

# MATH 101-04

## COLLEGE ALGEBRA

**Meets:** Tuesday/Thursday **Time:** 9:00-10:15

**Room:** 413

### INSTRUCTOR CONTACT INFORMATION AND OFFICE HOURS

**Instructor:** Shannon Gracey **Phone:** 619-421-6700 ext. 5517 **e-mail:** [sgracey@swccd.edu](mailto:sgracey@swccd.edu)

**Course Website:** [www.swccd.edu/~sgracey](http://www.swccd.edu/~sgracey)

**Office:** Room 320E, M/W 10:15-11:45, T/TH 10:15-10:50, or you may make an appointment by calling or e-mailing me, using the contact info written above.

### COURSE MATERIALS

**Text:** *College Algebra, Graphs and Models, 3<sup>rd</sup> ed.*, Bittinger, Beecher, Ellenboge, and Penna

**Calculator:** A graphing calculator is required. The TI 84 plus graphing calculator is recommended

### PREREQUISITES AND RECOMMENDED PREPARATION

**Prerequisite:** Satisfactory completion of MATH 65; or higher-numbered math course; or the equivalent skill level as determined by the Southwestern College Mathematics Assessment

**Recommended Preparation:** Satisfactory completion of ENGL 158 or the equivalent skill level as determined by the Southwestern College Reading Assessment

### POWER STUDY SESSION (SUPPLEMENTAL INSTRUCTION)

The Power Study Program is a pilot program offered by the Academic Success Center (ASC). Power Study Sessions are group study sessions directed by a student facilitator that integrate how to learn with what to learn. A Power Study leader will conduct a study session twice a week (schedule TBA). This session will provide an opportunity to review further example problems, work in groups to tackle problems similar to those assigned, and to address study skills and techniques particularly suited to the learning goals of a challenging college class.

### QUESTIONS

Questions are an important part of the learning process. If you have a question, please feel free to ask me at any time! If you have a question, there are probably at least 5 other students with the same question. If I cannot answer your question immediately, I will come back to it ASAP.

### HOMEWORK

Homework will be collected on exam and quiz days at the beginning of the class. Homework is graded on completeness. Each new assignment must be started on a new paper, be clearly labeled with the chapter, section, and assignment, and stapled. In order to be successful in this course, **YOU MUST PRACTICE MATH PROBLEMS!!! No late homework will be accepted.**

### QUIZZES & EXAMS

Quizzes will typically be given at the end of each odd chapter. There will be at least 3 quizzes. No quizzes will be dropped, however your lowest quiz score may be replaced by your attendance percentage. Exams will typically be given at the end of each even chapter and will also cover the previous odd chapter. No exams are dropped, however your lowest exam score may be replaced by your earned homework percentage.

### ATTENDANCE & TARDIES

Each student is responsible for his/her registration in classes. Each student must attend the first class meeting or make arrangements with the instructor if he/she is going to be absent. Failure to attend the first class meeting or excessive unexcused absences, that is, more than 6 hours of missed class time, may result in a student being dropped from this class. Each class you will be given 2 points if you arrive on time and stay for the entire class, 1 point if you arrive late or leave early, and 0 points if you are absent. At the end of the semester this percentage  $\{(earned\ points)/(points\ possible)\} \times 100$  will replace your lowest quiz score.

## DISABILITY SUPPORT SERVICES (DSS)

DSS provides programs and services for students with disabilities. Southwestern College recommends that students with disabilities discuss academic accommodations with their professors during the first two weeks of class. This syllabus and course handouts are available in alternate media upon request.

## ACADEMIC SUCCESS CENTER REFERRAL

To further your success, reinforce concepts, and achieve the stated learning objectives for this course, I refer you to Academic Success Center learning assistance services. You will be automatically enrolled in NC 3: Supervised Tutoring, a free noncredit course that does not appear on your transcripts. Services are located in the ASC (420), the Writing Center (420D), the Reading Center (420), Math Center (426), the Library/LRC Interdisciplinary Tutoring Lab, MESA (396), specialized on-campus School tutoring labs, the Higher Education Center, and the San Ysidro Education Center. Online learning materials and Online Writing Lab (OWL) are available at [www.swccd.edu/~asc](http://www.swccd.edu/~asc).

