



# El Camino College

DCC Approval Date: 10/17/18

Originator: Benjamin Mitchell

## 1. COURSE SPECIFICATIONS

1.1 Division: Mathematical Sciences

1.2 Department: Mathematics

1.3 Subject: Mathematics

1.4 Discipline(s): Mathematics

1.5 Course Information

1.5.1 Title and Number: Mathematics 150S

1.5.2 Descriptive Title: Elementary Statistics Support

1.5.3 Catalog Description:

This course is designed to support students concurrently enrolled in Elementary Statistics (Math 150). As needed, students review core skills and topics necessary to meet the Elementary Statistics student learning outcomes and objectives. Students explore strategies and habits used by successful independent learners. Topics reviewed in this support course may include: concepts from arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand the basics of college-level statistics.

1.5.4 Prerequisite, Corequisite, Recommended Preparation, Enrollment Limitation (specify):

Corequisite: Math 150

Justification: This corequisite course is necessary to satisfy AB 705. Its intent is to strengthen and supplement the essential skills needed for success in statistics. The implementation of this course will allow Math 150 classes to focus on and explore new topics in statistics to a greater extent rather than devote time in class to covering prerequisite topics in statistics.

1.5.5 Grading Method:  Letter  Pass/No Pass  Both  No Grade

1.5.6 Degree Status:  Associate Degree Credit  Non-Degree Credit  Non-Credit

1.6 Course Units, Hours, and Offerings

1.6.1 Credit Units: 1.0

1.6.2 Hours Lecture: 1.0 Hours Laboratory: 0 Activity Lab: 0

1.6.3 Maximum Semesters of Credit: 1.0 Maximum Credit Units: 1.0

1.6.4 Course Length: Full Term: X or Weeks: \_\_\_\_\_

1.6.5 Class Size: 35

1.6.6 Number of sections: Fall: \_\_\_\_\_ Spring: \_\_\_\_\_ Summer: \_\_\_\_\_ Winter: \_\_\_\_\_

1.6.7 Total enrollment per year: \_\_\_\_\_

1.6.8 Instructor Load: 6.67% WSCH/FTE Ratio: \_\_\_\_\_

1.6.9 Apportionment:  Daily/Weekly Census  Positive Attendance  Distance Education  
 Independent Study  Non-Credit

1.7 Transfer and General Education

1.7.1 Proposed Transfer Articulation:

1.7.2 Proposed GE Patterns

El Camino College:

CSU GE:  
IGETC:

## 2. PURPOSE OF COURSE

2.1 Course is designed for:

- Transfer
- Interdisciplinary
- Occupational (preparatory)
- Occupational (upgrade)
- Precollegiate Basic Skills
- Basic Skills (developmental)
- Other (explain): \_\_\_\_\_

2.2 How widespread and established is this course at post-secondary institutions?

- Course is well-established and widely offered at many post-secondary institutions.
- Course is not yet found in many (or an) other post-secondary institutions.
- Traditional as generally offered in corresponding community colleges and/or four-year institutions.
- Not Applicable – Not for Transfer.

2.3 Examples of parallel courses at both California Community Colleges and CSUs or UCs. List the institution, the title and number of the parallel course, and the number of units. For each parallel course, attach copies of the appropriate pages of that college's or university's catalog. If the course is proposed for transfer, lower division status must be evident in the CSU or UC courses.

These courses generally did not exist until the recent mandate of AB 705. Mira Costa Community College offers a similar course, Math 31: Support for Statistics (1 unit). Math 150S is a support course for Math 150; therefore, it is not for transfer to CSU or UC.

## 3. JUSTIFICATION FOR THE COURSE

3.1 Explain how the course relates to the mission and goals of the College:

It is the goal of El Camino Community College to meet the requirements of AB 705; this course has been created to do so.

3.2 Explain how the course strengthens and relates to existing curriculum:

This support course is a review of the core prerequisite skills needed to pass Math 150.

