

## SYLLABUS FOR MATH 420, SPRING 2015

Tuesday, Thursday 11:00 a.m. - 12:15 p.m.

MTH 1313

**Prerequisites:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341); and minimum grade of C- in STAT400. Also offered as: AMSC420. Credit only granted for: AMSC420 or MATH420. Familiarity with MATLAB (or comparable software) is also required.

**Instructors:** Dr. Wojciech Czaja and Dr. Brian Hunt

**Office:** MTH 2105

**Office Hours:** Tuesday, Thursday 12:15 - 1:00, or by appointment

**Phone:** (301) 405 - 5106

**Email:** wojtek (at) math (dot) umd (dot) edu

**Class Web Page:** [www.math.umd.edu/~wojtek/420\\_15.htm](http://www.math.umd.edu/~wojtek/420_15.htm) or  
<https://courses.math.umd.edu/math420/1415S/>

**Projects:** There will be 2 major team projects during the semester. The first project will be worth 45 points and the second project will be for 55 points. Each of the scores includes 5 points individual grade for evaluation of other presentations

**Homework:** On Thursday of the week that has no scheduled presentations, homework will be assigned. (Homeworks are due the next Tuesday at the start of the class.) Each one is worth 10 points, and there will 10 such assignments.

**Grading:** The maximum point total is 200 points. The setting of letter grades will be based on the number of points and will be no worse than: 60% - D, 70% - C, 80% - B, 90% - A.

**Academic integrity:** The University makes me remind you about its academic integrity policies. So I do. Nobody, however, has to remind me that part of my job is to make sure that these policies are obeyed.

**Attendance and absences:** You are responsible for the material covered in class, whether you attend or not. You are also responsible for the announcements made during class; they may include changes in the syllabus.

The instructor will adhere strictly to the official university policy on makeup of major scheduled grading events (oral presentations). In particular, it is the policy of the University to excuse the absences of students that result from the following causes: illness of the student, or illness of a dependent; religious observance (where the nature of the observance prevents the student from being present during the class period); participation in university activities at the request of University authorities;

and compelling circumstance beyond the student's control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes. Moreover, foreseeable absences (such as those resulting from religious holidays or participation in university-sponsored events) must be submitted in writing to the instructor by February 6th.

**Disabilities:** If you request any accommodations from the office of Disabled Students Services (DSS) in Shoemaker, please let me know by February 6th.

**Emergency closures:** In case of an emergency that closes the University for an extended period of time (for example, due to inclement weather), be sure to access your email for instructions from me. Also check the University's home page or call 301-405-SNOW for snow closure information. Should any classes or exams be cancelled, please check the class web page for updated schedule information.

**Course evaluations:** Your participation in the evaluation of courses through CourseEvalUM is important to us, and helps improve teaching and learning at the University. CourseEvalUM will be open for you to complete your evaluations for the Spring semester. Evaluations are anonymous and will not be available to faculty and TAs until next semester, so they cannot possibly affect your grade.

### OUTLINE OF MATERIAL

This is a course on data-driven mathematical modeling as a process, not as a collection of techniques. Students will work in teams on projects motivated by real-life problems, and will, with the aid of the instructor, complete the entire process from analyzing data to formulating mathematical models calibrated from that data to mathematical, statistical, and computational analysis of these models to oral and written presentation of the results. Some background in linear algebra, ordinary differential equations, basic probability and statistics, and computational methods is expected. Additional mathematics will be introduced as dictated by the projects.

Background Material [3 weeks]

Project 1 [5 weeks]

Project 2 [6.5 weeks]