Math 481 - Modern Algebra
Fall 2013

Basic Info:

Instructor:	Dr. Nathan Reff
Email:	reff@alfred.edu
Office:	Myers Hall 109C
Phone:	607.871.2818
Office Hours:	TW 10:15AM-11:15AM, WF 1:10PM-2:10PM, or by appointment.
Course Web Page:	http://people.alfred.edu/~reff/MATH481/
Course Meetings:	MTWF 2:20AM-3:10PM in Myers Hall 227
Text:	*Contemporary Abstract Algebra,* 8^{th} *Ed.* by Joseph Gallian (ISBN: 978-1133599708)

Prerequisite: You absolutely must have a passing grade in Math 281 (Foundations of Higher Mathematics) or equivalent to be in this course.

Course Catalog Description: *The fundamental structures and techniques of algebra including topics such as groups, rings, fields, quotient structures, theory of equations and polynomials. Prerequisite: MATH 281.*

Course Goals: This course is an introduction to abstract algebra, an extensive and growing field of mathematics. We will generalize many concepts and techniques from basic algebra as well as study new ones. Specifically, we will study groups, rings, fields and many related structures. We will also see how abstract algebra applies to modern problems. After completing this course:

- Students should understand the definitions and basic properties of groups, rings and many other structures.
- Students should be even more familiar with abstract reasoning and writing proofs.
- Students should be able to communicate their arguments clearly, accept and give criticism, and work together to produce correct proofs.
- Students will understand a special topic of their choosing and the life of a mathematician who has made an impact in abstract algebra.

Technology: A scientific calculator may be used at any time in this course. However, a graphic calculator will not be allowed on exams. If you want to use a scientific calculator, please bring it to every class. You must have your own calculator. I will post other resources on our course website.

Grade Distribution: Your final grade will be determined as follows:

Classwork and Participation	25%
Homework	35%
Projects	10%
Midterm	10%
Comprehensive Final Exam	20%

Participation points can be earned by answering questions, asking relevant questions, working well with others, etc. Coming to class is expected and will not get you these participation points alone. I would like everyone to be a part of the classroom discussions.

Borderline cases can be adjusted up or down based on your attendance, class participation, homework, and trends. For example, a pattern of steady improvement is good, but a weak final exam is bad.

Grade Conversion:

A	93−100	C	73−76
A−	90−92	C−	70−72
B+	87−89	D+	67−69
B	83−86	D	63−66
B−	80−82	F	0−62
C+	77−79		

Homework: Homework problems will be assigned daily/weekly and posted

on the course website: `http://people.alfred.edu/~reff/MATH481/`.

These problems will come right out of your text, but sometimes I may create additional problems and assignments. You must complete all of these problems and bring your solutions to the next class day. During class each students will take turns presenting solutions and we will attempt to cover all assigned problems. Every week you will turn in some problems to be graded. Other than assigned problems, reading will be a part of your daily homework. **Please bring your book to every lecture**

The accepted guidelines for writing mathematics will be the same as what you learned in the prerequisite course, "Foundations of Higher Mathematics".

Please make sure your homework is *neat* (legible, not torn out of a spiral bound notebook, etc.) and *stapled* when you turn it in. It is *very* important that you keep working on problems throughout the course. There is an old saying that "math is not a spectator sport" and there is definitely a lot of truth to this. I recommend working individually and also with other classmates (but make sure you are turning in your own work!). If you are working on a problem and get stuck, make a note of it, bring your work and **ask questions**. I encourage *everyone* to come to office hours!

Classwork: Most of the classwork will be going over the homework problems assigned the previous day. Each student will take turns presenting solutions. This is a significant portion of the grade, so everyone is expected to participate and work together. Worksheets and other classwork may be assigned during the lecture. The classwork grade will be based on completion and cooperative participation. Classwork may also be collected for correctness.

Projects: Each student will complete two projects:

Writing Project: A short written biography of a mathematician who has made a contribution to modern algebra.

Oral/Writing Project: A presentation on an application or special topic of modern algebra. More details will be given during class and posted on the course website.

Midterm: On October 9, we will have an in-class midterm exam that will cover the course material up to that point. You will also turn in the take-home portion of the midterm given on

previous Friday.

Final Exam: On Thursday December 12, 1:15PM-3:15PM in Meyers Hall 227, you will have a in-class final exam that will cover all course material. There may be a take-home portion of the final exam, but this is not guarenteed.

