

MATH 6910 - Advanced Engineering Mathematics 1

Fall 2026 Syllabus, Section 01, CRN 41076,

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

6910. Advanced Engineering Mathematics 1. Theory and solution techniques used in engineering applications. Topics include brief review of ordinary differential equations and linear algebra; vector calculus, integral theorems, complex analysis, series, residue theory, potential theory, special functions, integral transforms, partial differential equations and applications in mathematical modeling. Prereq.: MATH 3705. 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	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. 1-2, 4	Linear and nonlinear systems of O.D.E.s and bifurcations	
9/28	Ch. 5	Power series solutions of differential equations	
10/5	Ch. 5	Power series solutions of differential equations	

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