INEG 514V[1]: Facility Layout[2]
Spring 2008

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Course Hours: Lecture (T/R, 9:30a – 10:50a, 2286 Bell); Office Hours (M/W, 2:30p – 4:00p, 4208 Bell).

Text: Chapter 9 ("Facilities Location and Layout Design," Benoit Montreuil) of *Logistics Engineering Handbook*, Taylor, G. Don (editor), Taylor and Francis, 2007. Available (only) at the UArk Bookstore (on the shelf with other textbooks).

Reserve Materials (at the Mullins Library, 2nd floor):

1. Tompkins, White, Bozez and Tanchoco, *Facilities Planning*, 3e, Wiley (2003).
2. Francis, McGinnis and White, *Facility Layout and Location: An Analytical Approach*, 2nd edition, Prentice Hall (1992).

Course Structure: This course will be a "Ph.D.-level" course in that it will be research-focussed and will focus heavily on discussion versus lecture. Since many of the students will not have an extensive background in the facility layout problem, there will be some lectures during the first couple of weeks of the course. But after that, there will not be lectures. We will, as a group, discuss the research in the area. There will be a fair bit of reading for the course to prepare for the discussions, but no problem-based homework. As detailed below, there will be two projects. Now, even though this is a "Ph.D.-level course," M.S. students can still take the course. However, I would not recommend the course for someone that is not involved in research (see the second project below). I also would not recommend the course for those that do not enjoy discussing research.

Course Objectives: To learn about an important industrial engineer problem area, facility layout, and to do so at "the Ph.D. level." To understand state-of-practice and state-of-art in facility layout modeling. To apply some of what has been learned in facility layout to the student's own research area.

Prerequisites:

1. A solid background in modeling and mathematical programming (which can be obtained through courses such as INEG 5613, Optimization Theory, or its equivalent);
2. A degree of comfort with stochastic models (which can be obtained through courses such as INEG 5313, Stochastic Processes, or its equivalent; or, at a minimum, a very solid background in probability).

[1] Sec. 014 (ISIS 7204).
[2] Syllabus last revised on January 5, 2008.

Grading:

Midterm Exam	20%
Final Exam	25%
Projects with Presentations (2)	30%
Paper Assignments	10%
Class Participation	15%

As a Ph.D.-level course, the expectation is that each of you will "get into it," and little course management on my part will be required. My role will be to guide the course, keeping us on somewhat of a schedule, but also permitting necessary discovery. A midterm and a first project (that will be "applied") will be used to make sure that all students appreciate the difficulty of the facility layout problem (from an optimization point-of-view). That is, the first project will consist of teams of students working to devise the best layout possible for a set of given data. The second half of the course will be used to explore papers in the facility layout literature. The second project will be solo efforts by each student applying some concepts from the course to an optimization problem (not necessarily related to facility layout) of their own choosing (the idea here is that facility layout can be used as a metaphor for other optimization problems). The final exam will be cumulative. Class participation is an integral element of this course and is expected of each and every student. In addition to presentations related to each project, students will be expected to lead the "lecture" at some point during the semester[3]. To reward class preparedness, students will complete short assignments on the technical papers during the semester. Each student is expected to answer questions and offer comments on the papers during the class period in which they are discussed. As you can see, the class participation points are <u>not</u> automatic. The cumulative points in the course will be rationalized and the following scale used: A = 90% or higher; B = at least 80% but below 90%; C = at least 70% but below 80%; D = at least 60% but below 70%; and F = below 60%.

WebCT: I will use WebCT on a very limited basis. E.g., posting grades, making files available to the class, etc. However, I will make use of e-mail and will request that you check e-mail daily so as to not miss important announcements.

Accommodations: Students who need accommodations are asked to arrange a meeting during the first week of classes. Bring your Accommodation Letter and associated paperwork to the meeting. If you do not have the associated paperwork, please make an appointment with The Center for Students with Disabilities, Arkansas Union 104, 575-3104, ada@uark.edu.

Inclement Weather Policy: If the University cancels classes, then our class will be canceled. An announcement for other cancelations will be made via e-mail.

[3]This strategy of active student involvement — and others like it — will be experimented with to find the appropriate balance throughout the semester.

Important Event Dates: I have noted dates for important events below and we will stick to them so as to have some structure in the course. Knowing these dates in advance will allow you to plan your schedule accordingly without risking missing an exam. This is important since **mandatory attendance is required for all examinations — Official University Excuses only.** Note that I've only indicated two sessions that I will cancel due to travel, but experience tells me that the list will likely increase as the semester progresses. Sufficient notice will be given for any canceled class.

Event	**Date**
Midterm Exam	Thursday, March 6
No Class	Tuesday, March 11
No Class	Thursday, April 17
Final Exam	Saturday, May 3 (12:30p – 2:30p)

Academic Honesty: I take academic honesty very seriously since I consider honor to be one of the highest traits of human character. You are expected to read, understand, and abide by the "Academic Honesty Policy for Graduate Students." One of the places that you can find this policy is in the *Department of Industrial Engineering Graduate Student Handbook* (Section 2.1.2). Since this is such an important topic to me, I will provide each of you with a copy of this policy as well as making clear what is permissible with regards to student cooperation and working together (see below). I am more than happy to clarify questions on this since this is one of those things that being safe rather than sorry is strongly advised.

Project 1 shall be a group effort. Collaboration between the group members is required. Collaboration between group members of different groups is not allowed.

Project 2 shall be an individual effort. Only limit collaboration is permitted (sharing technical articles, knowledge of software packages, etc.).

Paper Assignments shall be individual efforts in most cases (in those that aren't, that will be clearly stated).

Exams are strictly individual efforts and no collaboration of any type is allowed.

Those that violate the Policy will be dealt with seriously. I am an advocate of severe penalties, including expulsion for clear violations. At a minimum, the assignment of a double-weighted-zero score will be applied. I am more than happy to clarify questions on this since this is one of those things that being safe rather than sorry is strongly advised. Trust me when I say that you do not want to test me on this.