MATH 470
Algebra for Teachers
FALL Semester 2013

Instructor: George Andrews
Office: 306 McAllister Building
Telephone: 865-6642
Email address: gea1@psu.edu

Class Hours: Section One, MWF 2:30-3:20 PM in 106 Sackett

Office Hours: Mondays and Tuesdays at 3:35 PM; Wednesdays at 1:25 PM; and Thursdays at 3:30 PM.

Course Description: An introduction to algebraic structures and to the axiomatic approach, including elements of linear algebra. Designed for teachers and prospective teachers. Students who have passed Math 435 may not schedule this course.

Prerequisite: Math 311W (Concepts of Discrete Mathematics)

Grading Policy: We will have two in-class midterm exams (100 points each), a third (comprehensive) final exam which will be given during the final exam period (150 points), and homework and quizzes (150 points) for a total of 500 points. Grades will be assigned on the following percentage basis: 90-100 A; 80-89 B; 70-79 C; 60-69 D; 0-0-59 F. Plus and minus grades will be determined within these ranges; in general, the lowest three percentage points of a range will be minus, and the highest three percentage points of a range will be a plus.

Textbook: Lindsay Childs, A Concrete Introduction to Higher Algebra, Springer Undergraduate Texts in Mathematics, third edition.

Course Syllabus: We will pretty closely follow as many parts of the text as time permits. In particular, we hope to at least cover most of the first 12 chapters, perhaps skipping parts of Chapter 8.

Academic Integrity: All Penn State Policies regarding ethics and honorable behavior apply in this course.

Students with Disabilities: Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The Office for Disability Services (ODS) Website provides contact information for every Penn State campus: http://equity.psu.edu/ods/dcl. For further information, please visit the Office for Disability Services Website: http://equity.psu.edu/ods.

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: http://equity.psu.edu/ods/doc-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodation.

Class Attendance: Although regular classroom attendance will not figure into your grade in a tangible way, I strongly encourage your regular attendance in this class. It should be obvious that attending all classes is beneficial to you. Seeing the material presented in a lecture is extremely helpful as the presentation will often be different than the text in order to clarify and enhance the reading assignments. Having questions answered in class (as well as hearing other students' questions) is also a benefit. Material not present in the text may be presented in class: You will be held accountable for this material on exams. Finally, regular attendance demonstrates good stewardship of your time and money.

PLEASE NOTE: COURSE ASSIGNMENTS BEGIN ON THE NEXT PAGE!

MATH 470 Assignments, Fall Semester 2013

1. **Due Friday, August 30**: Pages 13 and 14 of *A Concrete Introduction to Higher Algebra*, problems 2, 5, 6, 8, and 14.

2. **Due Friday, September 6**:
   Page 18, Problems 26 and 27
   Page 21, Problems 32 and 35
   Page 24, Problems 36 and 37

PLEASE NOTE: MID-TERM EXAMS WILL BE ON FRIDAY, SEPTEMBER 27* AND FRIDAY, NOVEMBER 8

3. **Due Friday, September 13:**
   Page 28, Problem 2
   Page 32, Problems 7, 9 and 14
   Page 34, Problems 19, 22 and 23

4. **Due Friday, September 20**:
   Page 43, Problems 45 and 53
   Page 47, Problems 57, 60 and 63
   Page 56, Problems 2, 3 and 6
   Page 58, Problem 10

5. **Due Wednesday, OCTOBER 2***:
   Pages 73-74: Problems 2, 4, and 7
   Pages 77-78: Problems 10, 12, 15, and 21

   *Please note: These are corrected dates!

6. **Due Friday, October 4**
   Page 88: Problems 44 (i) (ii) (v); 45 (i) (ii) (v); 47 and 48
   Page 100: Problems 1 and 2

7. **Due Friday, October 11**
   Page 105: Problems 3, 4, 5, 8(i), 8(ii), 8(iv); 9, 10
   Page 108: Problems 17(i) and 17(ii); 27(i)

8. **Due Friday, October 18**
   Page 130: Problems 1, 3, 5, 7 and 9

9. **Due Friday, October 25**
   Pages 138-139: Problems 21, 22, 24, 33 and 35
   Page 146: Problems 40 and 44

10. **Due Friday, November 1**

Page 174: Problems 1, 2, 8, 9 and 10
Page 177: Problems 17, 19, 27 and 30

11. MID-TERM FRIDAY, NOVEMBER 8

12. **Due Friday, November 15**

Pages 226 & 227: Problems 1, 2, 8 (ii), 8 (iii), 8 (v) and 9.
For problem 9, the definition of "F9" is given in problem 35 on page 139.