

COURSE OUTLINE
MT. HOOD COMMUNITY COLLEGE DISTRICT
Gresham, Oregon 97030

* New _____
 * Revised 10/25/06
 * Review only (no changes) _____
 (Date)

* COURSE TYPE Please check appropriate box:

- Lower Division Collegiate
 Occupational Supplementary
 Occupational Preparatory
 Other Education, Including General Ed & Adult Ed

COURSE TITLE Intermediate Algebra w/Right Triangle Trig

COURSE NUMBER MTH 95 COURSE CREDIT 5

* Lecture Hours 4 | _____ Wkly/Term Lab Hours 2 | _____ Wkly/Term Seminar Hours _____ | _____ Wkly/Term

* GRADING STATUS:

- Letter Grade Only
 S/U Only
 Optional
 No Grade

* HEADCOUNT LOADING:

- Yes
 No * Factor _____

Guided Studies Requirement:
 Student must be proficient in:

- Reading (RD90)
 Writing (WR90)
 Mathematics (MTH20)
 Not applicable

| | | |
|--|------------|-----------------|
| For Instruction Office Use Only General Education Category Apply general requirement or distribution to: | | |
| AA _____ | AS _____ | AS/OT-Bus _____ |
| AAS _____ | AGS _____ | |
| VP Approval _____ | Date _____ | |

Mathematics Department 10/25/06

1) Prepared by _____ Date _____

2) Approved by Distance Education Admin. _____ Date _____

3) Approved by Department Chair _____ Date _____

4) Approved by Dean _____ Date _____

5) Curriculum Committee _____ Date _____

6) Approved by VP for Student Learning _____ Date _____

* See legend/definition for explanation

COURSE DESCRIPTION: (for catalog)

This is an interactive, technology-based course, which investigates the connections and interplay among various mathematical topics for both the baccalaureate prep and technical prep student. The function concept is introduced informally. Linear and quadratic functions and their graphs are covered in depth. Other topics include rational exponents, radical and rational equations, linear and non-linear systems and right triangle trigonometry. A heuristic approach to problem solving is emphasized with problem situations modeled numerically, algebraically, and graphically. A graphing calculator is required.

PREREQUISITE:

MTH 65 with a C or better, or suitable performance on the mathematics placement test.

INSTRUCTIONAL MATERIALS REQUIRED OF STUDENT: (text, supplies, etc.)

Text, Graphing Calculator (TI-83 or 84 Plus recommended), Protractor, Ruler with inch and centimeter markings

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to:

1. **Communicate** effectively (orally and in writing) a problem solving process, results, and conclusions using mathematical terminology and correct mathematical syntax.
2. Apply mathematical reasoning and **modeling** to solve problems arising from the real world. Model problem situations using mathematics verbally, numerically, visually, graphically, and/or algebraically.
3. Make **connections** among the various models.
4. Determine if a solution is reasonable and **verify results**.
5. Maintain and strengthen **prerequisites**, especially: linear equations and relationships, unit conversions, properties of integer exponents, solving equations, similar triangles and scale drawings.
6. **Create equations, tables, and graphs** to model patterns and application situations.
7. Use equations, tables, and graphs to **answer questions** about patterns and application situations.
8. Model **linear** application situations numerically, graphically, and algebraically and answer questions using those models.
9. Identify **functions** given in the form of a graph, table, verbal description, and equation, explain why, and identify the independent and dependent variables.
10. Write the **equation of a line** in the following situations: given any two points on the line, given parallel or perpendicular information, and given data to "eye-ball fit".
11. Graph **absolute value functions** by hand and on the calculator.
12. Evaluate numerical expressions involving **fractional exponents** by hand and with the calculator.
13. Simplify an algebraic expression containing **fractional exponents** using the properties of exponents.
14. Algebraically find the line of symmetry, vertical intercept, horizontal intercept(s), vertex and the maximum/minimum value of a **quadratic function**. Use this information to sketch a graph of a quadratic function.
15. Use the relationship between the **factored form of a quadratic function** and the intercepts to write or interpret the equation.
16. Apply **trigonometric** functions and inverses to determine all sides and angles of a right triangle.
17. **Solve equations** algebraically and graphically including: absolute values, fractional exponents or radicals, quadratics (including the quadratic formula), 2x2 systems of linear equations (including substitution and elimination), exponential (graphically only),
18. Solve absolute value and linear **inequalities** graphically and algebraically, expressing solutions symbolically and on a number line.

GENERAL INSTRUCTIONAL METHODS:

The MHCC Mathematics Curriculum emphasizes conceptual understanding, real-world applications, multiple representations of problem situations, making connections, mathematical modeling and mathematical problem solving. This represents a shift away from technique mastery and procedural skills. For students to see mathematics as an integrated whole, the above objectives should be presented in a connected fashion and not treated as discrete topics or concepts.

EVALUATION PROCESS:

Assessment is based on a variety of methods noted below. A cumulative in-class final exam is required. Passing the course with a C or better serves as a prerequisite for Math 105 or Math 111.

- Worksheets
- In-depth application problems
- Projects
- In-class Individual Exams
- In-class Team Exams
- Take-Home Individual Exams
- Take-Home Team Exams
- Writing Assignments
- Daily Homework
- Attendance
- Teamwork/Participation