# COURSE DESCRIPTION
# INTRO TO OPTIMIZATION
# MA 466-2D
# SPRING 2026

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

**Course Instructor:** Dr. Carmeliza Navasca
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**Phone:** (205) 934-2154

**Preferred Methods of Contact:** Email is the preferred method of contact if you have questions. Please expect a response within 24 hours on weekdays and a slower response on weekends (OR Emails received after 5 pm on Friday will be returned Monday morning). Include course number in the subject line of your email for a faster response. I am also available to meet with you virtually via Zoom by appointment only. Otherwise, I will have in-person meetings during my scheduled office hours.

**Office Hours:** TBA

## Course Info

**Meeting times:** TTH, 12:30 PM - 1:45 PM
**Meeting location:** HHB 221
**Required Textbook:** (1) *A*n Introduction to Optimization 4th Edition by E. Chong and S. Zak. (2nd edition, `https://www.gipsa-lab.grenoble-inp.fr/~ahmad.hably/Documents/IntroOptimization.pdf`)
**Recommended Textbook:** (1) *Foundation and Analysis of Linear Programs* by B. Van Roy and K. Mason, SIAM, 2016, (https://web.stanford.edu/class/engr62/notes/notes.pdf)
(2) *Convex Optimization* by Steven Boyd and Lieven Vandenberghe, Cambridge University Press, (`https://web.stanford.edu/~boyd/cvxbook/`)

## Important Dates

**First day of our class:** January 13, 2025
**MLKJr Holiday:** January 19, 2026
**Last day to drop without paying full tuition:** February 25, 2026
**Spring Break:** March 9 – March 15, 2026
**Last day of our class:** April 23, 2026
**Quiz Dates:** January 29, 2026, February 26, 2026, March 26, 2026, April 16, 2026
**Final Exam/Project Date: Friday**, April 30, 2026

## Course Policies

- Please make sure that you are able to receive e-mail through your Blazer-ID account.

*Date*: January 12, 2026.

- If your are contacted by the Early Alert Program, you should consider taking advantage of the services it offers.
- If you wish to request a disability accommodation please contact DSS at 934-4205 or at *dss@uab.edu*.

## Course Description

Optimization is important in many decision making problems in various areas like engineering, economics and machine learning. Optimization theory deals with finding the *best* solution(s) or variables of a given objective function. Recently, the area of optimization has received much attention due to the development of highly efficient computational methods for data analysis. The scope of this course covers linear algebra, unconstrained optimization, linear programming, and nonlinear constrained optimization. The course will also introduce optimization algorithms and codes via python and matlab.

## Learning Outcomes

Upon successful completion of the course, a student

(1) develops and implements algorithms from a given optimization problem;
(2) develops programming skills and be able to interpret the numerical solutions to original problem;
(3) learns the basic principles of optimization

## Class Management via Canvas

- Homework problems will be posted in canvas (`http://www.uab.edu/online/canvas`). Other class materials (class announcements, codes, grades and etc.) will be posted in canvas. Students should log in to canvas at least once a day! (I prefer to receive emails via canvas.)
- Homework assignments, projects and activities will only be collected on canvas.

## Assessment Procedures

- Student achievement will be assessed by the following measures:
  - **Weekly homework.** Homework will be due weekly. There will be no extension of deadlines for any reason. Homework contributes 20% to the course average.
  - **Project.** The projects contribute 40% to the course average. There will be 4 projects.
  - **Quiz.** There will be 4 quizzes. The quizzes contribute 20% to the course average.
  - **Final exam/project.** The final exam or project contributes 20% to the course average.

  Grading Scheme: 20% homework, 20% quizzes, 40% projects, 20% final exam/project

- Your final grade is determined according to the following table:

| Course performance: | 88-100 | 75-87 | 62-74 | 50-61 | below 50 |
|---|---|---|---|---|---|
| Final Grade: | A | B | C | D | F |

## UAB Policies and Resources

- Non-Academic Student Code of Conduct (`https://www.uab.edu/students/conduct/`)

- DSS Accessibility Statement
  Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call(205) 934-4205, visit (`https://www.uab.edu/students/disability/`), or their office located in Hill Student Center Suite 409.

- Title IX Statement
  The University of Alabama at Birmingham's committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit (`https://www.uab.edu/titleix/`)for UAB's Title IX, UAB's Equal Opportunity, Anti-Harassment, Duty to Report, and Non-Retaliation policies.

## Academic Honor Code

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Academic misconduct undermines the purpose of education. Such behavior is a serious violation of the trust that must exist among faculty and students for a university to nurture intellectual growth and development. Academic dishonesty and misconduct includes, but is not limited to, acts of abetting, cheating, plagiarism, fabrication, and misrepresentation. Candidates are expected to honor the UAB Academic Honor Code as detailed in the most current UAB Student Catalog. Please consult this resource (`https://www.uab.edu/one-stop/policies/academic-integrity-code`) for additional information regarding the specific procedures to be undertaken when a student violates the UAB Academic Honor Code.

## Non-harassment, Hostile Work/Class Environment

The UAB College of Arts and Sciences expects students to treat fellow students, their Course Instructors, other UAB faculty, and staff as adults and with respect. No form of hostile environment or harassment will be tolerated by any student or employee.