Quiz/Test/Final Exam Policy: Only your approved calculator may be used (when allowed). Hence, no cell phones, computers, mp3 players, slide rules, abaci, Addiators, Napier's bones, Difference/Analytical Engines, Pascalinas, Antikythera mechanisms, etc. may be used. In other words I want you to only use your brain, calculator and the hard work you put into this course to earn your grade. You may not talk to each other in the classroom while other students are working, even if you are done. Please keep your eyes on your own paper. Do not look at notes, books, etc. while working. Work through the problem on your own and you will do fine (and save us both a lot of trouble).

Academic Dishonesty: Academic dishonesty of any kind will not be tolerated. It is disrespectful to the University, your classmates and to me. Any form of academic dishonesty will be dealt with severely. Alfred University's policies on Academic Dishonesty (Unethical Practices) (see Policy 700) can be found at `http://my.alfred.edu/index.cfm/fuseaction/academic_policies.academic_regulation_ug.cfm`.

Attendance Policy: You are expected to attend and be a part of every class meeting. I will keep a record of your attendance, participation and preparation. Excessive absences will noticeably affect your final grade. This course will move rather quickly so I suggest you only miss class for a good reason (meaning an excused absence).

Excused Absences: If you cannot attend one of the exams you should submit a written reason for your absence **in advance** of the exam date. I would appreciate knowing at least 3 days in advance if you are going to miss a class. In emergency situations please send me an email or leave me a voice message. The decision to allow make-up exams will be made on a case by case basis, but proper documentation is always necessary. No make-up exams will be given without advance notice. If you miss a quiz, exam or final with an unexcused absence, you will receive a 0 for that particular assignment.

Students with Disabilities: Alfred University is committed to upholding and maintaining all aspects of the Federal Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. If you are a student with a disability and wish to request accommodations, please contact Dr. Aubrey Elmore at the Office of Special Academic Services located in Crandall Hall, or call (607) 871-2148. Any information regarding your disability will remain confidential. Many accommodations require early planning, therefore requests for accommodations should be made as early as possible. Any requests for accommodations will be reviewed in a timely manner to determine their appropriateness to this setting.

Tutor Services/Requests: Please take advantage of office hours or email me if you have any questions. I am more than happy to help out!

The office of Special Academic Services (`sas@alfred.edu`) in Crandall Hall offers personalized help in the form of individual and group tutoring. If you would like to request a tutor for a class, you may fill out the tutor request form found at `http://my.alfred.edu/index.cfm/`

fuseaction/sas.tutoring.cfm and then submit it to tutorus@alfred.edu. You may also contact Beth Niles (nilesb@alfred.edu or (607) 871-2148) for more information Be aware that getting a tutor can take some time, so please contact me for additional support as mentioned above.

Extra Credit: I will not be giving anyone individual extra credit. This way everyone has the same advantage in the course.

Disclaimer: I reserve the right to make changes to this syllabus without prior notice.

Tentative Schedule:

Monday	Tuesday	Wednesday	Friday
Aug 26th **1**	27th **2**	28th **3**	30th **4**
Sep 2nd **5**	3rd **6**	4th **7**	6th **8**
9th **9**	10th **10**	11th **11**	13th **12**
16th **13**	17th **14**	18th **15**	20th **16**
23rd **17**	24th **18**	25th **19**	27th **20**
30th **21**	Oct 1st **22**	2nd **23**	4th **24** **MIDTERM (take-home)**
7th **25**	8th **26** **Review**	9th **27** **MIDTERM (in-class)**	11th **28**
14th **NO CLASS**	15th **NO CLASS**	16th **29**	18th **30**
21st **31**	22nd **32** **Withdraw Deadline**	23rd **33**	25th **34**
28th **35**	29th **36**	30th **37**	Nov 1st **NO MATH CLASS**
4th **38**	5th **39**	6th **40**	8th **41**
11th **42**	12th **43**	13th **44**	15th **45**

Monday	Tuesday	Wednesday	Friday
18th **46**	19th **47**	20th **48**	22nd **49**
25th **50**	26th **51**	27th **NO CLASS**	29th **NO CLASS**
Dec 2nd **52** **Presentations**	3rd **53** **Presentations**	4th **54** **Presentations**	6th **55** **Presentations**