

MA450 Syllabus

Methods of Applied Mathematics I

Fall 2017

R&R Description: Mathematical methods covered include dimensional analysis, asymptotics, continuum modeling and traffic flow analysis. These topics are discussed in the context of applications and real data. This course is independent of MA 451 Method of Applied Mathematics II.

Instructor: Dr. Mansoor Haider, SAS 3280, 515-3100, m_haider@ncsu.edu

Time/Place: 1:30-2:45 T/Th, SAS 2102

Office Hours: Tuesdays 10:30-11:30, Thursdays 11:30-12:30, or by appointment

Prerequisites: MA 341

Textbook: *Introduction to the Foundations of Applied Mathematics* by MH Holmes, Springer, 2009 [required, available as e-book from the NCSU Library]

Webpage: <http://wolfware.ncsu.edu>

Grade: **Homework (15%) + 3 In-class Tests (55%) + Final Exam (30%)**

Final grades will be assigned using the following grading system:

A+: [98,100]	A: [92,98)	A-: [90,92)
B+: [88,90)	B: [82,88)	B-: [80,82)
C+: [78,80)	C: [72,78)	C-: [70,72)
D+: [68,70)	D: [62,68)	D-: [60,62)
F: [0,60)		

Homework: Homework assignments will be given roughly once a week. For each homework assignment, a small subset of the problems will be graded and solutions posted after the assignment is returned.

Tests: **Three in-class tests** will be given on the following dates: **Tuesday Sept. 19th**, **Thursday October 19th**, and **Thursday November 16th**.

Final Exam: Tuesday December 5th, 1:00-4:00pm

Topics:

- I. Dimensional Analysis & Scaling (~5 lectures)
- II. Asymptotics & Perturbation Methods (~8 lectures)
- III. Continuous Models of Kinetics & Diffusion (~6 lectures)
- IV. Discrete Processes (~4 lectures)
- V. Modeling Traffic Flow (~4 lectures)

Reading: Unless stated otherwise in lecture, you are expected to read the sections of the textbook or other source material corresponding to the topics covered in the lectures.

Attendance: Although attendance will not be taken, regular attendance at lectures is critical for success in this course. The instructor will not use office hour time to re-teach material that is poorly understood due to non-attendance at the lectures. You

should also view the [NCSU Attendance Regulations](https://policies.ncsu.edu/regulation/reg-02-20-03-attendance-regulations/)
(<https://policies.ncsu.edu/regulation/reg-02-20-03-attendance-regulations/>)

Laptops: If you have a laptop computer with you during the lecture period, it must remain closed. Students with a compelling reason for an exception to this rule should contact the instructor. If you wish to use a tablet to take notes during the lectures, please let the instructor know.

Evaluations: Online class evaluations will be available for students to complete during the last two weeks of the semester.
Evaluation website: <http://go.ncsu.edu/cesurvey>
Student help desk: classeval@ncsu.edu
More information about ClassEval: <http://oirp.ncsu.edu/eval/clev>

Integrity: Please read and adhere to the [NCSU Code of Student Conduct](https://policies.ncsu.edu/policy/pol-11-35-01/)
(<https://policies.ncsu.edu/policy/pol-11-35-01/>)

Disabilities: Reasonable accommodations will be made for students with verifiable disabilities via the NCSU Disability Services Office. For more information please see the link: <https://dso.dasa.ncsu.edu>