

Campbellsville University
MTH 401-01
Modern Algebra

TEXTBOOK: Abstract Algebra 5th edition by Hillman and Anderson

INSTRUCTOR: Chris Bullock

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OFFICE HOURS: MWF 11-12, 1-2 and TR 11-12:15 or by appointment

1. DESCRIPTION OF COURSE: This course includes elements of number theory, groups, rings, and the historical development of modern algebra. Prerequisite: MTH 310 or consent of instructor. Students must have upper division standing.

2. STUDENT LEARNING OBJECTIVES: Students will gain an understanding of algebraic structures, one of the most important fields in modern mathematics. Students will demonstrate critical thinking skills as they analyze properties of abstract structures such as groups and rings. In this upper division mathematics course, students will construct and communicate in writing logical arguments using appropriate mathematical language and terminology (Mathematics program goal 2, assessed by homework and exams).

3. COURSE OUTLINE: Topics to be covered include:

Chapter 1: Elements of number theory

Chapter 2: Groups (definition, permutation groups, cyclic groups, symmetry groups, subgroups, normal subgroups, quotient groups)

Chapter 3: Sets and Functions (group homomorphisms, isomorphisms, automorphisms)

Chapter 4: Rings and Fields (definitions, integral domains, ring homomorphisms and isomorphisms)

4. EVALUATION: There will be a total of four tests including a final exam. Each test will be worth 100 points. Also, there will be a homework grade worth 100 points. Thus, there will be a total of 500 attainable points in this class. The grading scale will be as follows:

90-100% A

80-89% B

70-79% C

60-69% D

0-59% F

Homework will be assigned and graded after almost every class meeting. The percentage of earned points out of the total points will be recorded for each assignment. At the end of the semester, these homework grades will be averaged

to get the final 100-point homework grade. This grade will then be averaged with the four test grades to obtain the final grade for the class.

5. REQUIREMENTS: The tentative dates for the exams are as follows:

Exam #1: Feb 9

Exam #2: Mar 6

Exam #3: Apr 10

Final: Wednesday, May 6 from 8-9:30

These dates are the planned dates for the exams, but these dates are subject to change depending upon weather and other unpredictable factors.

6. BOOKLIST: Abstract Algebra: A First Undergraduate Course 5th ed. by Hillman and Alexanderson (required)
Elements of Modern Algebra 5th ed. by Gilbert and Gilbert
Abstract Algebra: An Introduction 2nd ed. by Hungerford

7. ATTENDANCE: Campbellsville University has an attendance policy which states that a student who misses two weeks worth of a class (for any reason) receives a warning. Thus, any student missing 6 class periods in this class will receive a warning. Any student who misses four weeks worth of a class (for any reason) is automatically withdrawn from the class with a failing grade. Thus, any student missing 12 class periods in this class will be withdrawn from the class. PLEASE NOTE THAT, BY THIS POLICY, ANY ABSENCE COUNTS, WHETHER EXCUSED OR UNEXCUSED.

Attendance will be recorded by me every class period at the beginning of class. If you are late for class, you will be counted as absent. Also, if you leave class early, leave your seat, disrupt class, or distract anyone else in class by talking, you will be counted absent. The actions above show disrespect for others in class and thus will be penalized as noted.

You must notify me in advance if you are going to miss a test. You may contact me by phone or by e-mail. Make-up exams are possible if I am notified in advance and if I think the excuse is reasonable.

8. DISABILITIES: Campbellsville University is committed to reasonable accommodations for students who have documented physical and learning disabilities, as well as medical and emotional conditions. If you have a documented disability or condition of this nature, you may be eligible for disability services. Documentation must be from a licensed professional and current in terms of assessment. Please contact the Coordinator of Disability Services at 270-789-5192 to inquire about services.

If you have a documented disability, you must provide the instructor with the paper from Disability Services. At that time, the instructor will give you a copy of the mathematics department disability guidelines.

9. EMERGENCY PHONE NUMBERS:
Security Cell Phone: 270-403-3611
Security Office Phone: 270-789-5556