**Prairie State College**

You can find the final exam and withdrawal date info on the PSC website; search for “final exam schedule” and “academic calendar”

**Math 151- Sec # College Algebra**

**Syllabus**

**Term:** Semester/Year **Delivery Mode:** Face-to-Face **Credit Hours:** 4

**Meeting Times** Days/times, Main Campus, Room Room#

**Instructor** Your name **Phone**: ??? (may delete if don’t have direct PSC line)

**Email** Your PSC email

**Office Hours** List times available or put “by appointment”; give location

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| **Prerequisite** | MATH 095 (Intermediate Algebra) and Math 096 (Geometry), both with at least a "C"  or  MATH 095 and one year of high school Geometry, both with at least a “C”  or  qualifying score on the Math Placement Test |
| **Course Description** | This course extends on the concepts previously studied in Intermediate Algebra. Course material is approached both algebraically and graphically. The graphing calculator is used extensively. Topics covered include linear, quadratic, polynomial, rational, exponential, and logarithmic functions and their applications. |
| **College-wide General Education Learning Outcomes** | Prairie State College’s general education outcomes encapsulate the core knowledge and skills that we believe equip students to develop personally, as critical thinkers, and as global citizens.  The specific general education learning outcome for this course is:  **Problem Solving:** Students will locate and identify information, determine what problem exists, develop solutions, evaluate results, and extend results to new situations. |
| **Textbook** | College Algebra: A Concise Approach; Paul Sisson; ISBN: 9871935782049 |
| **Required Materials** | Hawkes lifetime access code for College Algebra (access code comes with textbook or can be  Learning Software purchased separately on hawkeslearning.com)  Graphing calculator (TI-83 or TI-84 is highly recommended) |
| **Homework and Quiz Due Dates** | Homework is assigned at almost every class meeting (see course calendar) and is completed using Hawkes. Each homework assignment is due the **Sunday (11:59 p.m.)** after it is assigned and is worth 5 pts (specify values or that they are equally weighted). Quizzes will be given approximately once every week, for a total of 9 (see course calendar). Each quiz is worth 25 points (specify value s or that they are equally weighted) |
| **Homework Policy** | All homework is graded using a mastery approach. For the Hawkes sections, if you get over a certain percentage (usually 80%) correct, you will receive credit for the assignment. If you do not reach the required level, you will not get credit for the assignment, but you can practice and then try “Certify” again as many times as you want until the due date. |
| **Methods of Evaluation** | Homework 20%  Quizzes 15%  Exams 40%  Final Exam 25%  Your lowest 2 homework assignments and 2 quizzes will be dropped |

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| **Grading Scale** | Grades will be rounded to the nearest whole percent  A: 90%-100% B: 80%-89% C: 70%-79% D: 60-69% F: 0%-59% |
| **Attendance Policy** | Your participation in this class is crucial for your success; attendance will be taken at each class meeting. Students who miss class are responsible for content covered and for any information given out in class; please consult the class schedule to find out what you missed. If you miss class and do not take the time to learn the material you missed before the next class, you will inevitably be lost. |
| **Make-up Quiz/Test Policy** | **Make-up exams and quizzes are not given, except in emergency situations with appropriate documentation.** |
| **Final Exam** | The cumulative final exam will be on FinalDate/Time |
| **Student Success Center & Peer Tutoring** | Please feel comfortable coming to me for help in this class. For additional help, please visit the Student Success Center (2nd floor). **FREE TUTORING** isavailable to you on both a walk-in basis as well as by appointment. You can schedule a tutor by going to room 2643 or calling Hattie at 708-709-3663 or Lisa at 708-709-3507. |
| **Web availability** | **All of your homework will be completed using Hawkes Learning Systems!** You can access the homework on any computer with an internet connection – there are computers labs on campus available to you in the library, Learning Achievement Center and Student Success Center. |
| **Course Information** | You can find further information about this course, such as the review for the final exam, on the Math Department Math 151 webpage <http://prairiestate.edu/academics/academic-programs/mathematics/courses/math-151>.aspx |
| **Academic Honesty** | In a Math class, it is extremely important that the work you present to your instructor is genuinely something that you have produced.  Relying heavily on other people and/or technology can create a false sense of achievement that ultimately leads to failure on quizzes and tests when those resources are no longer available.  Part of my role as instructor is to communicate to you in what situations use of technology, such as a calculator, website or app, is acceptable, and when it is not.  In general, the use of any technology that allows students to simply type in a problem and have the entire problem solved for them is prohibited. You can add to the statement here. Make sure you spell out exactly what your expectations are for your particular class and what the penalty is for breaking them. |
| **Civility Statement** | Class discussion is **strongly** encouraged; however, disruptive talk and other inappropriate classroom behavior will be strictly forbidden. As a courtesy to those around you and also to your instructor, use of electronics such as cell phones (especially texting), tablets and music players in class will be strictly forbidden. |
| **Accommodations** | Your success in this class is important to me. If you have a disability (learning, physical, psychological, or other) that may require some accommodations or modifications in procedures, class activities, instructions, or requirements, please contact me early in the semester, so I can refer you to the Disability Services Office (Room 1192) to register and arrange reasonable accommodations. All discussions are confidential. |
| **Religious Observance** | Prairie State College is required to excuse students who need to be absent from class, examinations, study, or work requirements because of their religious beliefs, and provide students with a make-up opportunity, unless to do so would unreasonably burden the institution. Students must notify their instructor well in advance of any absence for religious reasons. If you require special accommodation for observance of a religious holiday, please notify me during the first week of the term. |

