| Instructor Syllabus | NorthWest Arkansas Community College | Spring 2005 |
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**Division of Science, Math, Aviation, Regulatory & Technology**

**ACSK 0103 - 21254** ***Intermediate Algebra (Late Start)***

**Monday and Wednesday 1:00 – 2:45 p.m. BH 1136**

**Contact**: 986-6906, ACSK Mathematics Lead Faculty; 986-6900, Secretary


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| **Instructor** | Evelyn Samuel |
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**Catalogue Description**: This developmental algebra course covers exponents and radicals, systems of linear equations and inequalities, radical and quadratic, and rational equations and compound inequalities in one variable, line graphs and parabolas, function concepts including domain and range, and interwoven problem solving. Graphing calculator use. Upon successful completion, a student may take MATH 1204, College Algebra or MATH 2043, Survey of College Mathematics.

**Prerequisite:** Beginning Algebra (ACSK 0023) with a grade of C or better, or minimum placement score: COMPASS Algebra - 41 & Prealgebra–39, or ACT Math–17.

**Credit/Contact/ Load Hours:** 3 credit hours, none counting toward any degree requirements.

**Target Audience and Transfer:** This course is intended for college students who have had considerable algebra instruction, and for those students needing a review of high school algebra concepts to strengthen skill in preparation for college algebra study. Intermediate Algebra is a non-transfer course.

**Academic Skills Program:** Through placement and advisement, academic skills courses (ACSK) are prerequisites that can be required prior to taking college-level courses at NWACC. Academic Skills courses offer curriculum and instructional methods to match the learner's level of preparedness and to increasingly acknowledge best practices in the field of developmental education. The program goal is to enable learners to acquire competencies needed for success in mainstream college courses and to attain career and life goals.

**Academic Skills Program Assessment:** The Developmental Education Performance Report indicates that students who are successful at Intermediate Algebra succeed in College Algebra at a rate comparable to students placed directly into that course. Grouped statistics on overall student performance are used in faculty discussions on strengthening the learning environment and evaluation.

**Core Course Objectives – Intellectual Development:** Goals for student thinking that encourage intellectual risk, modeling and problem solving, and independent exploration all lead to the Intermediate Algebra course preparing productive workers and citizens with the following skills:

1. Persistence in independent problem solving and departing from rote procedure.
2. Develop communication skills within the context of real applications.
3. Actively explore solutions graphically to clarify algebraic approaches.
4. Gather, organize and summarize data.
5. Apply a variety of symbolic approaches to problem solving.
6. Allow for problems without unique solutions and judge the reasonableness of results.

7. Use technology for exploring, building ideas and as a natural tool for realistic mathematics problems.

**Core Course Objectives –**
**Content**: A student successfully completing Intermediate Algebra, ACSK 0103, will demonstrate these five primary course competencies:

1) Write the equation of a line in slope-intercept form given the y-intercept as an ordered pair and a on the line.
2) Graph any linear equation, including horizontal and vertical.
3) Solve a consistent system of two equations in two variables.
4) Solve a quadratic equation with irrational solutions and reducible radical.
5) Model linear, rational, Pythagorean, and quadratic problems using algebraic process.
6) And, meet all core objectives for Beginning Algebra:
    a. Find the solution of a linear equation
    b. Model a linear problem using algebraic process.
    c. Graph a linear equation in two variables.
    d. Simplify an exponential expression.
    e. Factor a second-degree polynomial .
    f. Meet all core objectives of Prealgebra (see Prealgebra course outline)

**Course Objectives - Additional Content**
**Emphasis:** A student successfully completing Intermediate Algebra, ACSK 0103, will also be able to:

1) Solve a linear inequality in one variable (including compound) and graph the solution on a real number line.
2) Recognize functionality, and find a function's domain (via its graph or formula) and range (via its graph).
3) Evaluate and graph functions.
4) Graph a system of linear inequalities in two variables.
5) Perform operations on radical expressions.
6) Solve any quadratic equation, including those with complex number solutions, via a variety of methods.

**Materials Required:** Textbook, a TI-82, TI-83 or a TI-84 calculator, loose leaf paper, graphing paper, ruler, pen, pencil, eraser and a 3-ring binder to insert classroom notes, homework papers and graded quizzes/tests.

**Attendance:** An extra credit of 1/2 point for every day that you are in class will be awarded. In the extreme case of not being able to attend a particular class you are advised to attempt the homework pertaining to the section(s) you missed.

**Homework:** Will be assigned everyday. Any questions that you may have on homework problems will be reviewed and discussed at the beginning of the next class.

