Introduction: This course is intended to be a first course in optimization. For many students the material in this course will be seen in 70-391 Production and Operations Management. The material is not only useful in business and economics, but is also useful in mathematics as well as various sciences. The abilities that the student is expected to develop through this course are (a) recognizing problems suitable for solving using mathematical programming, (b) formulating these problems as mathematical programs, (c) understanding the mathematical foundations of methods to solve these problems, and (d) understanding various software packages for solving these problems. We will cover material from chapters 1, 3, 4, 5, and 8 as time permits. Linear programming is the central topic.

Prerequisites: The listed prerequisite is 21-256 Multivariate Analysis and Approximation. However, the main concept from this course that is required is the ability to use Gaussian elimination to solve linear systems of equations; this course does not require any calculus. It is completely possible to have learned Gaussian elimination from a different course.

Lectures: It is crucial that you attend lectures. As this is a summer course, we will try to keep a brisk pace through the material; it is easy to fall behind. You are responsible for any and all material presented during lecture. A schedule will be posted on the course web page; we will follow it to the best of our ability. You are encouraged to do at least one of the following: (a) read the text material in advance to prepare for the lecture, and (b) write thorough notes on each lecture immediately after each lecture while the material is fresh in your mind.

Homework: Homework problems from the text will be announced in class and posted on the course web page. You are expected to obtain a thorough understanding of the material demonstrated by your ability to do these problems easily without the aid of a computer or calculator. Students may work together, but every student is responsible for writing his or her own solutions. You can turn in homework to my mailbox in the Mathematics Department office. Homework is considered one day late if not turned in on time. Late homework will be penalized 50% for each day that it is late. For your convenience, you are allowed to be late by one day on a single assignment without penalty, but there is a bonus that requires you to turn in every assignment on time.

Exams: We will have three exams in this course. Exam 1 is Friday, May 30; exam 2 is Friday, June 13. The final exam is June 27. No electronic devices will be permitted on tests.

Make-up Exams: Make-up exams will not be given unless the student provides documentation of illness or emergency as early as possible. Any conflict with a university sponsored event must be brought to the instructor’s attention before the exam date for a make-up exam to be considered. Please notify me in person or by e-mail if you have a conflict. You can also leave a message at the Mathematics Department office by calling 412-268-2545.

Special accomodations: If you require special accomodations (such as extra time on tests) and have documentation supporting such a request, please make your request as soon as possible. I will attempt to assist with reasonable requests that are brought to my attention promptly.

Academic Honesty: The university guidelines as stated in the student handbook will be strictly enforced. The minimum penalty for a violation of these rules is failure on the relevant assignment.

Evaluation: Your grade will be calculated using the following weights: Homework: 20%, Lower of first two exams: 20%, Greater of first two exams: 30%, Final: 30%. An A is 90%, B is 80%, C is 70%, D is 60%.

Other policies: Please see the course website for any additional policies.