MATH 2177: MATHEMATICAL TOPICS FOR ENGINEERS

SPRING 2015, MWF 1:50 (1184 POSTLE HALL), MWF 3:00 (014 UNIVERSITY HALL)

Lecturer: Prof. Kenneth Koenig, 526 Mathematics Tower, koenig@math.ohio-state.edu, 292-5925
Office hours: Fridays 4:30–6 p.m.

Teaching Assistants: Shenhui Liu (MW 549, 247-1997, liu.2076@osu.edu)
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Textbook:
Math 2177: Custom Edition for The Ohio State University, ISBN 1-256-82676-6 (ISBN-13: 978-1-256-82676-7)

Homework/Exams/Grading
Homework is due in your recitation section each Tuesday; the weekly assignments are listed in a separate handout. Late homework will not normally be accepted. (If you require an extension due to severe illness or other unusual circumstances, please contact **your TA** directly.)

There will be three in-class midterm exams. The first one will be held on Wednesday, February 11, the second on Wednesday, March 11, and the third on Wednesday, April 15. The final exam will be held on Tuesday, May 5, 4:00–5:45 p.m. *for the 1:50 p.m. lecture sections* and Friday, May 1, 4:00–5:45 p.m. *for the 3:00 p.m. lecture sections*. You are required to take the final exam at the appropriate time, unless you have a conflict as determined by the registrar. Please note these dates when making any travel arrangements; make-up exams will not be offered except in extraordinary circumstances, such as illness certified by a physician or an approved University function. (In such cases, please contact **me** rather than your TA.)

The course grade will be determined as follows:

Homework	25%
Midterm 1	15%
Midterm 2	15%
Midterm 3	15%
Final exam	30%

The curve (if any) will be determined at the end of the semester, after the overall course averages are computed.

Topics covered: (see separate handout for a daily syllabus)

Part I [5 weeks]: Multiple integration and vector calculus (§1.8, 1.9, 2.1–2.5, 3.1–3.3)

Maximum/minimum problems, Lagrange multipliers, double integrals (in Cartesian and polar coordinates), triple integrals (in Cartesian, cylindrical, and spherical coordinates), line integrals, and conservative vector fields

Part II [3 weeks]: Matrices and linear systems of equations (§4.1–4.7, 4.9)

Matrix representation of linear systems, Gauss-Jordan elimination, consistent systems of linear equations, matrix operations, linear independence and nonsingular matrices, matrix inverses, applications

Part III [3 weeks]: Second-order differential equations (§5.1–5.4, 5C)

Complex numbers, linear homogeneous equations, linear nonhomogeneous equations, applications

Part IV [3 weeks]: Fourier series and partial differential equations (§6.1–6.5)

Method of separation of variables, Fourier series, heat and wave equations

MSLC Tutoring: The Mathematics and Statistics Learning Center provides free tutoring for Math 2177. Their walk-in hours are 10:20 a.m. – 4:00 p.m. (131 Cockins Hall) and 4–7 p.m. (040 18th Avenue Library), Monday through Thursday. Additional information (including any changes in location and hours) is available on their website: `mslc.osu.edu`.