

**Instructor** Alexander Balk  
 JWB 304, balk@math.utah.edu, 801-581-7512  
*Office Hours:* Tue. 10am - 12noon  
 or by appointment (preferably after 4pm on M,W,F or before 12noon on Tu,Th)

**Time and Place** M,W,F: 11:50 - 12:40, JTB 320

**Text** *Introduction to Applied Mathematics*  
 by G. Strang (Wellesley-Cambridge Press, 1986)

### Course Objectives.

Many mathematical methods are crucial for solving various problems in Science and Technology. You can see this from the couple of recent encyclopedias:

*The Princeton Companion to Applied Mathematics* (edited by Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner; Princeton University Press, Sept 15, 2015);

*Encyclopedia of Applied and Computational Mathematics* (edited by Björn Engquist; Springer, Oct 15, 2015).

The goal of this class is to introduce you to the basic methods that are used in many different mathematical applications; these include:

1. Linear Algebra (Chapter 1).
2. Calculus of variations (Section 3.6).
3. Fourier transform (Sections 4.1-3, 5.5).
4. Complex variables (Sections 4.4-5).

**Grading Policy.** The grade for the class will be based on

- (1) Weekly Homework — 30%; 2 lowest scores will be dropped
- (2) Weekly Quizzes — 30%; 2 lowest scores will be dropped
- (3) Midterm — 15%
- (4) Comprehensive Final — 25%

You can earn extra credit by volunteering to explain solutions of difficult homework problems.

The total grade is on a curve.

### Dates:

Labor Day	Mon. Sept. 7
Fall break	Sun.-Sun. Oct. 11-18
<b>Midterm</b>	<b>Fri. Oct. 30</b>
Thanksgiving break	Thu.-Fri., Nov. 26-27
Last Class	Wed. Dec. 9
<b>Final</b>	<b>Mon, Dec. 14, 10:30 am - 12:30 pm; in the regular room</b>
	(according to the university schedule)

**HW** assignments will be posted on my web page [www.math.utah.edu/~balk/](http://www.math.utah.edu/~balk/)

The first quiz is on the first Wednesday, the first HW is due the second Wednesday. The **Midterm/Final** problems will be similar to the HW problems and to questions in the quizzes. You need to solve the test problems (in Quizzes, Midterm, and Final) **without books, notes, or electronics**.

If something is unclear, please **ask** me right away. Otherwise, small miss-understanding can cause significant problems later. I would be very happy to discuss your questions. You can ask me during lectures (chances are that others have similar problems, and in-class discussion would be very helpful), after lectures, during office hours, or make an appointment.

Discussions with fellow students can also be very helpful.

Take into account that it is one thing to follow and completely understand a given solution, but it is a **very different thing** to solve the problem by yourself.

**The Americans with Disabilities Act** requires that reasonable accommodations be provided for students with physical, sensory, cognitive, systemic, learning, and psychiatric disabilities.