5 (10/11, 10/13): Mean convergence, Pointwise convergence

Week 6 (10/18, 10/20): Convergence theorems

Week 7 (10/25, 10/27): Some applications of Fourier series

Week 8 (11/1, 11/3): Some applications

Week 9 (11/8, 11/10): ***Midterm***, Fourier transform in one dimension

Week 10 (11/15, 11/17): Schwartz class, Tempered distributions

Week 11 (11/22, 11/24): Applications to PDEs

Week 12 (11/29, 12/1): Poisson summation formula

Week 13 (12/6, 12/8): The Heisenberg uncertainty principle

Week 14 (12/13, 12/15): Fourier transform in multi-dimension

Week 15 (12/20, 12/22): Basic properties, Applications

Week 16 (12/27, 12/29): Discrete Fourier transform

Week 17 (1/3, 1/5): Applications

Week 18 (1/10): ***Final exam***