Syllabus for MATH 4025: Applied Math Capstone
Spring 2016

This course offers students the opportunity to use their skills to study problems that arise in industry and other real-world settings through exercises and a self-selected project. Writing will be emphasized in exercises and written reports on the project.

INSTRUCTOR: Robert McOwen, 445 LA, ext. 5678, mcowen@neu.edu

OFFICE HOURS: In January, by appointment only. After that, 1:00-2:30 pm Mondays and 10:00-11:30 am Wednesdays (and by app’t).

TEXT: M. Meerschaert, Mathematical Modelling, Academic Press, 4th ed. (Available through the bookstore or online. A copy of the 1st edition is on reserve at the Library.)

HOMEWORK ASSIGNMENTS: Exercises will be due on Wednesdays. You can collaborate, but everyone needs to hand in their own paper.

MODELING PROJECTS: A team of 1-3 students will create a predictive mathematical model that addresses an important issue. At the beginning of Week 2, hand in an individual project proposal; teams will be formed by the end of Week 2. Each team will hand in written progress reports at the end of Week 4 and Week 8. During the last week of the semester, each team will give an oral presentation and hand in a final written report.

FINAL PROJECT REPORT: It is suggested that you use TeX or LaTeX to format your report; we shall discuss this in class. It should contain:
1) Title page: project title, your name & major, team names & majors, date
2) Abstract: a very short description of the project
3) Table of Contents
4) Introduction: state the problem you are considering, give background, and outline your method and results; acknowledge contributors (outside your team)
5) Model and Analysis: this is bulk of the report with the full details of the model and your analysis
6) Mathematical Results: state the mathematical results that you have obtained
7) Discussion and Conclusions: discuss the conclusions for the problem that you are studying, and suggestions for improvement of the model
8) References: cite any published work that you used in any way
9) Appendices: large data, numerical computations, or other bulky content

GRADING: The course grade will be determined according to the following
- Individual Project Proposal 10%, Class Participation 10%, Reflection 10%
- Individual Exercises 30%
- Team Project Reports & Oral Presentation 40%

VARIOUS POLICIES:
- Syllabus. Students are responsible for changes the instructor may make to the syllabus as posted on Blackboard or as announced in class even when they are absent.
- Lateness. Without prior notice, homework assignments and written reports must be handed in when they are due. Late papers are subject to a reduced score.
- Academic Honesty. Collaboration on the project proposal, homework assignments, and reflection paper is encouraged, but you must hand in your own work.
- Concerns. If you have a concern about the course that cannot be resolved by speaking with me, please contact Professor D. Massey (Teaching Director), 529NI, x5527, d.massey@neu.edu. If you dispute your course grade, you should first contact me
about it; if you feel that it cannot be resolved by speaking with me, please contact the Undergraduate Secretary for the Math Dept, Donika Kreste, in 533 LA.