

Andrews University  
**MATH 123 Algebra 2**  
**Fall - Spring 2012**

**Instructor**

Sinclair Johnston, 120 Sunshine Hall  
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Social Media: <https://www.facebook.com/sinclair.johnston>  
Office hours: 10:00-12:00 MWF, 3:30-5:00 TR

**Time and Place**

2:00-3:15 MW, 114 Sunshine Hall

**Course description**

Prerequisite: MATH122 Algebra 1  
Bulletin description: Selected topics in algebra, including logic, set theory, relations, functions, algebraic structures and graph theory.

I will teach the course primarily by lecture, but I will interact with you by asking questions, quizzing you on definitions and fundamental concepts, soliciting your help in developing proofs, and probing your understanding. I expect you to be an active learner during class by arriving on time each day, taking notes, asking questions, responding to my questions, and working problems and proofs with me and your classmates. Outside of class you can study with a friend or see me or a tutor for help.

It is very important for you to read the textbook and do your homework conscientiously. I will assign, collect, and grade homework almost every class period. Be sure to show your work clearly, explain your answers, and use correct mathematical notation. Write complete proofs with justifications, correct notation, and good style. You should restudy the parts you missed and correct your mistakes.

**Goals**

Students will:

- learn basic concepts of Algebra 2.
- learn to read and understand and solve mathematical expressions.
- improve in their ability to write clear, correct proofs using good style and appropriate notation.
- become more confident in their ability to work with abstract mathematical concepts.
- be prepared for further study of mathematics.

To accomplish these goals, the following topics will be studied:

- mathematical logic, including truth tables, conditional and biconditional statements, connectives, and quantifiers
- methods of proof, including contrapositive, contradiction, induction, cases, and methods involving quantifiers
- set theory, including set operations

- functions and relations, including equivalence relations and partitions
- properties of integers and applications of number theory, including RSA encryption
- basics of counting and the pigeonhole principle
- algorithms, graph theory, or other selected topics as time permits

### **Textbook & Resources**

Textbook (required): Saxon, Algebra 2

Textbook web site: <http://www.christianbook.com/saxon>

Help web site: [sinclairjohnston.com](http://sinclairjohnston.com)

### **Help**

*Office Hours:* 10:00-12:00 MWF, 3:30-5:00 TR

I am happy to make appointments for other times.

*Tutoring.* Math Center, 112 Sunshine Hall

4:00-8:00 pm, Monday – Thursday

*Disabilities.* We accept and appreciate diversity in our students, including students with disabilities. If you have a documented disability, would like to be evaluated, or would like to discuss accommodations, please talk with me and the principle.

### **Grading system**

15% Homework

5% Quizzes

60% Three unit tests

20% Final exam

100% Total

### **Attendance**

Regular attendance is expected. An excessive number of absences may result in a failing grade. During class please turn off all electronic devices unless required for class participation.

### **Homework**

I will assign and collect homework frequently. The assignments and due dates will be announced in class and posted on facebook. If you make an honest effort to do the homework but your work shows that you didn't understand it, I may ask you to redo your paper. Please be neat and show your work appropriately -- sloppy or incomplete papers may be rejected with no credit.

Late homework will not be accepted except for special cases or at my discretion. Your two lowest homework scores will be dropped. The main purpose of the throw outs is to allow for excused absences, but they provide mercy for unexcused circumstances too. Exceptions to this late homework policy may be considered (but not guaranteed) for required school-sponsored trips and extended absences due to illness or other situations.

### **Quizzes**

Occasionally I will give a quiz, often at the beginning of class. Quizzes may or may not be announced in advance. No make-up quizzes will be given but your two lowest quiz scores will be dropped.

### **Tests**

We will have unit tests and a final exam. If you miss a test due to a school-sponsored trip, illness, or other circumstances beyond your control, you may request an excused absence by contacting me *in advance or as soon as possible after the test, preferably the same day as the test. In the case of school-sponsored trips, please contact me a week in advance.* Please give me a written explanation. If I excuse your absence, I will give you a make-up test or use your final exam score for the missed test.

### **Calculators**

You may use a scientific or graphing calculator for all homework, quizzes, and tests unless otherwise instructed. Even though you use a calculator, you should show your work or explain how you obtained your results.

### **Academic Integrity**

I expect you will demonstrate your ability to think clearly and exhibit personal and moral integrity in every sphere of life. In this course, you may work together on homework but simply copying another person's work is prohibited. Cheating on homework, quizzes, or tests will result in a grade of zero on the assignment or test and possibly a failing grade in the course.