INSY 7420/7426  
Linear Programming & Network Flows  
Spring 2015

Instructor: Dr. Chase Murray  
E-mail: All e-mail communication will be handled via Canvas.  
Office: 3301F Shelby  
Office Hours: (See Canvas)

Teaching Assistants: Hung-Yu (Jack) Lee, Rahul Reddy  
Office Hours: (See Canvas)

- **Credit Hours**: 3  
- **Course Website**: Canvas will be used for all course grades, for e-mail, material distribution, etc.  
- **Lecture Schedule**: TR 3:30 – 4:45pm, Shelby 1122

**Course Objectives:**
1. Understand the basic theory of linear programming and networks.  
2. Be able to solve small-scale problems using algorithms that are rooted in this theory.  
3. Develop familiarity with software and programming tools to solve large-scale problems.

**Required Material:**
- **Software**: Excel, MATLAB, Gurobi

**Supplemental Textbooks (not required):**
  [https://sites.google.com/site/jonleewebpage/home/publications/#book](https://sites.google.com/site/jonleewebpage/home/publications/#book)  

**Topics Covered:**

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<tr>
<th>Linear Programming Models</th>
<th>Shortest Path/Maximum Flow Algorithms</th>
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<tr>
<td>Simplex Method</td>
<td>Minimum Cost Network Flow Problems</td>
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<td>Sensitivity Analysis</td>
<td>Transportation Algorithm &amp; Models</td>
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<td>Duality</td>
<td>Software (Gurobi and (some) MATLAB)</td>
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January 14, 2015
Course Requirements/Evaluation: Students will be evaluated based on the following:

<table>
<thead>
<tr>
<th>Item (Subject to Change)</th>
<th>Approximate Date (Subject to Change)</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Projects / Homework</td>
<td>Assigned throughout the semester.</td>
<td>5%</td>
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<tr>
<td>Exam 1 – Chapters 1 – 4</td>
<td>Mid-February</td>
<td>20%</td>
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<tr>
<td>Exam 2 – Chapters 4 – 6</td>
<td>Mid-March</td>
<td>25%</td>
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<td>Exam 3 – Chapters 7 &amp; 8</td>
<td>Late-April</td>
<td>25%</td>
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<tr>
<td>Final Exam (optional)</td>
<td>Wednesday, May 6, 4:00pm</td>
<td>25%</td>
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Final course grades will be determined based on the following scale:

- Student’s Final Average $\geq 90.0\%$ A
- Student’s Final Average $\geq 80.0\%$ B
- Student’s Final Average $\geq 70.0\%$ C
- Student’s Final Average $\geq 60.0\%$ D
- Student’s Final Average $< 60.0\%$ F

*Do not expect your grade to be “rounded up.”*

**Homework/Projects:** Approximately four (4) take-home assignments will be given throughout the semester. Unless stated otherwise, these assignments are to be performed individually. Strict adherence to the University’s academic honesty policies will be enforced. *Late assignments will not be accepted.*

**Exams:** All exams will be closed-book, closed-notes, and in-class, unless stated otherwise. The date of each exam will be announced at least one week in advance. A “study guide” will be provided prior to each exam, describing the scope of the exam.

**Final Exam:** The final exam will be closed-book and closed-notes, unless stated otherwise. It will be held according to the University’s official final exam schedule. The final exam is cumulative. It is also optional. If you choose not to take the final exam, your grade will be based on a total weight of $5\% + 20\% + 25\% + 25\% = 75\%$.

**Exam Makeup Policy:** Exams missed *with appropriate Tiger Cub excuses* may be “made-up” with the instructor’s approval. Makeup exams will take place at 7:00am on a day chosen by the instructor. An exam missed *without* an appropriate Tiger Cub excuse will result in a grade of zero (0) for that exam. *You must inform the instructor that you have a Tiger Cub excuse by the end of the day of the missed exam.*

**Policy for Students Enrolled in INSY 7426:** All individually-assigned homework/project assignments should be submitted electronically via Canvas within one (1) week of the due date given to the “local” students. Group projects will be due on the same date as for the “local” students. Exams and Quizzes for off campus students will be handled through the Auburn University Graduate Outreach
Program Director’s office, and will typically be given on the same day that the “local” students take the exam. Slight variations to this schedule will be considered in extreme cases.

**Attendance:** While attendance is highly recommended, it will not be a factor in the course grade.

**Grade Disputes:** If you disagree with the manner in which an assignment was graded, you may request a re-evaluation of your assignment within two (2) weeks of the due date of that assignment. You must submit a detailed explanation, not exceeding one-half page in length, describing why you believe your answer was correct. The instructor will consider each case at the end of the term, but only if it appears that it may change your final grade. Obvious arithmetic errors will be corrected immediately.

**Calculator Policy:** All electronic devices, including calculators, are prohibited during class exams unless specified otherwise by the instructor.

**Disabilities:** Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through The Office of Accessibility, but need accommodations, make an appointment with The Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

**Academic Honesty:** All portions of the Auburn University student academic honesty code (Title X11) found in the Tiger Cub will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee. Violations include, but are not limited to:

- **Cheating on an examination** – This includes such things as copying from another’s paper, using unauthorized notes, calculators, etc., or giving or receiving unauthorized aid, such as trading examinations, whispering answers, passing notes, or using electronic devices to transmit or receive information.

- **Plagiarism** – This is using someone else's work without giving credit. It is, for example, using ideas, phrases, papers, laboratory reports, computer programs, data - copied directly or paraphrased - that you did not arrive at on your own. Sources include published works such as book, movies, web sites, and unpublished works such as other students' papers or material from a research service. In brief, representing someone else's work as your own is academically dishonest. The risk of plagiarism can be avoided in written work by clearly indicating, either in footnotes or in the paper itself, the source of any major or unique idea or wording that you did not arrive at on your own. Sources must be given regardless of whether the material is quoted directly or paraphrased.

  *Copying another student's assignment and putting your name on it is plagiarism.*

- **Unauthorized collaboration** – This is working with or receiving help from others on graded assignments without the specific approval of the instructor. *If in doubt, seek permission from the instructor before working with others.* Students are encouraged to learn from one another: Form study groups and discuss assignments, but each assignment...
must be individual work unless specifically stated and turned in as a group assignment.

- You are encouraged to talk to one another about your assignments, however, all assignments must be done by the student(s) whose name is (are) on it!
- Multiple submission – This means using the same work to fulfill the academic requirements in more than one course. *Prior permission of the instructors is essential.*

Syllabus prepared by C. Murray

*This syllabus is subject to change.*

*Revision History:*
  
  1/14/15 – *Syllabus posted to Canvas.*