

Approaches to Intermediate Algebra at CTCs

Three colleges have developed and offered an Intermediate Algebra course designed for students who will move to several first college-level courses that are not calculus based (for example - Math in Society (Math& 107), Statistics (Math& 146) and Math for Elementary Education (no CCN#)). These three colleges continue to offer, and indeed most students take the traditional Intermediate Algebra course (93 percent of students in Intermediate Algebra at these three colleges took the traditional course – 1,075 students – 77 took the newer course.). The college, courses, fall 2007 enrollments, and catalog description (and in one case the course outcomes) of the two flavors of Intermediate Algebra as shown below.

These 3 colleges and the several others that are working toward offering a second Intermediate Algebra option based their course on the College Readiness Standard for math – see <http://www.transitionmathproject.org/standards.asp>. The newer course excludes the “Extra Expectations:” listed in the standards based on the following information in the standards document:

Most of the College Readiness Standards reflected here represent the basic expectations for the variety of entry-level college math (and other disciplines requiring quantitative reasoning) in Washington two- and four-year public institutions. Students needing to take higher-level math courses when they enter college, especially precalculus and calculus courses will need additional skills and knowledge to be prepared for those courses. These extra expectations are embedded throughout the content standards (standards 4 through 8) and are indicated by blue italicized text to distinguish them from the basic expectations. (From page 2 of the report)

Catalog descriptions of Intermediate Algebra Classes

	Intermediate Algebra pre for students not going to calculus or pre-calculus	Traditional Intermediate Algebra class for any student
Highline	<p>Fall 2007 – not offered</p> <p>MATH 095 Fundamentals of Intermediate Algebra (F, W) 5</p> <p>Prereq: MATH 081, 085, or 091 with min. 1.7. Note: This course is only for students planning to take MATH 107 or PHIL 120. See a full-time math instructor before registering. Graphing calculator required; TI-83/4 recommended.</p> <p>Intermediate algebra taught in context, using Excel to enhance understanding of algebraic concepts. Topics include numeracy (ratio, proportion, unit analysis, scientific notation, large and small numbers, interpreting data); applications of the rectangular coordinate system such as linear, quadratic, or exponential growth; formula use</p>	<p>Fall 2007 – 208</p> <p>MATH 097 Intermediate Algebra (Su, F, W, Sp) 5</p> <p>Prereq: Algebra COMPASS 47 or MATH 091 with min. 1.7. Note: Graphing calculator required; TI-83/4 recommended.</p> <p>Coordinate plane, functions, equations, inequalities, properties of lines, radical expressions, and quadratic equations.</p>

	involving rational and radical expressions; laws of exponents; and systems of equations.	
Pierce	<p>Fall 2007 – 9 students</p> <p>MATH 095 (5) Intermediate Algebra with Modeling</p> <p>Prereq: Satisfactory placement test score or MATH 59 or MATH 60 with a grade of at least 2.0 or instructor permission. Intermediate algebra taught in context, focusing on the use of linear, quadratic power, and exponential functions to model and help solve problems encountered in the real world. Applications may be drawn from the social sciences, biology, ecology, economics, or other disciplines. Technology is used to enhance understanding of algebraic concepts. This course serves as an alternative to MATH 98 (Intermediate Algebra) for students who need only Math 107, Math 281 (Statistics), or selected other quantitative skills courses.</p>	<p>Fall 2007 – 502 students</p> <p>MATH 098 (5) Intermediate Algebra</p> <p>Prereq: Satisfactory placement test score or MATH 60 or MATH 059 with at least a grade of 2.0 or instructor permission Properties of the real number system, polynomials, rational and radical algebraic expressions, linear and quadratic equations, linear inequalities, systems of linear equations, exponents, graphs and applied problems.</p>
Tacoma	<p>Fall 2007 – 68 students</p> <p>MATH 097 Intermediate Algebra for the Liberal Arts (5) (F, W, Sp, Su)</p> <p>An alternative to MATH-099 for students going on to MATH-107, MATH-108 (statistics) or MATH-170 (Math for Elementary Teachers). Topics include linear, quadratic, exponential and logarithmic functions; equations and their applications; systems of linear equations; radical expressions; and scientific notation. Scientific calculator is required. See schedule or instructor for recommended calculator. Prerequisite(s): READ-085 and MATH-090 or assessment above MATH-090.</p> <p>From the syllabus – learning objectives: Upon successful completion of the course, the student will be able to</p> <ol style="list-style-type: none"> 1. Use function notation 2. Understand linear functions from an algebraic, graphical, and numerical perspective 3. Understand, solve, graph, and apply systems of linear equations in 	<p>Fall 2007 – 265 students</p> <p>MATH 099 Intermediate Algebra (5) (F, W, Sp, Su)</p> <p>Algebraic operations and concepts, solving equations and inequalities including quadratic equations, algebraic fractions, exponents, roots and radicals, graphing of linear and quadratic functions, and introduction to logarithms. Scientific calculator required. Prerequisite(s): MATH-090 with a "C-" or better or assessment above MATH-090; READ-085 with a "C" or better or assessment above READ-085.</p> <p>From the syllabus – learning objectives (highlighted items are different than MATH 097</p> <ol style="list-style-type: none"> 1. Use function notation. 2. Understand linear functions from an algebraic, graphical, numeric, and verbal perspective. 3. Use both set builder and interval notation to

	<p>two unknowns, including systems of inequalities.</p> <ol style="list-style-type: none"> 4. Use the algebra of radical expressions. 5. Solve and apply quadratic equations, including use of the quadratic formula. 6. Understand graphical applications of quadratic functions. 7. Use negative exponents and scientific notation. 8. Understand exponential functions from the numerical, graphical, and algebraic perspectives. 9. Understand, graph, and solve simple logarithmic equations. 10. Use the above concepts in applications from the real world 11. Use correct English to write clear explanations of mathematical reasoning. 12. Use a scientific calculator appropriately. 	<p>describe subsets of the real number line, their intersections, and their unions.</p> <ol style="list-style-type: none"> 4. Perform operations on and simplify radical expressions 5. Solve radical equations. 6. Apply and solve quadratic equations, including using the quadratic formula. 7. Understand graphical applications of quadratic functions 8. Use negative exponents, rational exponents, and scientific notation. 9. Use the distance and mid-point formulas. 10. Understand circles from the algebraic and graphical perspectives. 11. Use the above concepts in applications. 12. Use correct English to write clear explanations of mathematical reasoning. 13. Use a scientific calculator appropriately.
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