

## Numerical Analysis MAD 3401 — Summer 2015

- Instructor: Kai Huang
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- Office/Hours: DM-419A; Mon. Wed. & Fri. 12:00 — 12:45 PM
- Description:

This course is intended to be a mathematical introduction to the essential concepts in numerical methods: convergence, stability, and efficiency.

The main topics include root-finding, interpolation, polynomial approximation, numerical differentiation, numerical integration, numerical solution for initial-value problem and linear system.

Students will be assigned to write programs in the project.

MATLAB programming is preferred, but other languages are OK.

- Textbook  
Numerical Analysis, 9th edition, by RL. Burden and J.D Faires.
- Grading:
  - Home Work / Project 20%
  - Midterm 1 — May 22 25%
  - Midterm 2 — June 5 25%
  - Final Exam — June 19 30%

The following percentage will guarantee the associated grade

|           |            |            |           |            |            |           |
|-----------|------------|------------|-----------|------------|------------|-----------|
| A<br>≥ 90 | A-<br>≥ 85 | B+<br>≥ 80 | B<br>≥ 75 | B-<br>≥ 70 | C+<br>≥ 65 | C<br>≥ 60 |
|           | C-<br>> 55 | D+<br>> 50 | D<br>> 45 | D-<br>> 40 | F<br>< 40  |           |

- Attendance:

You are responsible for material covered in class.

Essential announcements and any changes will be announced in class.

If you miss a class, it is your responsibility to get the notes from a classmate.

- Policy:

All exams are closed notes and closed books.

No cell phone, laptop or equivalent device allowed.

A scientific calculator can be used during exams.

You may not communicate with others during the exams.

Picture I. D. with signature is required and must be presented upon request.

**There will be no make-up exams.**

Excused absences for exam may be given only for certain documented emergencies (primarily medical). They will not be given for attendance at scheduled activities, whether University sponsored or not, to attend other classes or for family or business trips.

Once you have started taking a test, you cannot be excused from that test.

The excused exam may be substituted by 90% of the final exam.

You may not be excused from the final.

**Home work:**

Group discussions about the homework are encouraged, but each student must write his/her own solutions and not copy them from anyone else.

Late home work / project will lose 2% for each hour late.

- Incomplete grade policy:

IN grade is given to a student only under the condition that the student has substantially completed (with a passing grade) most of the course but is unable to complete the course because of circumstances beyond his/her control.

Updated May 19, 2015

|           | <b>Howe Work</b>           |
|-----------|----------------------------|
| Chapter 1 |                            |
| §1.1      | 1c, 4a, 5, 14, 19, 28b     |
| §1.2      | 1ah, 4c, 9, 12, 15cd, 16cd |
| §1.3      | 1a, 6, 7, 16               |
| Chapter 2 |                            |
| §2.1      | 1, 10, 15                  |
| §2.2      | 3bd, 11abf                 |
| §2.3      | 1 - 4                      |
| §2.4      | 2a, 4a, 6                  |
| §2.5      | 1d, 5, 14a                 |
| §2.6      | 2b, 4b, 9                  |
| Chapter 3 |                            |
| §3.1      | 1ab, 5a, 7a, 9, 11.        |
| §3.2      | 1a, 2b, 5, 6, 7.           |
| §3.3      | 1b, 3a, 5a, 13, 17.        |
| §3.4      | 1ac, 2a, 4a, 9, 11a        |
| §3.5      | 1, 11, 12                  |
| §3.6      | 1, 2, 3                    |
| Chapter 4 |                            |
| §4.1      | 6a, 8a, 22, 29             |
| §4.2      | 1d, 2d, 8                  |
| §4.3      | 2a, 4a, 6a, 8a, 16         |
| §4.4      | 2a, 4a, 26a                |
| §4.5      | 2a, 4a, 13                 |
| §4.6      | 1ab, 9                     |
| §4.7      | 1ab, 2ab, 3ab, 4ab, 7, 8   |
| §4.8      | 1a, 2a, 10                 |
| §4.9      | 2a, 4a, 6, 9               |
| Chapter 5 |                            |
| Chapter 6 |                            |
| Chapter 7 |                            |