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| **Keys to Success in This Course** | *Assuming that you have the prerequisites knowledge for this course*, your success depends on your willingness to exert sufficient effort. **This means a minimum of 8 hours of study (outside of class) per week**. Specifically to succeed in this course you must:   1. Attend every class (arrive on time, and remain engaged in the class for the entire time) 2. Take notes 3. Participate in every class in ways that are beneficial to your learning 4. Work on your homework every day 5. Help your peers 6. Communicate with me when there is a problem 7. Seek help as soon as the need arises |

Math 151-Section# Class Schedule

**Homework is due by 11:59 on the Sunday after it is assigned.**

**This schedule is subject to change**

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| **Date** | **Schedule** | **Homework** | **HW Due Date** |
| Add rows for | Intermediate Algebra Review §§ 1.3a, 1.5, 1.6, 2.1a, 2.1b, 2.3, 3.2, 3.3 | (may assign a handful of most critical review sections or create review handout) |  |
| holidays/breaks so | § 4.1 Relations and Functions | Sec 4.1 |  |
| students are clear on | **Quiz 1 (Review)** § 4.2a Linear and Quadratic Functions | Sec 4.2a |  |
| when they occur | **Quiz 2** § 4.2b Max/Min Applications of Quadratic Functions | Sec 4.2b |  |
| You can add rows | § 4.3a Other Common Functions | ----- |  |
| by highlighting | **Quiz 3** § 4.3a (continued) § 4.4 Transformations of Functions | Sec 4.3a |  |
| a row and right clicking | § 4.4 Transformations of Functions | Sec 4.4 |  |
| to Insert a row | **Quiz 4** § 4.5 Combining Functions | Sec 4.5 |  |
|  | § 4.6 Inverses of Functions | Sec 4.6 |  |
|  | Catch-up/ Review for Test 1 | Study! |  |
|  | **Test 1** | ----- |  |
|  | § 5.1 Intro to Polynomial Equations and Graphs | ----- |  |
|  | § 5.1 Intro to Polynomial Equations and Graphs | Sec 5.1 |  |

