MATH 420/620, Abstract Algebra I, Fall 2010
MWF 10:00–10:50 AM, Walster Hall 217

INSTRUCTOR: Sean Sather-Wagstaff
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PHONE: 231-8105
OFFICE HOURS: M 2:30-3:20, WF 11:00–11:50 and by appointment

PREREQUISITE: MATH 270
REQUIRED TEXT: *Abstract Algebra*, Third Edition, by Beachy and Blair

USEFULE WEBPAGES:
Course webpage: `http://www.ndsu.edu/pubweb/~ssatherw/fa10/420/`
Instructor webpage: `http://www.ndsu.edu/pubweb/~ssatherw/`
Anonymous evaluation form: `http://www.ndsu.edu/pubweb/~ssatherw/ssw-eval.html`
Math department webpage: `http://math.ndsu.nodak.edu/`
NDSU webpage: `http://www.ndsu.edu`
NDSU blackboard site: `https://bb.ndsu.nodak.edu/`
NDSU webpage on academic responsibility/conduct: `http://www.ndsu.nodak.edu/policy/335.htm`
How to read a math book: `http://www.tc3.edu/instruct/sbrown/math/read.htm`

COURSE DESCRIPTION: Topics include groups, permutations, quotient groups, homomorphisms, rings, ideals, integers.

This will not be a traditional mathematics course. I will not lecture during most class meetings. Instead, class time will be devoted to group discussion of the assigned reading and exercises and individual presentations of solutions to assigned exercises.

COURSE GRADES: Student grades are based on weekly homework assignments, attendance and participation, two (2) midterm examinations, and one (1) comprehensive final examination. covering students' understanding of topics covered in MATH 420/620. Weights are summarized in the following table along with grade ranges.

Homework	25%	A	90–100%
Attendance and Participation	20%	B	80–89.9%
Midterm Exams	15% each	C	70–79.9%
Final Exam	25%	D	60–69.9%
		F	0–59.9%

Your grades will be updated throughout the semester at the NDSU Blackboard site.

READING: Reading assignments are listed on p. 4 of this syllabus. Much of our class meetings will be based on discussions of the reading. Your participation score for that day will be based in part on your ability and willingness to discuss the reading in class, so you must keep up with the reading.

Reading a math book is not like reading other types of books. I recommend that you read the article "How to read a math book" by Stan Brown; see the link above. This article gives some good specific tips on how to (and how not to) read a math book.

In order to get ready for the day's discussion, you should be prepared to summarize in your own words the main points from the reading. What is the overall theme of the reading? What are the main ideas, results, definitions, examples, and methods from the reading? What questions do you have from the reading? You may find it helpful to keep a reading journal as part of your course notes.

HOMEWORK: Daily assignments are listed on p. 4 of this syllabus. Much of our class meetings will be based on individual presentations of solutions to assigned exercises. Your participation score for that day will be based in part on your ability and willingness to present your own solutions, so you must keep up with the assigned exercises.

I will select several exercises each week for which you are to submit written solutions. These exercises will be assigned in class on Fridays and solutions will be due at the beginning of class on the following Friday. (Solutions will be accepted early, of course.) Assignments will also be listed on the course webpage and on blackboard. Each exercise will be worth the same amount. I will drop the lowest 10% of your homework scores. Late assignments will not be accepted.

You are encouraged to work on assignments in small groups, but each member of the class is required to turn in a neatly written, organized set of solutions, written in their own words. You will receive no credit for solutions with no work or justification. You will receive partial credit for solutions with partial work or justification. Pages should be stapled with "fringe" removed. I reserve the right to deduct points for messy papers.

ATTENDANCE AND PARTICIPATION: It is in your best interests to attend all class meetings. Good attendance is critical to your success in the class for a number of reasons. First, attendance and participation are worth 20% of your course grade. This will be measured by your presence in class and your willingness and ability to discuss the daily reading and to present solutions to assigned exercises. Second, your presence, attention, and participation in lecture will greatly help your performance in this class. For these reasons, I will take attendance each class period. Officially excused absences will not be counted against you, but you must document such situations with me personally.

