

**IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE**

COURSE OUTLINE

DIVISION: Science, Mathematics, and Engineering

DATE: 11/22/04

COURSE TITLE: Mathematics Software – Fathom **COURSE NO.:** MATH 121 **UNITS:** 1

LEC HRS: 1 **LAB HRS:** 0 **HRS. TBA:** 0

If cross-referenced, please complete the following:

COURSE NO.(s): _____ **COURSE TITLE:** _____

I. COURSE/CATALOG DESCRIPTION: An introduction to Fathom, a statistical package designed for educational purposes. Fathom will be used to develop and enhance the central concepts of elementary statistics, including but not limited to; Central Tendency, Beginning Probability, Confidence Intervals, Linear Regression, and Data Representation.

II. A. PREREQUISITES, IF ANY: MATH 120 or Current Registration in MATH 120

B. CO-REQUISITES, IF ANY:

C. RECOMMENDED PREPARATION, IF ANY:

III. GRADING CRITERIA:

- X . Course must be taken on a “letter-grade” basis only.
- _____. Course may be taken on a “credit” basis or for a letter grade.
- _____. Course must be taken on a “credit” basis only.

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF “C”:

The student will be able to use Fathom to accomplish the following tasks:

1. create bar charts and histograms for a given set of data.
2. find the mean, median, mode, and standard deviation for a given set of data.
3. perform simulations of events involving simple probabilities (i.e. coin flips).
4. simulate repeated surveys and create a confidence interval
5. perform hypothesis testing
6. create scatterplots, compute the correlation coefficient and the equation of the regression line.
7. be familiar with the basic commands and syntax of Fathom.

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

	<u>CORE CONTENT</u>	<u>APPROX % OF COURSE</u>
1.	Bar charts and histograms	15
2.	Mean, median, mode, and standard deviation	15
3.	Simulations	15
4.	Surveys, confidence intervals	15
5.	Hypothesis testing	15
6.	Scatterplots, correlation coefficient, regression equation	15
7.	Fathom commands and syntax	10

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS: (Check all that apply.)

Essay	<u> X </u>	Class Activity	<u> X </u>	Written Assignments	<u> X </u>
Problem Solving Exercise	<u> X </u>	Final Exam	<u> X </u>	Oral Assignments	<u> X </u>
Skill Demonstration	<u> X </u>	Objective	<u> X </u>	Quizzes	<u> X </u>
Other	_____.				

INSTRUCTIONAL METHODOLOGY: (Check all that apply.)

Lecture	<u> X </u>	Discussion	<u> X </u>	Demonstration	<u> X </u>
Audio Visual	<u> X </u>	Group Activity	<u> X </u>	Lab Activity	<u> X </u>
Computer Assisted Instruction	<u> X </u>	Individual Assistance	<u> X </u>	Simulation/ Case Study	<u> X </u>

Two (2) hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent per unit.

VI. TEXTBOOK(S) AND SUPPLEMENT(S):

1. *Fathom ,Dynamic Statistics Software for Deeper Understanding-Reference Manual*
Key Curriculum Press, 2001
2. *Fathom ,Dynamic Statistics Software for Deeper Understanding-Learning Guide*
Key Curriculum Press, 2001
3. *Data in Depth –Exploring Mathematics with Fathom*
Key Curriculum Press, 2001
4. *Fifty Fathoms: Statistics demonstrations for deeper understanding*
Erickson, T.
EEPS Media, 2004