

Math 484 - Nonlinear Programming  
University of Illinois, Urbana-Champaign

**Instructor:** Isabelle Shankar

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**Course Time:** MWF, 11:00-11:50 am

**Office Hours:** 2:00PM-3:00PM every Thursday, 3:00PM-5:00PM every Wednesday

**Course Website:** Moodle

## Course Description

**Text:** The Mathematics of Nonlinear Programming by A. Peressini, F. Sullivan and J. Uhl.

### Approximate Course Outline:

- Weeks 1-2: Chapter 1 - Calculus
- Weeks 3-5: Chapter 2 - Convex Functions
- Weeks 6-7: Chapter 4 - Least Squares
- Week 8: Chapter 5 - The KKT Theorem
- Week 9: Spring Break
- Weeks 10-11: Chapter 5 continued
- Weeks 12-13: Chapter 6 - Penalty Methods
- Weeks 14-16: Chapter 3 - Iterative Methods

## Homework

There will be 10 homework assignments total, but only the best 8 scores will be used for grading. I encourage students to type their homework, ideally using LaTeX, but do not require it. I will accept handwritten homework, but if I cannot read your work, I cannot award points! Furthermore, I expect fully realized solutions. That means clear explanations of your work with full sentences.

Working together with other students is highly encouraged, however, every student is expected to write up and submit their own assignments.

## Grading

- Homework - 30%: Ten assignments total, but only your top 8 score will count towards your grade.
- Midterms - 40%: Three total midterms. Two will be worth 15% each, and the lowest midterm score will be worth 10%.

- Final - 30%: Wednesday, May 11, 1:30-4:30 p.m.

Percentage	Letter Grade
97-100	A+
94-96.5	A
90-93.5	A-
87-89.5	B+
84-86.5	B
80-83.5	B-
77-79.5	C+
74-76.5	C
70-73.5	C-
67-69.5	D+
64-66.5	D
60-63.5	D-
Below 59.5	F

## **A note on online vs in person plans**

As of the writing of this syllabus, the university has said that in person learning will begin on January 24. As such, I plan to use the course time primarily for lectures during which everyone is free to ask questions throughout.

However, if the university changes course and we move to online learning again, we will need to adjust our semester plan and I will update you all as soon as I can on how we will move forward with this course. Tentatively, the structure would include a short prerecorded lecture by me which would be made available before the normally scheduled course time. Then the regular class period would be used for more open discussion. I will also try to answer any questions that are emailed to me during class time. The time may also be used for breakout sessions for learning in smaller groups.