SYLLABUS

1. Number and Name: 11:375:303 – NUMERICAL METHODS IN ENVIRONMENTAL SCIENCE

2. Credits and contact hours: 3 credits, 2-80 min. lecture periods per week

3. Instructor: Valdis Krumins, Ph.D., P.E.
   krumins@envsci.rutgers.edu
   Office: 360 ENR
   Office Hours: Tuesday 11-12; Thursday 1:30 – 2:30, or by appointment.

4. Required Text: There is no required text book for this class. Course materials including lectures, problem sets, and solutions will be posted on Sakai (https://sakai.rutgers.edu).

   Required Resource: Access to a computer with Microsoft Excel or similar spreadsheet software

   Recommended Resources:
   Depending on your proficiency with Excel, you may want to check out some primers, such as www.excel-easy.com
   OpenIntro Statistics, 3rd ed. Diez et al. 2015
   (https://www.openintro.org/stat/textbook.php)
   Beginning Statistics, Schaum’s Outline Series

5. Specific Course Information
   a. Catalog Description: Formulation and solution of environmental science problems by applying analytical and numerical techniques. Principles of data analysis. Generation and solution of mass and energy balances.
   b. Prerequisites: 01:640:151
   c. Course Type: Required

6. Course Goals
   a. Specific Instructional Outcomes: Students will be versed in formulating and solving environmental science and engineering problems by applying numerical and statistical tools and techniques. Student problem solving skills will be enhanced through the use of homework projects involving the employment of considerable analytical skills. Students will be versed in ethical issues, particularly involving data generation, reporting and analysis.
b. Specific Student Outcomes addressed by the course:
   a. Ability to apply knowledge of mathematics and science to environmental problems.
   b. Ability to design and conduct experiments, as well as to analyze and interpret data.
   f. Understanding of professional and ethical responsibility.
   i. Recognition of the need for, and an ability to engage in life-long learning.

7. Assignments and Assessment
Grading: 60% problem sets; 40% exams

Problem Sets  There will be 10 homework assignments, with the lowest grade dropped.

Exams       There will be two exams (one mid-term and one final). The final will not be cumulative. Please let me know in advance (in class) if there is a school or religious event that would constitute an excused absence.