GGS 675 – Location Science
Spring 2020 – Monday – 4:30 to 7:10
Classroom – Exploratory Hall - 2103

Instructors: Mike Wolf, PhD; Adjunct Professor
Email: mwolf7@masonlive.gmu.edu (best way to reach me)
Office: Exploratory Hall 2219
Office Hours: Monday 4:30 – 7:10 PM (right after class) or by appointment

Course Materials (recommended reference text):

- Introduction to Operations Research by Hillier and Lieberman

Course Materials (not required):

- Network and Discrete Location: Models, Algorithms, and Applications by Mark Daskin
- Location Science by Gilbert Laporte

Course Description:
This course presents the theory and practice of Location Science – the study of a branch of mathematics known as optimization and a tool called linear programming to optimally locate "things" given constraints, the optimal or near optimal spatial location and allocation of facilities, routes, personnel, or other assets. A variety of optimization procedures for location problems are presented, including minimum spanning tree, shortest path, maximal flow, and transportation problem algorithms. The peer-reviewed literature in location science is explored. The computer lab will be used as a means to enhance the subject materials using the Python programming language and Excel. Having prior experience working with Python is recommended, but not required. We will cover some basics in class.

Course Objectives:
This is an upper-level graduate course and so it is expected that one has advanced research abilities along with refined writing and programming skills. By attending class lectures, performing background topic research and independent study, students will be able to:

- Discuss various problems in location science.
- Develop the ability to effectively and authoritatively research and present executive summaries of location science problems.
- Ability to formulate and solve location science problems using various methods
- Most importantly, learn how to learn from each other in a collaborative environment.

Planned Schedule:

Date	Topic	Scope
1/27/2020	Introduction	Introduction, Classroom Conduct, Syllabus Review and What is Location Science?
2/3/2020	Network Optimization	Homework Assignment #1
2/10/2020	Network Optimization	
2/17/2020	Scope Discussion Simplex Method	Homework Assignment #1 Due Homework Assignment #2
2/24/2020	Simplex Method	
3/2/2020	Classic Transportation Problem	Homework Assignment #2 Due Homework Assignment #3
March 9 - 13	Spring Break: no class	
3/16/2020	Classic Transportation Problem	First Formulation Presentation
3/23/2020	P Median Problems	Homework Assignment #3 Due Homework Assignment #4
3/30/2020	P Median Problems	
4/6/2020	P Center Problems	Homework Assignment #4 Due Homework Assignment #5
4/13/2020	Simulation	
4/20/2020	Heuristic Modeling	Homework Assignment #5 Due
4/27/2020	Heuristic Modeling / Advanced Topics	
5/4/2020	Course wrap-up, and Oral Presentations	Second Formulation Presentation

Grading Policy:

***Homework Problems* (10% each for a total of 50%):**
All homework is due at the beginning of class in hardcopy. Homework that is turned in late is subject receiving a maximum grade no higher than the lowest mark received by assignments turned in on time.

***Location Science Problem Formulation* (25%)**
First Formulation Presentation
Second Formulation Presentation
All students must be at both formulation presentations to receive credit for this portion

***Participation* (25%):**
Students are expected to attend all the class periods. In-class participation is important not only to the individual student, but also to the class as a whole.

Expectations for Participation:

- Students prepare for and actively engage in class discussions (e.g., demonstrate active listening, not distracted by electronics or peers)
- Students thoughtfully engage in in-class assignments and activities

- Students constructively participate in-group activities
- Students participate in class discussion by:
    - raising informed discussion points;
    - connecting discussion to reading material, news, and relevant experiences;
    - asking questions;
    - listening to other perspectives;
    - sharing the floor with others.

GMU Email Accounts & Blackboard:
You must use and regularly check your GMU email account and Blackboard to receive information for this class. Please do not send emails from non-GMU accounts, they will be ignored. I will normally respond within 24 hours.

Honor Code:
You are expected to follow the George Mason University rules of student conduct as noted in the catalog.

Office of Disability Services:
If you require academic accommodations due to a permanent or temporary disability, please contact the Office of Disability Services (ODS) at (703)993-2474, http://ods.gmu.edu. ODS will then contact me to arrange appropriate accommodations.

Classroom Expectations and other Miscellaneous:
Students are expected to be on time for class.

1. Should circumstances arise that make you late, do not disrupt the class as you enter, take the first available seat and do not walk across the room.
2. Clean up after yourself. Leave your seat better than you found it.
3. In the event of any class cancellation, including inclement weather (e.g. snow), the class will resume where we left off, adjustments, if necessary, will be made later.
4. Please turn cell phone sounds off and do not text or talk during class.
5. Please be respectful of your peers and your instructor and do not engage in activities that are unrelated to the class. Such disruptions show a lack of professionalism and may affect your participation grade.
6. Lecture slides will be provided within 24 hours after the lecture. If you feel note taking is necessary, research has shown that pen and paper is the most effective.