PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

GEOMETRY/STATISTICS
MATH 1420

Class Hours: 3.0 Credit Hours: 3.0
Laboratory Hours: 0.0 Date Revised: Spring 07

Catalog Course Description:

Recommended for prospective elementary education teachers. Topics include elementary probability and statistics, basic plane and 3-space geometry, congruence and similarity, constructions, transformations, area, volume, surface area and measurements.

Entry Level Standards:

Students must be able to read at the college level.

Prerequisites:

High school algebra I and algebra II and geometry and ACT math score of at least 19; or DSPM 0850 or equivalent math placement score.

Textbook(s) and Other Reference Materials Basic to the Course:

Textbook:
Musser, G. L., Burger, W. F., Peterson, B. E.

Required Supplies:
Scientific calculator with statistical capabilities/fractional capabilities is required. A graphing calculator such as the TI-83 Plus is recommended.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction, Statistical Graphs</td>
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<tr>
<td>2</td>
<td>Analyzing Data: Measures of Central Tendency, Measures of Variation and Normal Distributions</td>
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<tr>
<td>3</td>
<td>Abuses of Statistics, How Probabilities are Determined, and More on Probabilities</td>
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<tr>
<td>4</td>
<td>Review, Test #1</td>
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<tr>
<td>5</td>
<td>Recognizing and Analyzing shapes, and Polygonal Curves</td>
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<tr>
<td>6</td>
<td>Regular Polygons, tessellations, three dimensional shapes</td>
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</table>
Review, Test #2, begin measurement

Length and Area

Surface Area and Volume

Review, Test #3

Transformations

Congruence and Similarity using transformations

Geometric Problem Solving using transformations

Review, Test #4, and Review for Final

Comprehensive Final Exam

II. Course Objectives*:

A. Analyze a given set of data and accurately describe the data by interpreting the significance of the mean, median, mode, and standard deviation. VI. 6

B. Use the basic principles of probability. VI. 1

C. Understand the real life applicability of statistics, probability, and geometry. VI. 3,6

D. Gain experiences in measurement, using metric and standard units. VI. 3, 4

E. Master classifications of 2 and 3 dimensional figures, and know their properties and relationships. VI. 1, 4,5

F. Learn the relevant parts of geometric forms and their measures. VI. 3, 4

G. Understand the different types of transformations and how we use them every day. VI. 3, 4

*Roman numerals after course objectives reference TBR’s general education goals.

III. Instructional Processes*:

Students will:

1. Successfully understand and interpret real world problems. Mathematics Outcome, Transitional Strategies, Active Learning Strategies

2. Successfully use a variety of problem solving strategies, both inductive and deductive reasoning. Mathematics Outcome, Active Learning Strategies

3. Work, either individually or in a group setting, to solve problems from different occupational fields. Solutions must be mathematically correct and be clear and correct in terms of the related occupational field. An example might include using geometric concepts to solve a real life problem that relates to the student’s life or future occupation. Communication Outcome, Mathematics Outcome, Transitional Strategies, Active Learning
Strategies

4. Use calculator and computer technology as problem solving and exploration tools. 
   *Technological Literacy Outcome, Mathematics Outcome, Active Learning Strategies*

5. Use a wide variety of mathematical modeling tools, both virtual and physical, as problem solving and communication tools. *Technological Literacy Outcome, Active Learning Strategies, Communication Outcome, Mathematics Outcome*

6. Keep a journal of real life math problems that are encountered. *Communication Outcome, Active Learning Strategies, Mathematics Outcome*

*Strategies and outcomes listed after instructional processes reference TBR’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

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

1. Solve for the mean of raw data scores and frequency distributions. A
2. Draw a variety of graphs both by hand and on a computer. F
3. Solve for the median and mode of raw data scores. A
4. Solve for the variance and standard deviation of raw data scores and of frequency distributions. A
5. Use calculators and computers as aids in analyzing data F
6. Solve basic probability problems. B
7. Draw probability tree diagrams and see relationships with other diagrams. F
8. Describe points, curves, and planes. F
9. Measure line segments and angles. F
10. Understand definition of all polygons and their classifications. E, F
11. Understand and use the Pythagorean Theorem. E, F
12. Understand what congruence and similarity mean. C
13. Discover and apply definition and properties of parallel lines and transversals. C, F
14. Find the perimeter and area of parallelograms, triangles, trapezoids, regular polygons, and composite figures. E, F
15. Use Numerical relationships in similar figures, ratios and proportions, and triangles. E, F
16. Understand definitions of circles and three dimensional geometry. F
17. Find the surface area and volume of prisms, pyramids, cylinders, cones, and composite figures. F
18. Understand the different types of transformations and symmetries. F
19. Communicate about different methods of solving problems. F
20. Consider data from other areas and subjects F
21. See connections between various geometrical ideas and areas such as science, art, and landscaping F
22. Utilize manipulatives to model math algorithms and problem solving. F

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

   Students are evaluated primarily on the basis of tests, quizzes, homework, and/or a comprehensive final exam. A minimum of five major tests (in addition to the final) is
recommended.

B. Laboratory Expectations:
   Students will be expected to keep a portfolio of all laboratory experiments and projects. The portfolio will serve as a collateral file of future teaching references.

C. Field Work:
   N/A

D. Other Evaluation Methods:
   Excessive absences may lower the final grade.

E. Grading Scale:
   93 – 100  A
   88 – 92   B+
   83 – 87   B
   78 – 82   C+
   70 – 77   C
   60 – 69   D

   Below 60 F

VI. Policies:

A. Attendance Policy:
   Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course (Pellissippi State Catalog). Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:
   Individual instructors must distribute their policies on academic dishonesty and calculator use during the first week of classes.

   In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or a zero for the assignment or (2) an F for the course

C. Accommodations for Disabilities:
   If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751(Voice/TTY) or 539-7153.

Posted: March 15, 2007