Mathematics 6601 Course Syllabus
Numerical Analysis
Spring 2019

Instructor: Dr. Xiaoming He
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Lecture: 10:00am-10:50am MWF
Classroom: Human Social Science 202
Office Hours: 11:10am-12pm, 2:10pm-3:00pm, Monday, Wednesday, Friday or by appointment.


Tentative List of Topics to Be Covered:

- Chapter 1. Mathematical Review
- Chapter 2. Numerical Solutions of Nonlinear Equations of One Variable
- Chapter 3. Numerical Linear Algebra
- Chapter 4. Approximation Theory
- Chapter 6. Numerical Differentiation and Integration
- Chapter 7. Initial Value Problems for Ordinary Differential Equations

Homework: A thorough understanding of the homework is a vital component of this course. You should make it a practice to do your homework promptly and you are expected to turn in homework regularly. The homework assignments and the due dates will be posted on canvas. I will allow you at least one intervening class period to ask questions about homework problems. Since class time is precious, however, do not expect to have more than one or two such questions answered per class period. If questions remain, please see me outside class time.

Exams: The midterm exam and the final exam are take-home exams in project format. The exams and the due dates will be posted on canvas.

Guided Coding: For the numerical methods covered in my lectures, we will have guided coding practice in class by using Matlab. This is a critical step for you to become capable of implementing what you have learned in class. It’s your responsibility to finish the coding after class based on the guided coding practice in class. The code will be used in the homework assignments and exams.

Independent Study: Each of you needs to select a topic in numerical analysis or its application that you want to study independently by April 1, 2019. The topics I will provide or the textbook topics which are not covered by my lectures may help you generate ideas for your study topic. However, do not feel compelled to pick one of those topics. For example, a related problem from your research work is also good. This is your opportunity to tailor a portion of this course to satisfy your specific interests in numerical analysis. If you are considering a particular topic but are uncertain about its feasibility, please feel free to make an appointment with me to discuss your ideas.

A written description of the topic you propose to study and your plans for carrying out this study are due on April 1, 2019. The study plan you submit should include:
1. A clear statement of the goal (or goals) of your study;
2. A concise description of the steps through which you intend to achieve your study goal;
3. References you plan to consult to aid your studies;

I reserve the right to modify your independent study topic or the details of your study plan if I deem it prudent or necessary. In this event, you will be asked to rewrite or revise your study plan accordingly.

A final written report of your independent study is due on May 10, 2019. And during the class meetings in the last two to three weeks of the semester, you may volunteer to briefly present your independent study.

Grading: On all of your papers, you are expected to show your work clearly and completely. You will be graded on your work as well as your answers. There will be 500 total points – 100 for the midterm exam, 200 points for the final exam, 100 for the independent study, and 100 in homework. If you score 430 or more of all possible points, you are guaranteed to earn an A; 370 or more guarantees a B; 300 or more guarantees a C; and 250 or more guarantees a D if applicable.

Disability Support Services: If you have a documented disability and anticipate needing accommodations in this course, please meet with me early in the semester. Before I can arrange for your accommodations, you will need to provide written documentation from the Disabilities Services staff in 204 Norwood Hall (dss@mst.edu, 341-4211) verifying your disability and specifying the accommodations you will require.

Academic Honesty: Academic honesty is vital to the intellectual life of the University. Students have a special obligation to be aware of and adhere to the standards of conduct as described on page 27 of the S&T Student Academic Regulations handbook: http://registrar.mst.edu/media/administrative/registrar/documents/academicregulations/academic%20regulations%202012-2014%20rev6.pdf
In particular, this page offers descriptions of what constitutes cheating, plagiarism, and sabotage.

Emergency Egress Route: In case of an emergency, the classroom egress maps are posted at this web address: http://designconstruction.mst.edu/floorplan/.

Title IX: Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises.

Missouri S&T’s Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly (manuels@mst.edu; (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://titleix.mst.edu.