Rubric: Let x be the number of class days you attend (out of 45). Let y be the number of class days where you participate in the reading discussion (out of 23). Let z be the number of homework exercises you present in class. Then your attendance and participation score (out of 100) will be determined by the following formula:

$$a = 50x/45 + 25y/23 + 25z/6.$$

In words, attendance is worth 50%. Reading discussion is worth 25%. Exercise presentation is worth 25%, and I expect each of you to present part of an exercise every three days or so.

EXAMS: Midterm exams will be taken in class and will last 50 minutes. The final examination will be comprehensive and will last 2 hours. Books, notes and calculators will not be allowed during the exams. Make-up exams will only be allowed under extreme circumstances. If you have a conflict with one of the exam dates, you are responsible for making alternative arrangements beforehand.

MATH 620: Students enrolled in MATH 620 will be required to submit additional written exercises. Exams for these students will have additional take-home parts.

COURSE NOTES: Clear and thorough notes from readings and discussions will provide you with a basis for your homework assignments and exams. You are responsible for taking notes during class, as I will not make course notes publicly available.

WORKLOAD: You should plan to spend 10–15 hours per week working on this course outside of class.

ANNOUNCEMENTS: Course announcements will be sent to your ndsu.edu email account. It is your responsibility to check this email account regularly.

GRAPHING CALCULATORS: are not required for this course, and will not be allowed in the exams.

QUESTIONS: If something said or written in class is unclear, raise your hand and ask a question. I will try to clarify the point being made.

GROUP STUDY: You are required to find at least one person in the class with whom you can study. Not only does this help you study better, but also, in the event you miss a lecture, you can get notes and assignments from this person.

OFFICE HOURS: Come to my office hours for help. This gives me the opportunity to focus on specific problems you may be having and to explain things in a more personal manner. If the scheduled times are bad for you, make an appointment with me.

INSTRUCTOR FEEDBACK: At the course webpage, there is a link to an anonymous evaluation form where you can submit comments or suggestions for me at any time during the semester.

COURTESY: Cellular telephones, pagers, and other similar devices are not to be used and are to be turned off or set to vibrate-mode during class-time. Students violating this policy will receive one warning per semester. After the warning, violations will result in loss of attendance/participation credit for that day.

ADA STATEMENT: The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic, learning and psychiatric disabilities in order to ensure their equal access to course content. If you have a documented disability and require accommodations, please let your instructor know as soon as possible. For more information, please contact Disability Services at 231-7671 or go to `http://www.ndsu.edu/counseling/disability.shtml`.

ACADEMIC HONESTY: All work in this course must be completed in a manner consistent with NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct. First violations of this policy in this course will result in a 0 for the homework or exam on which academic misconduct occurred. Further violations will result in more severe penalties. You can read the Senate Policy at `http://www.ndsu.nodak.edu/policy/335.htm`.

TENTATIVE COURSE OUTLINE:

Chapter 1. Integers (4 days)
Chapter 2. Functions (3 days)
Chapter 3. Groups (16 days)
Chapter 4. Polynomials (8 days)
Chapter 5. Commutative Rings (8 days)

TENTATIVE SCHEDULE: I reserve the right to make reasonable changes to the schedule.

IMPORTANT DATES

Last day for No Record Drop of classes	Wed 01 Sep, 11:59 PM
Labor Day holiday	Mon 06 Sep
Midterm 1	Fri 01 Oct
Midterm 2	Wed 10 Nov
Last day to Drop Classes (W)	Fri 12 Nov, 11:59 PM
Thanksgiving holiday	Thu 25 Nov and Fri 26 Nov
Classes end	Fri 10 Dec
Final Exam	Mon 13 Dec, 1:00–3:00 PM, Walster Hall 217

