Syllabus for Math 4301/5301, Number Theory, Fall 2024

Class information

Section:	Math 4301-001/5301-001
Time:	2:30-3:55PM, MW
Location:	Ratliff Building North 3038

Instructor information

Name:	Joseph Vandehey
Office Location:	Ratliff Building North 4004
E-mail:	jvandehey@uttyler.edu (**NOT** jvandehey@patriots.uttyler.edu)
Book:	*A Friendly Introduction to Number Theory* Fourth Edition by Joseph Silverman
Office Hours:	1:30–4:30 PM Thursday or by appointment

We will use Canvas in this course. Homework assignments, grades, study guides, and even this syllabus will all be posted to Canvas.

1. Course Content

A study of the theory of numbers including divisibility, prime numbers, factorization, the Euclidean algorithm, congruences, the Chinese Remainder Theorem, diophantine equations, quadratic residues, quadratic reciprocity, and other topics to be selected by the instructor.

2. Grading

Class item	percent of total grade
Homework	40%
Exams	60%

As I recognize that life is sometimes hectic, the lowest homework grade will be dropped. Exam scores will not be dropped or replaced.

At the end of the semester, your final letter grade will be determined *roughly* as follows:

90% or higher	A
Between 80% and 90%	B
Between 70% and 80%	C
Between 60% and 70%	D
60% or lower	F

Any deviations from the above rubric will only be to your benefit.

3. Homework

Homework will be collected roughly once every Friday on the schedule above. Homework can be turned in either virtually (through Canvas) or in person.

This is a proof-based class. Very often you will be asked to write a proof of a result in your homework. Even for computational problems, you should show all reasonable work you did to find your final answer. Problems for 4301 will focus slightly more on computation. Problems for 5301 will focus slightly more on proofs.

Starting with the third homework, I expect your homework to be type-set, not hand-written. (Some problems are more exploratory and I will accept hand-written answers. These problems will be marked as such.) I will accept documents in any standard type-set form, including Microsoft Word documents, as well as LaTeX-generated PDFs. Tutorials will be provided to assist in writing LaTeX-based documents.

Due to time constraints, it may be that not every problem is graded for correctness, and instead some problems may be graded for completeness instead. As a result, every problem will contribute to your overall homework score.

You are encouraged to work together on homework problems; however, you must write up your own solutions separately to turn in. Copying and pasting answers from another student's work will be considered plagiarism.

4. Exams

Exam 1	Week 5	Friday, September 27
Exam 2	Week 10	Friday, November 1
Final	Week 15	Wednesday December 11 (2:45-4:45 PM)

All exams are equally weighted (20% of your overall grade).

Due to the unusual timing of the exams, they are currently planned to be held during the Friday timeslot 2:30-3:55PM, same as the class itself, in the MLC or some other room to be announced. If this time does not work for you, please let me know as soon as possible.

5. Additional comments

- Exceptions to the above rules will be made in the case of extreme circumstances (death in the family, severe illness, etc.).
- Cheating is strictly prohibited and carries severe consequences, up to and including expulsion from the university. Use of calculators, laptops, phones, etc., on any exam will be considered cheating.
- If you believe I have graded an exam in error, come see me at the end of the class in which I handed it back. Leaving class with the exam means you accept the grade you have been given.
- Please note that September 9th is the census date for this course, which is the deadline for all registration and schedule changes.
- Important campus-wide policies can be found on the course Canvas page.
- I frown upon the use of erasers on tests. They make me sad.

  If you think your work is wrong, cross it out. Do not erase! I can't give partial credit for work that has been erased and I can no longer read.

6. Special comments about AI

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

In this class, to best support your learning, you must complete all graded assignments without the aid of AI. Refrain from using AI tools to generate any course content (e.g., text, video, audio, images, code, etc.) for any classroom assignment.

This syllabus is a general guideline for the course. Deviations may be necessary as the semester progresses.