

MAT 341 Lec02 Course Schedule

Legend: **Red colored** homework problems will not be graded, but make sure that you are able to do these problems, which give you an extra practice. The PDF version of the schedule is available for print [here](#).

Dates	Sections covered - assigned reading before and after the class	Homework
Aug 25 & Aug 27	Orthogonal functions & Fourier series. Definitions & examples. Ch.0, §§0.3.1-0.3.3 and Ch.1, §§1.1.1-1.1.4 and §1.1.6.	HW 1; due: Sep 3 p. 33: 1,3,7,8; pp. 44-46: 1,3,4,7,9,30; pp. 33-34: 2,6,11-14; pp. 45-46: 10,13-15,18,19,33,34.
Sep 1 & Sep 3	Sep 1- Labor Day : No class . Pointwise and uniform convergence of Fourier series Ch.1, §1.2.1 (proofs are optional) and §§1.3.3-1.3.4	HW 2; due: Sep 10 pp. 54-57: 1,2,3,15-17 and the following extra problems ; p. 55: 4-7.
Sep 8 & Sep 10	Differentiation and integration of Fourier series. Parseval's Theorem. Complex form of Fourier series. Ch.1, §§1.3.5-1.3.6, §§1.4.1-1.4.2 and §§1.5.1-1.5.3.	HW 3; due: Sep 17 p. 70: 9,11-13; p. 75: 4,5; pp.83: 1-3; p. 69: 4-6; p. 76: 9; p. 83: 4,5.
Sep 15 & Sep 17	Sturm-Liouville eigenvalue problems. Ch.1, §1.6.1-1.6.6.	HW 4; due: Sep 24 pp. 96-97: 1-6,7,8,13; pp. 96-97: 10,11,14,15.
Sep 22 & Sep 24	The heat equation. Steady-state and time-periodic solutions. Homogeneous boundary conditions. Ch.2, §§2.1.3-2.1.5 and §2.2.1.	HW 5; due: Oct 1 pp. 108-109: 1,3,4,10,11; pp. 120-121: 4,10,18.
Sep 29 & Oct 1	Solution of the initial value problem in a slab, relaxation time and uniqueness of solutions. Ch.2, §§2.2.2-2.2.4.	HW 6; due: Oct 6 pp. 120-121: 2,3,5,7,8,11-14.
Oct 6 & Oct 8	Midterm 1 , Oct 8, 2:00pm- 3:20pm, in class. Covers §§1.1.1-1.1.4, 1.1.6, 1,2.1, 1.3.3-1.3.6, 1.4.1-1.4.2, 1.5.1-1.5.3, 1.6.1-1.6.6, 2.1.3-2.1.5, 2.2.1-2.2.2.	No HW
Oct 13 & Oct 15	Oct 13 - Fall Break : No class . Basic properties of Fourier transform and solution of the heat equation on the real line. Ch.5, §§5.1.1-5.1.3 and §§5.2.1-5.2.6.	HW 7; due: Oct 22 p. 292: 1,2,4,13; p.310: 15 and extra problems ; p. 292: 11,15,16; p.308: 6,7
Oct 20 & Oct 22	One-dimensional wave equation. The vibrating string and d'Alembert solution. Ch.2, § 2.4.3 and §§2.4.5-2.4.7.	HW 8; due: Oct 29 p. 150-151:2,11,13 and extra problems ; pp. 150-151: 4,5, 9-11,14-16.
Oct 27 & Oct 29	Applications of multiple Fourier series to Laplace's, heat and wave equations. Ch.2, §§2.5.1-2.5.5.	HW 9; due: Nov 5 pp. 168-169: 1,2,4-6,10-13; pp. 168-169: 3,7,8,14.
Nov 3 &	Laplace's equation in cylindrical coordinates. Ch.3,	HW 10; due: Nov 12 pp. 181-182: 8,9,13-

Nov 5	§§3.1.1-3.1.3 and §§3.1.6-3.1.9.	16,18,19,23.
Nov 10 & Nov 12	Bessel functions. Ch.3, §§3.2.1-3.2.3. Midterm 2 , Nov 12, 2:00pm - 3:20pm, in class.	HW 11, due: Nov 19 pp. 207-208: 1-5,14,16,18-20; p. 207: 6,7,10-13.
Nov 17 & Nov 19	Bessel functions, continued. Notes Ch.3, §§3.2.5-3.2.7.	HW 12; due: Nov 26 p. 208: 22-24,28-32; p. 208: 33,34.
Nov 24 & Nov 26	Wave equation in polar coordinates. Heat flow in the infinite cylinder Ch.3, §§3.3.1-3.3.2 and §§3.4.1-3.4.2. Nov 26- Thanksgiving Break : No classes in session.	HW 13 due: Dec 3 p. 216: 1,4-8 and p. 226: 1-3.
Dec 1 & Dec 3	Legendre functions and spherical Bessel functions. Boundary-value problems in a sphere. Ch. 4, §4.1.1, 4.2.1-4.2.2 and §4.3.1.	Extra HW p. 250: 8-10, p. 266: 3-7,11,12 and p. 275: 1-3.
12/08/25	Review	
12/15/25	Final exam , Mon.Dec. 15 2:15-5:00 pm	