## BEHAVIOR

- **CHEATING ON ANY TEST OR QUIZ WILL EARN A GRADE OF F!!! PLAGIARISM (COPYING) OF OTHER PEOPLE'S WORK IS NOT ACCEPTABLE.** Any person caught doing this will get an F on the assignment or test in question and can also potentially be given a grade of F for the course and/or be referred to the college discipline process.
- You may not use your cell phone or PDA as a calculator on exams.
- During class your cell phone/pager should be off.
- If you know you need to leave class early, take a seat near the door.
- **RESPECT YOUR FELLOW STUDENTS AT ALL TIMES!!!**

## GRADING

Exams (4—MAKE-UPS ARE GRANTED ONLY IF I AM NOTIFIED <u>BEFORE THE EXAM</u> ) .....	50%
Quizzes (3—MAKE-UPS ARE GRANTED ONLY IF I AM NOTIFIED <u>BEFORE THE EXAM</u> )...	20%
HOMEWORK (NO LATE ASSIGNMENTS ACCEPTED).....	5%
Final (CUMULATIVE).....	25%

A: 90%—100% B: 80%—89% C: 70%—79% D: 60%—69% F: 59% and below

*Final grades are left to the discretion of the instructor.*

## STUDENT LEARNING OBJECTIVES

1. Student will solve linear and absolute value equations and inequalities.
2. Student will find the domain, inverse (if it exists) and graph the following: polynomial, rational, exponential, and logarithmic functions.
3. Student will find the sum, difference, quotient, product of two functions and the resulting domain.
4. Student will find the composition of two functions and the resulting domain.
5. Student will solve polynomial, rational, exponential, and logarithmic equations and inequalities and apply these methods in solving word problems.
6. Student will solve systems of linear equations using the augmented matrix method.
7. Student will apply the binomial expansion theorem.
8. Student will recognize and find the sum of an infinite geometric series when the absolute value of the common ratio is less than one.
9. Student will recognize and graph conic sections.
10. Student will input data and use a graphing calculator to find the appropriate regression.

\*As a final note: To be successful in this course, it is recommended that you spend 2 hours outside of class for every hour in class.

## Chapter 1: Graphs, Functions, and Models

- 1.1 Introduction to Graphing
- 1.2 Functions and Graphs
- 1.3 Linear Functions, Slope, and Applications
- 1.4 Equations of Lines and Modeling
- 1.5 More on Functions
- 1.6 The Algebra of Functions
- 1.7 Symmetry and Transformations

## Chapter 2: Functions, Equations, and Inequalities

- 2.1 Linear Equations, Functions, and Models
- 2.2 The Complex Numbers
- 2.3 Quadratic Equations, Functions, and Models
- 2.4 Analyzing Graphs of Quadratic Functions
- 2.5 More Equation Solving
- 2.6 Solving Linear Inequalities

## Chapter 3: Polynomial and Rational Functions

- 3.1 Polynomial Functions and Models
- 3.2 Graphing Polynomial Functions
- 3.3 Polynomial Division; The Remainder and Factor Theorems
- 3.4 Theorems about Zeros of Polynomial Functions
- 3.5 Rational Functions
- 3.6 Polynomial and Rational Inequalities
- 3.7 Variation and Applications

## Chapter 4: Exponential and Logarithmic Functions

- 4.1 Inverse Functions
- 4.2 Exponential Functions and Graphs
- 4.3 Logarithmic Functions and Graphs
- 4.4 Properties of Logarithmic Functions
- 4.5 Solving Exponential and Logarithmic Equations

- 4.6 Applications and Models: Growth and Decay, and Compound Interest

## Chapter 5: Systems of Equations and Matrices

- 5.1 Systems of Equations in Two Variables
- 5.2 Systems of Equations in Three Variables
- 5.3 Matrices and Systems of Equations
- 5.4 Matrix Operations
- 5.5 Inverses of Matrices
- 5.6 Determinants and Cramer's Rule
- 5.7 Systems of Inequalities and Linear Programming
- 5.8 Partial Fractions

## Chapter 6: Conic Sections

- 6.1 The Parabola
- 6.2 The Circle and the Ellipse
- 6.3 The Hyperbola
- 6.4 Nonlinear Systems of Equations and Inequalities

## Chapter 7: Sequences, Series, and Combinatorics

- 7.1 Sequences and Series
- 7.2 Arithmetic Sequences and Series
- 7.3 Geometric Sequences and Series
- 7.4 Mathematical Induction
- 7.5 Combinatorics: Permutations
- 7.6 Combinatorics: Combinations
- 7.7 The Binomial Theorem
- 7.8 Probability

