<div align="center">

Syllabus for Math 2174 (27721)
Linear Algebra and Differential Equations for Engineers
Spring 2019

</div>

Instructor: Alexandria Volkening
- Email: volkening.2@mbi.osu.edu
- Office: Jennings Hall (1735 Neil Ave.), Room 381
- **Office Hours: Wednesdays 5:15–7:15 PM and Fridays 9–10 AM**

I am happy to talk after class or during my office hours, whether you want to speak about the course or another topic; if you cannot make my office hours due to a conflict (e.g., a campus job), I encourage you to email me to schedule an alternative appointment. Other than in person, the best way to reach me is by email; unless I am traveling, I typically respond within 24 hours.

Overview:
Differential equations serve as models across the natural and social world, and concepts from linear algebra are necessary for the simulation and analysis of these models. This course covers tools that are currently being employed to help determine how autonomous vehicles will impact traffic flow, how animal skin patterns form as organisms develop, and how resilient next-generation high performance computers will be to hardware faults (to name just a few of many applications). In particular, we will introduce topics including matrix operations, methods for solving linear equations, vector spaces, eigenvectors and eigenvalues, ordinary differential equations (ODEs), and partial differential equations (PDEs).

Prerequisites:
This course requires Math 2173 and a major in either Engineering, Physics, or Chemistry (or permission from the Math department). Please go to `https://math.osu.edu/courses/2174` for more information.

Course materials:
(1) *Introduction to Linear Algebra* (5th edition) by Johnson, Riess and Arnold, published by Pearson, ISBN: 9780321628217
(2) *Part II: Elementary Ordinary and Partial Differential Equations* (OSU custom edition) by Boyce, published by Wiley, ISBN: 9781119934462

Assessment:
- Assignments: 30%
- Midterm 1: 20%
- Midterm 2: 20%
- Final exam: 30%
- Bonus project (optional): 10%

Provisional grading scale:
Provisional grade cut-offs are: 100–93 (A), 92–90 (A−), 89–87 (B+), 86–83 (B), 82–80 (B−), 79–77 (C+), 76–73 (C), 72–70 (C−), 69–67 (D+), 66–60 (D), and < 60 (E). While I will set my final grade scale at the end of the semester, cut-offs will be no stricter than those given above. All grades will be rounded up to the nearest whole number.

Tentative exam & project schedule:
- Midterm 1: Friday, February 15, 2019 (in class)
- Bonus project (optional) assigned: Friday, March 8, 2019

- Midterm 2: Friday, March 29, 2019 (in class)
- Bonus project (optional) due: Friday, April 5, 2019 at 10:20 AM
- Final exam: Thursday, April 25, 2019 from 10:00-11:45 AM (location TBD)

Homework assignments:

Homework will be due at the beginning of class (typically on Fridays); assignments will be posted the preceding Friday on Canvas. **Late homework will not be accepted, but your lowest two assignments will be dropped.** Each homework problem will be graded on a five-point scale. Four of these points are for mathematical content, and the remaining point is for clear, logical **presentation** (see Canvas for an example of a five-point solution). Being able to explain your solution process step-by-step is an important skill, and well-written assignments serve as useful study material for exams. Moreover, because linear algebra can be arithmetic heavy, presenting your solutions step-by-step will help the grader see small errors and give partial credit. I recommend first writing your solutions on scratch paper and then rewriting them clearly on new paper in your submitted assignments. I encourage you to collaborate with other students on homework, but your assignments must be written up separately. My extended office hours are held on Wednesday evenings to help provide a venue for collaboration, while also giving you enough time to write your solutions individually before Friday homework deadlines.

Accommodations for students with disabilities:

Students with disabilities that have been certified by Student Life Disabilities Services (SLDS) will be appropriately accommodated. If you need accommodations for classes, assignments, or exams, please let me know as soon as possible and also contact the SLDS (located in 098 Baker Hall at 113 W. 12th Avenue) at slds@osu.edu or 614-292-3307.

Inclusiveness:

I am an Open Doors partner and am committed to helping support diversity in all its forms at Ohio State. If something going on in or outside of this classroom is impacting your performance, please do not hesitate to let me know; I am available to talk or, depending on your preference, can also point you to other resources on campus. Learning about diversity and inclusion is a continual process for me, and I am also happy to suggest campus and national programs if you are interested in learning more yourself.

Academic misconduct:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-48.7). For additional information, see the Code of Student Conduct at `http://studentlife.osu.edu/csc/`.

Additional details:

- Midterm exams will be given at the scheduled times (tentative dates are given in this syllabus; any updates will be announced in class and on Canvas), except in cases of emergency or unavoidable circumstance. Please contact me as soon as possible if you need to discuss missing a midterm.
- Homework assignments will be posted on Canvas; any changes to the tentative exam schedule will be announced in class and posted on Canvas. Please make sure you check Canvas regularly so that you see any important announcements.