**Quizzes & Tests:** **8 quizzes** will be given during the course of the semester. Each of these quizzes will be worth **25** points and the best 6 scores taken. 5 points on each of these quizzes will come from homework problems (you will not be allowed to work these out in class).
**You will not be allowed to makeup a quiz.**

**3 Tests** will be given during the course of the semester and a **final exam** at the end of the course which will be comprehensive. If you do better on the final exam than on one of the tests, your lowest test score will be replaced with the percent score earned on the final exam. You may replace at most one test score with the final.
**Test makeup is not allowed**.

**Final Exam Attendance is absolutely mandatory**.

All of your work is expected to be neat and legible **with all intermediate steps shown**.

**Scores/Grading Policy:**

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| Quizzes | 6 @ 25 pts. | 150 pts. |
| Tests | 3 @ 100 pts. | 300 pts. |
| Final Exam | | 150 pts. |
| Total | | 600 pts. |

**A** = 90 – 100% (540 – 600 pts.) **B** = 80 - 89% (480 – 539 pts.) **C** = 70 - 79% (420 – 479 pts.)

**D** = 60 - 69% (360 – 419 pts.) **F** = 0 - 59% (0 – 359 pts.)
Any student needs to perform at an overall grade of "A", "B", or "C" to proceed to the next sequenced course; a "D" or "F" letter grade does not signal background skill to succeed at the next level.

**Missed Classes:** If you miss class for any reason including class cancellation due to bad weather it is your responsibility to catch up on the missed material by the next class period. If a quiz or exam is scheduled for a particular class period and the previous class or the day scheduled for the quiz is canceled, come to class prepared to take the exam or quiz in the next class period.

**Important Dates:**
March 21 – 26 -- Spring Break – no classes
April 8 -- Last day to withdraw with a "W"
**Monday, May 9 FINAL EXAM 1:00 – 3:00 p.m.**

**Bad Weather Policy:** Class will only be canceled for bad weather if the administration of the college cancels it. This will be broadcast on local television and radio stations. The most up-to-date information can be obtained by calling the **student hotline at 619-4377**. Information for day classes will be announced by 6:00 am, while information for evening and night classes will be announced by 3:00 pm.

**Special Services:** If you are a student with a disability who will be requesting accommodations, you should contact the Office of disAbility Services at the Student Information Center in the CEF, 619-4384. The director of disAbility Services, Dr.Mike Kirk will meet with you and recommend appropriate accommodations and services after you have submitted the required documentation.

Family Educational Rights and Privacy Act: NWACC is committed to your right to privacy as outlined in the Family Educational Rights and Privacy Act (FERPA)

**STUDENT RESOURCES: ACSK 0103 INTERMEDIATE ALGEBRA**

| *What……* | *Why……..* | *Where……* | *Product info* |
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| **Student Solutions Manual** | Step by step solutions to odd-numbered exercises. | NWACC Bookstore | Prentice Hall |
| **Videotape Series** | Coverage by text sections. Text publisher. | NWACC Library BH | Free check-out |
| **Digitized Lecture Videos** | All the Videos above in digital form | NWACC Library BH, NWACC Bookstore | Free check-out or p |

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| **on CD-ROM** | | | |
| **thPro 5** | Online tutorial software | NWACC Bookstore | Prentice Hall |
| More publisher supports listed pg xv of Preface | Computer tutorials, multimedia and web supports. | Access available in NWACC Learning Lab BH 1109 or Math Café MAT 10 | Prentice Hall |
| Peer and Faculty **tutors** | Discuss specific homework questions, help prepare for exams. | NWACC Learning Lab BH 1109, Math Café MAT 10, and ON-LINE | See Learning Lab W for Schedule and De |
| Texas-Instruments 82 or 83 **Graphing Calculator** | Permits home practice with the graphing calculator. | Go to Cashier's window in BH, then take receipt to Math Secretary, MAT 02 | Semester rental cos<br>TI-82 = $15<br>TI-83 = $30 |

**REQUIRED TEXT: <u>Algebra: A Combined Approach, Second Edition</u>. Martin-Gay. Prentice Hall, Upper Saddle River, NJ: 2003.**

## <u>REQUIRED TOPIC LIST</u> –

<u>Appendices: (D & E are to be fully covered)</u>
**Appendix C–An Introduction to Using a Graphing Utility
Appendix D: Sets and Compound Inequalities
Appendix E: Absolute Value Equations and Inequalities

