

Course: **Advanced Engineering Mathematics II (AEM II)**  
Instructor: Dr. Laura K. Gross  
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Web: <http://www.math.uakron.edu/~gross>  
Text: *Advanced Engineering Mathematics* by Peter O'Neil  
(optional)

- **Objectives.** The course builds towards an approximately six-week unit on partial differential equations (PDEs), specifically the classical initial-boundary-value problems of mathematical physics, which we will solve primarily using separation of variables, Fourier series, and integral transforms. The first 2/3 of the course will cover relevant tools: series solutions for ordinary differential equations (ODEs), Bessel and other special functions, Sturm-Liouville problems, and Fourier series and transforms.
- **Texts and resources.** The course text covers most of the course material, plus much much more. The fourth edition is on course reserve (under 3450:438:001) at the circulation desk at the Science and Technology Library (along with quite a few other books that may be of interest). You may use it for two hours at a time in the library, or check out a similar book(s). If you wish, you may purchase O'Neil's textbook (currently available up to the sixth edition) or buy a different book on advanced engineering mathematics.
- **Course grades.** Course grades will consist of 25% homework, 75% three equally-weighted exams. The third (final) exam will focus on material covered since the second exam, which in turn relies on tools from the earlier parts of the course.
- **Registration.** You must register for the class during the first two weeks of school. To participate in the class, your name must appear the university's official class list by Monday, January 28, 2008.

(OVER)

- **Withdrawal.** The last day to withdraw from the course without “WD” appearing on your academic record is Monday, January 28, 2008.

Withdrawal from the course is permitted at any time on or before Friday, March 7, 2008 with your advisor’s signature. After that date, my signature is also required. After Friday, April 11, 2008 at 4:30, University policy prohibits withdrawal from any class. All withdrawals must be processed by the registrar by that date.

- **Tentative schedule<sup>1</sup>**

Week	Dates	Topics
1–3	January 17–31	ODEs and special functions
4	February 7	EXAM 1
4–6	February 5–21	Sturm-Liouville problems
7–9	February 26–March 11	Fourier series and transforms
9–15	March 13–May 1	PDEs
10	March 27	EXAM 2
16	May 7, 2:00–3:55	FINAL EXAM

- **Office hours unless otherwise announced.<sup>2</sup>**

- **Mondays:** 12:45–2:00 p.m.,
- **Tuesdays:** 3:15–4:00 p.m.,
- **Wednesdays:** 3:15–5:15 p.m.,
- **Fridays:** 12:00–2:00 p.m.

- **Academic honesty.**

- Feel free to work together on homework. However, you must *write up by yourself* all homework that will be graded.
- Familiarize yourself with University academic honesty policies (attached), and follow them closely.

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<sup>1</sup>Note spring break will fall between Weeks 9 and 10: the week of March 17.

<sup>2</sup>Please see my web site for office-hour updates. I am available by appointment, too, preferably made a day in advance.