

MATH 5895Z - Selected Topics in Mathematics Advanced Engineering Mathematics 1

Fall 2026 Syllabus, Section 01, CRN 44298,

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

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Course Description

5895Z. Selected Topics in Mathematics Advanced Engineering Mathematics 1. The study of a standard mathematical topic in depth or the development of a special area of mathematics. May be repeated twice. Prereq.: 24 s.h. of mathematics applicable to the mathematics major including either MATH 3721 or MATH 3751. 2-3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Advanced Engineering Mathematics, 10th Edition	Erwin Kreyszig	

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. 1-2, 4 Ch. 1-2, 4	Linear and nonlinear systems of O.D.E.s and bifurcations Linear and nonlinear systems of O.D.E.s and bifurcations	
8/31	Ch. 1-2, 4	Linear and nonlinear systems of O.D.E.s and bifurcations	
9/7	Ch. 1-2, 4	Linear and nonlinear systems of O.D.E.s and bifurcations	
9/14	Ch. 1-2, 4	Linear and nonlinear systems of O.D.E.s and bifurcations	
9/21	Ch. 5	Power series solutions of differential equations	
9/28	Ch. 5	Power series solutions of differential equations	

10/5	Ch. 5	Legendre and Bessel differential equations
10/12	Ch. 5	Legendre and Bessel differential equations
10/19	Ch. 11	Fourier Analysis
10/26	Ch. 11	Fourier Analysis
11/2	Ch. 11	Boundary value problems and eigenfunction expansions
11/9	Ch. 11	Boundary value problems and eigenfunction expansions
11/16	Ch. 12	Partial differential equations
11/23	Ch. 12	Partial differential equations
11/30	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.