

MATH 4847 - Introduction to Applied Mathematics

Fall 2026 Syllabus, Section 01, CRN 42764,

Credit hours: 3

Instructor

Jozsef Jalics

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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

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Course Description

4847. Introduction to 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.: C or better in MATH 2673 and MATH 3705. 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.