

ASE 380P ANALYTICAL METHODS I
EM386K MATHEMATICAL METHODS IN APPLIED MECHANIS I
APPLIED MATHEMATICS I
Fall 2021, # 14855/ # 14415/ # 14650/, TTH 3:30pm - 5:00pm

Text: Continuously updated Class lecture notes (see Canvas) together with

M. D. Greenberg, *Foundations of Applied Mathematics*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey 1978.

<https://www.amazon.com/Foundations-Applied-Mathematics-Michael-Greenberg/dp/0486492796>

This book of Greenberg's may be also useful

<https://www.amazon.com/Advanced-Engineering-Mathematics-Michael-Greenberg/dp/0133214311>

| Week | Topic | Chapter (Greenberg78) |
|------|------------------------------------|-----------------------|
| 1 | Elementary logic and set theory | |
| 2 | Functions and sequences, limits | 1 |
| 3 | Infinite series | 2 |
| 4 | Singular integrals | 3 |
| 5 | Vector spaces | 17 |
| 6 | Linear operators | 18 |
| 7 | Solvability of linear equations | 19 |
| 8 | Metric spaces, elementary topology | 4 |
| 9 | Fourier series | 5 |
| 10 | Fourier and Laplace transforms | 6 |
| 11 | Eigenvalue problems | 20 |
| 12 | Elementary ODE techniques | 21 |
| 13 | Systems of linear ODE's | 22 |
| 14 | Stability and the phase plane | 23 |
| 15 | Review | |

IMPORTANT: The above tentative plan is subject to changes.

Homework: Homework assignments will be assigned weekly or biweekly or triweekly depending on the class pace and the content. ONLY ONE problem is selected randomly for grading though you have to solve all problems. The class only accepts electronic submission through Canvas. 10% of the grade is deducted for every late day (even one second late). No excuse is accepted unless approved by Dr. Bui before the deadline. Late submission (with the aforementioned penalty each day) is not accepted after three days late. You are responsible for uploading/submitting the correct files. Excuses for submitting/uploading incorrect files are not accepted.

Exams: There will be tentatively 3 take-home exams, each of which will contribute 10% to the total score, and the rest of the percentage is from homework.

Final Grade: Is based upon the homeworks and exams. Below is **tentative** and may be curved.

| Final score range | grade |
|-------------------|-------|
| 90 - 100 | A |
| 85 - 89 | A- |
| 80 - 84 | B+ |
| 75 - 79 | B |
| 70 - 74 | B- |
| 65 - 69 | C+ |

Important: DO not send messages (questions or concerns) through canvas because we don't check email messages on Canvas. **All questions related to class must be posted through Piazza.** You should have received a Canvas announcement on Piazza. Here is the link to register for Piazza

<http://piazza.com/utexas/fall2021/ase380?token=SHsuMmSqA07>

Every student is required to register for this Piazza class. Failing to register may miss important information/communications about the lecture notes, homework, Exam, Q/A, etc. **Students are strongly encouraged to answer questions from other students on Piazza.**

Important: It is **your responsibility** to read all Canvas announcements from Dr. Bui and the TAs, where important messages are sent to you (every registered student should get messages automatically). We are extremely busy, thus if we spend time writing something for you it must be important. And you will take all the responsibilities if you miss important things because you don't read the announcements/syllabus. **Questions whose answers are provided in Syllabus, Canvas Announcements, or Piazza Q/A will be referred to these resources.**

Important: Every Zoom lecture will be recorded and will be made available on Canvas. My handwritten lecture notes will be recorded in files and will be uploaded to Canvas after each class. Typed lecture notes will also be provided.

Attendance is required: It is the students' responsibility to attend all the lectures. Missing lecture without Dr Bui's prior approval may lead to missing knowledge for that lecture and the subsequent ones, which in turn may lead to failing the class. Only students missing classes with prior approval can see Dr. Bui for recapping the lecture and can ask questions about the missing lecture. If you miss class(es), without Dr. Bui's approval, you will be on your own studying the missing lectures.

TA: Krishnanunni Giri (cg.krishnanunni@gmail.com) and Hai Nguyen (hainguyen@utexas.edu). Office hours: Monday (1pm-2pm) and Wed (12-1pm). **Zoom link:** See the Zoom tab on the class Canvas site.

Instructor: Dr. Tan Bui. Zoom Office hours: TTH, 2:30pm-3:15pm. **Zoom link:** See the Zoom tab on the class Canvas site.

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