Math 3510-001 Syllabus - Spring 2020

Meets: TR 11:00-12:20 in Lang 217

Instructor: Dr. Pieter Allaart

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Office Hours (tentative):

- Tue 9:30-10:30 and 1:00-2:00
- Wed 1:30-2:30
- Thu 9:30-10:30
- and by appointment
- I will usually be able to answer a few brief questions immediately after class.

Book: A first course in abstract algebra (7th edition), by J. Fraleigh

Grading: Grades will be based on two mid-term exams, homework, quizzes, in-class group work, and a final exam, weighted as follows:

- Mid-term exam 1: 20%
- Mid-term exam 2: 20%
- Homework: 10%
- Quizzes: 10%
- In-class group work: 10%
- Final exam: 30%

Mid-term Exams: The mid-term exams will be given in class on February 27 and April 16. (There is a slight chance that these dates will change). If you show up late for an exam, without a valid excuse, do not expect to be given extra time for the exam. The final exam will be on Tuesday, May 5 at 10:30. If you miss an exam due to illness or other circumstances beyond your control, you should contact me within 24 hours in order to be granted a make-up exam. The make-up exam may be different from the original.

Quizzes: Quizzes will be given in class roughly once a week on Tuesdays, and will be based on (though not necessarily identical to) the homework due that day. Your two lowest quiz grades will be dropped. In view of this, no make-up quizzes will be given for any reason.

Homework: Homework will be assigned at the end of each class period, and is due at the beginning of class on the first Tuesday following the day it is assigned. Homework must be written neatly and legibly. Homework consisting of multiple

pages must be stapled together. A selection of the problems will be graded and your work will be returned with brief comments. However, for more elaborate feedback I recommend that you come to my office. Homework which is messy or difficult to read will not be graded! Your two lowest homework grades will be dropped. In view of this, **late homework will not be accepted**, regardless the reason. If you could not come to class, and missed the assignment, it is your responsibility to find out what the assignment is.

In-class group work: During the second half of Thursday's class meetings, you will work in groups on more involved problems. Members of the group take turns acting as a scribe. The scribe writes up the solution as neatly as possible and turns it in on behalf of the group at the end of class. Although the grade for the group work will be based mostly on completion credit, if the scribe does a poor job, the whole group will suffer. Being absent on Thursdays without a valid excuse will result in a lowering of your own group work grade, and you will let your group down.

Attendance: Though attendance is not a formal requirement, you are expected to come to class and take active part in the lectures. Abstract algebra is a highly conceptual subject, with new concepts being introduced each class day. You will not master the new skills, and will quickly fall behind, if you do not actively attend class.

Extra credit: Do not expect to be able to do some extra work to help your grade either before or after the final exam. There will be no extra credit other than perhaps an extra problem on an exam. Your best bet to help your grade is to do the required work at the time it is assigned.

Disabilities: The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at http://www.unt.edu/oda. You may also contact them by phone at 940.565.4323.

Cheating: No cheating will be tolerated. Anyone caught cheating will be subject to any penalty the instructor deems appropriate, up to and including an automatic F for the course. Furthermore, a letter will be sent to the appropriate dean.

List of topics:

Lecture	Section(s)	Topic(s)
1	0	Preliminary concepts (sets and relations)
2	1,2	Introduction and examples, binary operations
3	3	Isomorphic binary structures
4	4	Groups
5	4	Groups (continued)
6	5	Subgroups
7	6	Cyclic groups
8	7	Generating sets and Cayley digraphs
9	8	Groups of permutations
10	8	Groups of permutations (continued)
11	9	Orbits, cycles, and the alternating groups
12	10	Cosets and the Theorem of Lagrange
13	-	Review
14	-	Exam 1
15	11	Direct products and finitely generated Abelian groups
16	13	Homomorphisms
17	14	Factor groups
18	15	Factor-group computations
19	15	Simple groups, center and commutator subgroups
20	16	Group action on a set
21	17	Applications of G-sets to counting
22	18	Rings and fields
23	18	Rings and fields (continued)
24	19	Integral domains
25	-	Review
26	-	Exam 2
27	20	Fermat's and Euler's theorems
28	-	RSA encryption
29	-	Final exam review