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| **Date** | **Schedule** | **Homework**  **(all on Hawkes)** | **HW Due Date** |
|  | **Quiz 5** § 5.2 Polynomial Division and the Division Algorithm | Sec 5.2 |  |
|  | § 5.3 Locating Real Zeros of Polynomials | Sec 5.3 |  |
|  | **Quiz 6** § 5.4 The Fundamental Theorem of Algebra | Sec 5.4 |  |
|  | § 6.1a Rational Functions | Sec 6.1a |  |
|  | **Quiz 7**  § 6.1b Rational Inequalities | Sec 6.1b |  |
|  | Catch-up/Review for Test 2 | Study! |  |
|  | **Test 2** | ----- |  |
|  | § 7.1 Exponential Functions and Their Graphs | Sec 7.1 |  |
|  | § 7.2 Applications of Exponential Functions | Sec 7.2 |  |
|  | § 7.3 Logarithmic Functions and Their Graphs | Sec 7.3 |  |
|  | **Quiz 8** § 7.4 Properties and Applications of Logarithms | Sec 7.4 |  |
|  | § 7.5 Exponential and Logarithmic Equations | ------ |  |
|  | **Quiz 9** § 7.5 Exponential and Logarithmic Equations | Sec 7.5 |  |
|  | Catch-up/Review for Exam 3 | Study! |  |
|  | **Test 3** | ------ |  |
|  | § 8.1 & 8.2 Systems and Matrices | Sec 8.1 |  |
|  | § 8.1 & 8.2 Systems and Matrices | Sec 8.2 |  |
|  | Final Exam Review | Study! |  |
| Date of Final | **FINAL EXAM Time of Final** | ------ |  |

Math 151 Course Objectives

1. Determine whether a relation is a function. Given a graphical, tabular, or algebraic representation for a function (possibly a piecewise-defined function), evaluate the function and find its domain and range.

2. Given an algebraic representation of a function, evaluate the function using variable inputs (such as x − 1, x + h, etc.), and simplify difference quotients involving the function.

3. Graph an algebraically defined function by plotting points (including the intercepts) and using calculator technology. [Students should be familiar with the graphs of basic functions: x, x2,x3, |x|, 1/x, mx + b, , .]

4. Given the graph of y = f(x), sketch the graph of y = f(x) + c, y = f(x + c), y =

cf(x), or y = f(cx). Also know how the algebraic representation of a function is affected by translations, reflections, compressions, or stretches of its graph.

5. Solve application problems by using functions to model problem situations.

6. Use the graph of a function to find extreme values and to find intervals on which the function is increasing/decreasing. Use algebraic techniques to find

the maximum or minimum value of a quadratic function.

7. Given two functions f and g, simplify and evaluate the composition f ◦ g.

8. Determine if a function has an inverse function. Given a graphical, tabular, or algebraic representation for a function, find the corresponding representation for the inverse function.

9. Solve polynomial and rational inequalities algebraically and graphically.

10. Use factoring and other algebraic techniques to find the real and non-real zeros of a polynomial. [The algebraic techniques may include long division,

synthetic division, the quadratic formula, Descartes’ rule of signs, the rational zeros test, etc. The graphing calculator may also be used in conjunction with algebraic techniques.]

11. Recognize that non-real zeros of a polynomial with real coefficients occur in complex conjugate pairs. Find a polynomial with real coefficients given some (or all) of its zeros.

12. Sketch, in detail, the graph of a polynomial and demonstrate a conceptual understanding of turning points, end behavior, intercepts, and the relationship between the shape of the graph and the number and multiplicity of the polynomial’s zeros.

13. Use algebraic techniques to sketch the graph of a rational function. These techniques include, but are not limited to, finding x- and y-intercepts; finding horizontal, vertical, or slant asymptotes; constructing sign charts; and plotting points.

14. Sketch and interpret the graphs of logarithmic and exponential functions.

15. Use the properties of logarithms to expand and simplify logarithmic expressions and to algebraically solve logarithmic equations.

16. Algebraically solve exponential equations.

17. Solve application problems involving exponential growth or decay.

18. Use the graphing calculator to approximate solutions of equations.

19. For a given set of data, use the linear regression capabilities of the graphing calculator to find the line of best fit and the corresponding linear correlation coefficient. Use the results for prediction and interpretation.

20. Solve 2×2 and sparse 3×3 systems of linear equations by using any method except the calculator.

21. Solve systems of linear equations by using augmented matrices and Gauss-Jordan elimination. Recognize when an augmented matrix is in reduced row-echelon form and interpret the reduced form. [Students may use their calculators to reduce augmented matrices.]

22. Solve application problems involving systems of linear equations.