Proposed IAI Code M1 903

City Colleges of Chicago
Course Title: Math For Elementary Teachers II
(IAI Code: M1 903 )

Length of course: 16 Weeks

Contact Hours: 4 Contact Hours

Credit Hours: 4 Credit Hours

Lecture Hours: 4 Lecture Hours

Catalogue Description:
This course is a continuation of Math 121. Topics include probability and statistics; lines, angles, polygons, Pythagorean Theorem, circles, solids, areas, volumes, measurements. Applications are included throughout the course. **Problem solving with the use of calculators and computers is emphasized throughout the course.** Writing assignments, as appropriate to the discipline, are part of the course.

Students the Course is Expected to Serve:
This course is intended for students who are elementary or special education majors, and require general education mathematics courses for their undergraduate degree.

Pre-requisites:
Prerequisite -- MATH 121 With a minimum grade of 'C' or Consent of Chair -- or Placement Test --

Course Objectives:
1. Select, apply, and translate among mathematical representations to solve problems.
2. Communicate orally and in writing their mathematical thinking coherently and clearly to peers, teachers, and others.
3. Apply and adapt a variety of appropriate strategies to solve problems, including technology.
4. Make and investigate mathematical conjectures individually and collaboratively.
5. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
6. Gain an understanding and appreciation of the National Council of Teachers of Mathematics (NCTM) curriculum standards.
7. Justify the reasonableness of results for measurements, computations, and estimations.

Student Learning Outcomes:
Upon satisfactory completion of the course, students will be able to:
A. Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatterplots, stemplots, and boxplots.
B. Analyze data using the mean, median, mode, range, standard deviation, and z-score of a data set, with and without technology.
C. Draw conclusions from a given data set.
D. Apply permutations and combinations to a contextual situation.
E. Determine and count the outcomes in an experiment.
F. Apply the addition and multiplication rules of probability.
G. Formulate and apply discrete probability distributions to a contextual situation.
H. Identify mutually-exclusive and independent events from a contextual situation.
I. Identify and describe the properties of one-, two-, and three-dimensional geometric figures.
J. Draw two- and three-dimensional geometric figures, including prisms, pyramids, cylinders and cones.
K. Build, using various materials, two- and three-dimensional geometric models, including prisms, pyramids, cylinders and cones.
L. Construct two-dimensional geometric figures using a straight edge and compass.
M. Describe and analyze two- and three-dimensional shapes from a contextual (real-world) situation using the concepts of symmetry, congruency, similarity, scale, perspective, and angles.
N. Measure length, perimeter, area, and volume using the English and metric systems.
O. Convert within and between various measurement systems, such as English and metric.
P. Estimate perimeter, area, and volume of regular and irregular shapes, regions and solids within some given level of accuracy and provide evidence to support estimation.
Q. Apply geometric formulas, including the Pythagorean Theorem, to contextual (real-world) situations.

Topical Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>Statistics and Data Analysis</td>
</tr>
<tr>
<td>4 - 6</td>
<td>Probability</td>
</tr>
<tr>
<td>7 - 11</td>
<td>Geometry</td>
</tr>
<tr>
<td>12 - 16</td>
<td>Measurement</td>
</tr>
</tbody>
</table>

Calendar:

Methods of Evaluation:
Total Percentage: 0%
The weight given to exams, quizzes, and other instruments used for evaluation will be determined by the instructor.

Methods of Assessment:
Exams, quizzes, homework and other assessments will be used as appropriate to measure student learning.

Methods of Instruction:
Problem-based and contextual activities, collaborative-learning techniques, and lecture will be used as appropriate.

Recommended Text: