

## Math 354 Section 05: Linear Optimization

**Instructor:** Kristen Hendricks

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**Office Hours:** M 2-3 PM, Th 10-11 AM via Zoom over Canvas Integration

**TA:** TBA

**Email:** TBA

**Office Hours:** TBA

**Non-Canvas Website:** [math.rutgers.edu/~kh754/Math354.html](http://math.rutgers.edu/~kh754/Math354.html). Course content can be found both here and on Canvas.

**Location and Time:** Lecture MTh 12:10-1:30 PM in TIL-253

**Content:** This course is an introduction to linear optimization. We will cover linear programming problems, the simplex method, duality theory and sensitivity analysis, integer programming, and various applications as time permits.

**Textbook:** B. Kolman and E. Beck, [\*Elementary Linear Programming With Applications\*](#).

**Notes:** Lecture notes will be made available online by the day before each lecture, and amended shortly after lecture with any typo corrections or other changes.

**Homework:** Homework will be assigned weekly and due on Thursdays at 11 am, except for the final homework, which will be due on the last Monday of class at the same time. Homework will be collected via a mirror of our Canvas site, as an Assignment; the relevant Assignment will remain open for submission until 12 pm, to account for the possibility of technical difficulties, and will then close. There will be thirteen homeworks in total. No late homework will be accepted, but your lowest two homework scores will be dropped in computing your grade. Transferring into class late does not confer an additional drop.

This is a 300s level math course. One of the implications of the course level is that, while some homework questions will be close analogs of examples done in class, other homework questions will ask you to think a little more about how you would solve a slightly different problem, or to add one step to what you have already seen.

You are encouraged to work together on your homework. However, you must write up all solutions yourself, and you must credit your collaborators. Examples of properly crediting a collaborator are: "Maya and John and I worked together on this problem" or "Omar suggested this way of solving the problem to me." You must also cite any sources you use other than the lecture or the textbook; for example "I read about how this algorithm works on Wikipedia" or "I used Desmos to check my graph was correct after drawing it." You should not consult Chegg or other paid homework solutions sites.

A subset of the homework will be graded carefully, and some points will be given for completeness of the rest of the assignment. Homework solutions will be posted online promptly.

**Exams:** There will be a forty-minute warm-up exam on **Monday, February 10** and two eighty-minute full-length midterm exams on **Monday, March 3** and **Monday, April 14**. There will also be a final exam scheduled by the registrar. **No books, notes, or calculators are allowed on exams.** If you miss an in-class examination for a documented good reason (such as serious illness or other comparable emergency), your final will count for a larger percentage of your grade accordingly. Make-up finals will only be given in extreme and documented circumstances. In exam circumstances and otherwise, students are expected to be familiar with and abide by the [academic integrity policy](#).

**Disability Accommodations:** If you need accommodations for the course, please bring me a Letter of Accommodations as early in the term as possible. There are detailed instructions on how to do this in the “University Resources” section of this syllabus.

**Grading:** Grades will be computed as follows:

- Homework: 20%
- Warm-Up exam: 10%
- Midterms 1 & 2: 20% each
- Final: 30%

The bar for an A will not be set higher than an overall 90% in the course, and will probably be exactly 90% unless something surprising happens. The bar for a C will not be set higher than an overall 65% in the course.

**Schedule:** We will cover most of Chapters 1-5 of Kolman and Beck, with some small digressions into Chapter 0 for background. Precise reading will be provided in advance of lecture.

## **University-Level Resources:**

### **Student-Wellness Services:**

#### **Counseling, ADAP & Psychiatric Services (CAPS)**

**(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ <http://health.rutgers.edu/medical-counseling-services/counseling/>**

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

#### **Violence Prevention & Victim Assistance (VPVA)**

**(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901/ [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)**

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling, and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

#### **Disability Services**

**(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>**

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

#### **Scarlet Listeners**

**(732) 214-9069 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>**

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.