

Date	Topic	Section	Assignments	Due date
Aug 25	Periodic functions and Fourier series	1.1	<b>1.1:</b> 1abc, 2ad, 4, 7b, 8	<b>HW1</b> Due Sept 3
Aug 27	Determining Fourier coefficients; Examples	1.2	<b>1.2:</b> 1, 7c	
Sept 1	Even & odd extensions; Examples Convergence of Fourier series	1.2, 1.3	<b>1.2:</b> 10b, 11b	<b>HW2</b> Due Sept 10
Sept 3	Uniform convergence of Fourier series Gibbs phenomenon	1.3, 1.4	<b>1.3:</b> 1abd, 2ad, 5	
Sept 8	<i>no class (Labor day)</i>			
Sept 10	Fourier sine & cosine series Basic operations on Fourier series	1.4, 1.5	<b>1.4:</b> 1ae, 2, 3bc, 5ab <b>page 120:</b> 19, 20	<b>HW3</b> Due Sept 17
Sept 15	Differentiation of Fourier series The heat equation	1.5, 2.1	<b>1.5:</b> 2, 5, 9 <b>2.1:</b> 2, 9	<b>HW4</b> Due Sept 24
Sept 17	Steady-state solutions Transient solutions	2.2, 2.3	<b>2.2:</b> 2, 6 <b>2.3:</b> 6	
Sept 22	Fixed-end temperatures	2.3, 2.4	<b>2.3:</b> 2, 8 [use $a=\pi$ ]	<b>HW5</b> Due Oct 8
Sept 24	Insulated bar; Examples	2.4, 2.5	<b>2.4:</b> 4 [use $a=\pi$ ], 5, 8	
Sept 29	Different boundary conditions Review	2.5, 2.6	<b>2.5:</b> 4, 5, 6	
Oct 1	<b>Midterm 1</b> (10:00-11:20am) Covers 1.1-1.5, 2.1-2.3 -- <a href="#">Solutions Midterm SP2015</a> with <a href="#">Solutions SP2015 Midterm &amp; Solutions FA2008</a>			
Oct 6	Convection Eigenvalues and eigenfunctions	2.6, 2.7	<b>2.6:</b> 7, 9, 10	<b>HW6</b> Due Oct 15 <a href="#">Graphs</a>
Oct 8	Sturm-Liouville problems Relation to Fourier series	2.7, 2.8	<b>2.7:</b> 1, 3bc, 7	
Oct 13	Series of eigenfunctions & examples Fourier integral	2.8, 1.9	<b>2.8:</b> 1 [use $b=2$ ] <b>1.9:</b> 1ab, 3a	<b>HW7</b> Due Oct 22
Oct 15	Fourier integral & applications to PDEs Semi-infinite rod	2.10	<b>2.10:</b> 3, 4	
Oct 20	The wave equation	3.1, 3.2	<b>3.2:</b> 3, 4, 5, 7	<b>HW8</b> Due Oct 29
Oct 22	The wave equation; Examples Solution to the vibrating-string problem	3.2	<b>page 255:</b> 18 <b>page 257:</b> 31	
Oct 27	D'Alembert's solution; Examples	3.3, 3.4	<b>3.3:</b> 1, 2, 5	<b>HW9</b> Due Nov 12 <a href="#">Comments</a>
Oct 29	Laplace's equation Dirichlet's problem in a rectangle	4.1, 4.2	<b>4.1:</b> 2	
Nov 3	Dirichlet's problem in a rectangle; Examples Review	4.2, 4.3	<b>4.2:</b> 5 [use $a=1$ , $f(x)=\sin(3\pi x)$ ] <b>4.2:</b> 6	

Nov 5	<b>Midterm 2</b> (10:00-11:20am) Covers 2.4-2.8, 2.10, 1.9, 3.1-3.2 -- <a href="#">Solutions</a> <a href="#">Midterm SP2015</a> with <a href="#">Solutions SP2015</a> <a href="#">Extra practice problems</a>			
Nov 10	Potential in a rectangle; Examples Potential in unbounded regions	4.3, 4.4	<b>4.3:</b> 2b <b>4.4:</b> 4a, 5ab	<b>HW10</b> Due Nov 19
Nov 12	Polar coordinates Potential in a disk <a href="#">Lecture notes</a>	4.1, 4.5	<b>4.1:</b> 6 <b>4.5:</b> 1	
Nov 17	Dirichlet problem in a disk; Examples	4.5	<b>4.5:</b> 4	<b>HW11</b> Due Dec 3
Nov 19	Two-dimensional heat equation	5.3, 5.4	<b>5.3:</b> 1, 7c [use $a=b=\pi$ ]	
Nov 24	Problems in polar coordinates Bessel's equation	5.5, 5.6	<b>5.4:</b> 5	
Nov 26	<i>no class (Thanksgiving)</i>			
Dec 1	Temperature in a cylinder Applications: symmetric vibrations	5.6, 5.7	<b>5.6:</b> 3 [use $a=1$ ]	
Dec 3	Examples & Review	5.7	<b>5.6:</b> 7 <b>5.7:</b> 2 <b>page 371:</b> 1, 2, 6	Practice problems
Dec 11	<b>Final Exam</b> (11:15am-1:45pm) -- in class, <b>Melville Library W4525</b> The final is cumulative and it covers: 1.1-1.5, 1.9, 2.1-2.8, 2.10, 3.1-3.4, 4.1-4.5, 5.3-5.7 <a href="#">Practice Final FA2009</a> (do only problems 2, 5, 6, 8, 10) with <a href="#">Solutions</a> <a href="#">Final SP2015</a>			