COURSE OUTLINE

Wed 25 Aug	Course policies	
Fri 27 Aug	§1.1 discussion plus exercise presentation:	4(a), 6(a), 11, 15
Mon 30 Aug	§1.2 discussion plus exercise presentation:	10, 11, 14, 16
Wed 01 Sep	§1.3 discussion plus exercise presentation:	14, 18, 24, 26
Fri 03 Sep	§1.4 discussion plus exercise presentation:	4, 14, 15
Mon 06 Sep	Holiday	
Wed 08 Sep	§2.1 discussion plus exercise presentation:	2(b), 5(a), 8(b,d), 9(b), 16
Fri 10 Sep	§2.2 discussion plus exercise presentation:	2(a), 3, 8
Mon 13 Sep	§2.3 discussion plus exercise presentation:	3, 7, 12, 13
Wed 15 Sep	§3.1 discussion plus exercise presentation:	8, 9, 15
Fri 17 Sep	§3.1 exercise presentation:	17, 23, 24
Mon 20 Sep	§3.2 discussion plus exercise presentation:	1(b), 8, 14
Wed 22 Sep	§3.2 exercise presentation:	17, 24, 25
Fri 24 Sep	§3.3 discussion plus exercise presentation:	5, 6, 11
Mon 27 Sep	§3.3 exercise presentation:	14, 15, 16
Wed 29 Sep	Midterm 1 review	
Fri 01 Oct	Midterm 1 (Chapters 1 and 2)	
Mon 04 Oct	§3.4 discussion plus exercise presentation:	2, 4, 8
Wed 06 Oct	§3.4 exercise presentation:	15, 20, 21
Fri 08 Oct	§3.5 discussion plus exercise presentation:	6, 11, 13
Mon 11 Oct	§3.5 exercise presentation:	15, 16, 20
Wed 13 Oct	§3.6 discussion plus exercise presentation:	1(d), 5, 12(S_9 only)
Fri 15 Oct	§3.6 exercise presentation:	14, 17, 19
Mon 18 Oct	§3.7 discussion plus exercise presentation:	7(b,d), 9, 12
Wed 20 Oct	§3.7 exercise presentation:	14, 15, 16
Fri 22 Oct	§3.8 discussion plus exercise presentation:	7, 8, 9
Mon 25 Oct	§3.8 exercise presentation:	12, 14, 16
Wed 27 Oct	§4.1 discussion plus exercise presentation:	1, 5(d), 6
Fri 29 Oct	§4.1 exercise presentation:	7, 9, 10
Mon 01 Nov	§4.2 discussion plus exercise presentation:	2(a), 5(b), 7(b)
Wed 03 Nov	§4.2 exercise presentation:	9, 10, 11
Fri 05 Nov	§4.3 discussion plus exercise presentation:	5, 6, 9
Mon 08 Nov	Midterm 2 review	
Wed 10 Nov	Midterm 2 (Chapter 3)	
Fri 12 Nov	§4.3 exercise presentation:	10, 20, 22
Mon 15 Nov	§4.4 discussion plus exercise presentation:	2(c), 4(c,d), 7
Wed 17 Nov	§4.4 exercise presentation:	14, 17(a), 20
Fri 19 Nov	§5.1 discussion plus exercise presentation:	2(a, b, c), 4, 7
Mon 22 Nov	§5.1 exercise presentation:	8, 11, 15
Wed 24 Nov	§5.2 discussion plus exercise presentation:	2, 3, 5
Fri 26 Nov	Holiday	
Mon 29 Nov	§5.2 exercise presentation:	11, 18, 23
Wed 01 Dec	§5.3 discussion plus exercise presentation:	6, 7, 10
Fri 03 Dec	§5.3 exercise presentation:	12, 24, 25
Mon 06 Dec	§5.4 discussion plus exercise presentation:	4, 5, 6
Wed 08 Dec	§5.4 exercise presentation:	10, 11, 12
Fri 10 Dec	Final review	
Mon 13 Dec	Final exam 1:00-3:00	