MATH 6947 - Methods of Applied Mathematics

Fall 2026 Syllabus, Section 01, CRN 42765,

Credit hours: 3

Instructor

Jozsef Jalics

Email: jalics@ysu.edu

Public Instructor Information

Instructor Title: Dr. Jozsef Z. Jalics
Instructor Professional Qualifications: *Ph. D., Mathematics, The Ohio State University*
M.S., Mathematics, The Ohio State University
B.S., Mathematics, John Carroll University
Instructor Office Location: Cafaro Hall 607
Instructor Office Phone: (330) 941-3311

Course Description

6947. Methods of Applied Mathematics . This course surveys topics in applied mathematics and may include scaling, perturbation methods, stationary phase analysis, multi-scale asymptotics, transform methods, Green's functions, discrete models, the calculus of variations, or optimization. Prereq.: Graduate Standing. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Applied Mathematics, 4th Edition	J. David Logan	

Additional Optional Course Materials:
Nonlinear Dynamics and Chaos. Steven H. Strogatz
Differential Equations, Dynamical Systems, & an Introduction to Chaos. Hirsch, Smale, and Devaney
Partial Differential Equations: An Introduction. Walter A. Strauss.

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Ch. 1	Dimensional Analysis	
8/31	Ch. 1	Dimensional Analysis	
9/7	Ch. 2	Linear & Nonlinear Dynamical Systems, Bifurcation analysis	
9/14	Ch. 2	Linear & Nonlinear Dynamical Systems, Bifurcation analysis	
9/21	Ch. 2	Linear & Nonlinear Dynamical Systems, Bifurcation analysis	
9/28	Ch. 2	Linear & Nonlinear Dynamical Systems, Bifurcation analysis	
10/5	Ch. 2	Linear & Nonlinear Dynamical Systems, Bifurcation analysis	
10/12	Ch. 3	Perturbation Methods and Asymptotic Expansions	

10/19	Ch. 3	Perturbation Methods and Asymptotic Expansions	
10/26	Ch. 3	Perturbation Methods and Asymptotic Expansions	
11/2	Ch. 3	Perturbation Methods and Asymptotic Expansions	
11/9	Ch. 5-6	Boundary Value Problems, Integral Equations, PDEs	
11/16	Ch. 5-6	Boundary Value Problems, Integral Equations, PDEs	
11/23	Ch. 5-6	Boundary Value Problems, Integral Equations, PDEs	
11/30	Ch. 5-6	Boundary Value Problems, Integral Equations, PDEs	
12/7	Final Exam week		Final: Tuesday, Dec. 8 3:15-5:15 PM

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.