

**ACMS 20750, Introduction to Applied Mathematical Methods II,
Spring 2020**
Course Information & Syllabus

- **Textbook:** Mathematical Methods in the Physical Sciences, third edition by Mary L. Boas. ISBN-13: 978-0-471-19826-0. Copyright 2006 John Wiley & Sons, Inc.
- **Class time and place:**
 - Section 01: MWF 11:30am - 12:20pm, DBRT 118.
 - Section 02: MWF 10:30am - 11:20am, DBRT 116.
- **Lecture Instructor:** Yongtao Zhang (yzhang10@nd.edu)
Office location: Hurley Hall 176
Office phone: (574) 631-6079
Office hours: Mondays 2:30pm – 3:30pm, or by appointment.
- **Teaching Assistants:** Lauren Hensley-Partin (lhensley@nd.edu), Xiaozhi Zhu (xzhu4@nd.edu)
- **Tutorial session I:** Tuesdays 11:00am - 11:50am, Hayes Healy 117; or **Tutorial session II:** Tuesdays 12:30pm - 1:20pm, Pasquerilla Center 107; or **Tutorial session III:** Tuesdays 2:00pm – 2:50pm, Pasquerilla Center 107. You are required to attend the tutorial session you signed-up for.
- **Class website:** <https://www.nd.edu/~yzhang10/ACMS20750.html>
- **Homework Assignments:** Homework problems will be assigned in every class and are in general due during the tutorial on Tuesdays of the following week. Homework assignments should be submitted by the due time. Questions regarding homework grading should be addressed to your tutorial instructor. You are encouraged to work on homework problems in groups, but the assignments must be turned in individually. Remember that you will not learn anything by simply copying another student's work. The main purpose of homework assignments is to help you learn the material. Experience shows that students who take their homework seriously do very well in the course because they have a better understanding of the material.
- **Exams:** There will be two midterm exams and the final exam. Midterm exams will be the in-class exams on **Friday, Feb 28**, and on **Wednesday, April 8**. The final exam will be: **(1)** for the Section 01, on **Monday, May 4, from 4:15pm – 6:15pm**; **(2)** for the Section 02, on **Thursday, May 7, from 4:15pm – 6:15pm**. A student who misses an examination will receive **zero points** for that exam unless he or she has written permission from the Vice president for residential life. If you have a valid excuse (illness, excused athletic absence etc) for missing an exam, please see me

ASAP (before the exam) and a makeup exam will be scheduled.

- **Grades:** homework 100 points, midterm exams I-II 2 @ 100 = 200 points, final exam 150 points. The total course points are 450. The numerical break points for letter grades will be based only on your total score out of 450:
 $A \geq 93$, $A- \geq 90$, $B+ \geq 87$, $B \geq 83$, $B- \geq 80$, $C+ \geq 77$, $C \geq 73$, $C- \geq 70$, $D \geq 60$.

- **Honor Code:** Both examinations and homework assignments are conducted under [the honor code](#). While cooperation in small groups in doing homework is permitted (and strongly encouraged), copying is not. Exams are to be done completely by yourself with no help from others.

- **We will follow the textbook and cover materials starting from the Chapter 8:**
 - Definition of differential equations; Separable equations;
 - Linear first order differential equations;
 - Bernoulli equations;
 - Second order linear differential equations;
 - Laplace transform method; Convolution;
 - Special functions;
 - Series solutions of differential equations;
 - Legendre's equations; Leibniz's rule;
 - Legendre polynomials; Legendre series;
 - The method of Frobenius;
 - Bessel's equation; Bessel function solutions for differential equations;
 - Linear partial differential equations; Laplace's equation; Diffusion equation.
 - Functions of a complex variable.