**<u>Ch 7: Graphs and Functions</u>**
7.1 The Slope-Intercept Form
**Graphing Calculator Explorations: Y=, p 494
7.2 More Equations of Lines
7.3 Introduction to Functions
7.4 Polynomials and Rational Functions
**Graphing Calculator Explorations: Y=, rational functions p 527
7.5 Variation and Problem Solving

**<u>Ch 12: Conic Sections</u>**
12.3 Graphing Nonlinear Functions: $f(x)=|x|$, $f(x)=\sqrt{x}$

**<u>Ch 8: Systems of Equations and Inequalities</u>**
8.1 Solving Systems of Linear Equations by Graphing
**Graphing Calculator Explorations: INTERSECT, p 565
8.2 Solving Systems of Linear Equations by Substitution
8.3 Solving Systems of Linear Equations by Addition
+Chapter 8 Focus on Mathematical Connections: Solving Nonlinear Systems, p 598
8.4 Systems of Linear Equations and Problems Solving
8.7 Systems of Linear Inequalities (include finding vertices)

**<u>Ch 9: Rational Exponents, Radicals, and Complex Numbers</u>**
9.1 Radical Expressions and Functions
9.2 Rational Exponents
9.3 Simplifying Radical Expressions
9.4 Adding, Subtracting, and Multiplying Radical Expressions
9.5 Rationalizing Numerators and Denominators of Radical Expressions
9.6 Radical Equations and Problem Solving
**Graphing Calculator Explorations, INTERSECT, p 704
9.7 Complex Numbers

**<u>Ch 10: Quadratic Equations and Functions</u>**
10.1 Solving Quadratic Equations by Completing the Square
**Graphing Calculator Explorations: INTERSECT, WINDOW, p 744
10.2 Solving Quadratic Equations by Using the Quadratic Formula
10.3 Solving Equations by Using Quadratic Methods (include *rationals*)
10.5 Quadratic Functions and Their Graphs

**Graphing Calculator Explorations: Predicting Transformations, p 790
10.6 Further Graphing of Quadratic Functions

Totals:

25 required sections

+ *at least* 3 graphing calculator activities (see ** topics)

**Optional Sections:** 1.1, Appendix A, Appendix B, Chapter 6, 2.8, 3.4, 3.5, 10.4, 11. 1, 12.1

## Homework Schedule for Intermediate Algebra Spring 2005

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| ***1***<br>**7.1:** 1, 5, 7, 9, 13, 17, 19, 21, 23, 25, 27, 29, 31, 33 | ***15***<br>**9.5:** Odds 1 – 29, 31, 33, 41, 57, 61, 67, 71 |
| ***2***<br>**7.2:** 1, 5, 7, 11, 13, 17, 21, 23, 25, 27, 29, 49<br>Page 510: 9, 10 | ***16***<br>**9.6:** 1, 3, 5, 9, 11, 15, 19, 29, 45, 51, 53, 59, 61 |
| ***3***<br>**7.3:** Odds 1 – 67 | ***17***<br>**9.7:** Odds 1 – 53, 55, 57, 63, 69 |
| ***4***<br>**7.4:** Odds1 – 43 | ***18***<br>**10.1:** Odds 1 – 25, 35, 41, 49, 59, 65, 67, 69 |
| ***5***<br>**7.5:** 1, 5, 7, 11, 13, 17, 19, odds 21 - 47 | ***19***<br>**10.2:** 1, 7, 11, 19, 33, 43, 49, 51, 55 |
| ***6***<br>**8.1:** 1, 3, 7, 19, 21 | ***20***<br>**10.3:**13, 17, 21, 39, 49 |
| ***7***<br>**8.2:** Multiples of 3 from 3 – 33 | ***21***<br>**10.5:** 1, 3, 7, 31 |
| ***8***<br>**8.3:** Multiples of 3 from 3 – 26, 29, 31, 41, 43, 45 | ***22***<br>**10.6:** 1, 3, 5, 9, 11, 13, 15 |
| ***9***<br>**8.3:** Odds 1- 19, 34 | ***23***<br>**12.3:** Graph and list the translations on 9 and 15, list the translations on the rest of the odd problems. |
| ***10***<br>**8.4:** Odds 1 – 41 | ***24***<br>**Appendix D:** 7, 11, 15, 19, odds 21 – 31, 39, 43, 45, 53 |
| ***11***<br>**8.7:** 3, 9, 11, 21, 23 | ***25***<br>**Appendix E:** Odds 75 – 103 |
| ***12***<br>**9.1:** Odds 1 – 67 | |
| ***13***<br>**9.2:** Odds 1 - 85 | |
| ***14***<br>**9.3:** Odds 1 - 71 | |
| **9.4:** Odds 1 - 75 | |

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