## 4. COURSE DEVELOPMENT INFORMATION

4.1 The following have been consulted in the development of the course.

- 4.1.1 Faculty: Math Department
- 4.1.2 Counselor(s): Ken Key
- 4.1.3 Students:
- 4.1.4 Advisory Committee(s):
- 4.1.5 Other:

- 4.2 Is the course similar to an existing course at El Camino College?  
If yes, identify the similar course(s) and explain why this proposed course should be part of the El Camino College curriculum. **No.**

If the similar course exists in a different department, the proposed course must be submitted to that department for review. Record the comments below.

## 5. COURSE RESOURCE REQUIREMENTS

- 5.1 Library/Media Resources have been reviewed and determined to be adequate. Indicate the Library/Media Resources personnel consulted and provide the date of the consultation:  
**Claudia Stripe, November 13, 2018**

- 5.2 Is the present faculty and staff adequate to support the offering of the course?  
If no, specify proposed additions with anticipated cost and budget allocation. **Yes.**

- 5.3 Are facilities for teaching the course available?  
If no, what plans have been made for accommodation?  
**Yes.**

- 5.4 Are special equipment and/or supplies necessary for teaching the course?  
If yes, list, estimate cost, and provide budget allocation.  
**No.**

- 5.5 Are other special resources necessary?  
If yes, list, estimate cost, and provide budget allocation. **No.**

## 6. METHODS FOR EVALUATING COURSE EFFECTIVENESS

- Faculty/department review
- Review of articulation agreement
- Student success/failure analysis
- Student surveys
- Review of advisory committee recommendations
- Review of industry needs and standards
- Review of entry-level job requirements
- Other (specify):

## 7. ACCOMODATIONS FOR STUDENTS WITH DISABILITIES AND INSTRUCTIONAL DELIVERY

In compliance with ECC Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973 - Sections 504 and 508, and the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities. Instructional delivery methods may include, but are not limited to, Braille/audiotape for print material, on-site interpreter/real-time transcription/live captioning for audio material, captioning for video material, alternative text for images, and captioning of audio information for electronic media materials (such as web and online).on-site interpreter/real-time transcription/live captioning for audio material, captioning for video material, alternative text for images, and captioning of audio information for electronic media materials (such as web and online)

**EL CAMINO COLLEGE  
COURSE OUTLINE OF RECORD**

**I. GENERAL COURSE INFORMATION**

Course Title and Number: Mathematics 150S

Descriptive Title: Elementary Statistics Support

Discipline: Mathematics

Division: Mathematical Sciences

Course Length:  Full Term  Other (specify): \_\_\_\_\_

Hours Lecture: 1.0 Hours Laboratory: 0 Course Units: 1.0

Grading Method:  Letter  Credit/No Credit  Both  No Grade

Course Type:  Credit, Degree Applicable  Credit, Not Degree Applicable  Non-Credit

Transfer CSU:  Yes Effective Date \_\_\_\_\_  Pending  No

Transfer UC:  Yes Approval Date \_\_\_\_\_  Pending  No

**Conditions of Enrollment:**

Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

**Corequisite:** Math 150

**Catalog Description:**

This course is designed to support students concurrently enrolled in Elementary Statistics (Math 150). As needed, students review core skills and topics necessary to meet the Elementary Statistics student learning outcomes and objectives. Students explore strategies and habits used by successful independent learners. Topics reviewed in this support course may include: concepts from arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand the basics of college-

**II. OUTCOMES AND OBJECTIVES**

**A. COURSE STUDENT LEARNING OUTCOMES** *List 3 student learning outcomes. Provide a short title for each.*

**Computing and Interpreting Various Measures:** From data or bivariate data, compute statistics and develop displays of the data that illustrate the measures of central tendency, variation, relative position, and correlation. Interpret the displays in context.

**Probability:** Compute probability of an event by applying the basic assumption in classical probability and using addition rule and multiplication rule for contingency tables.

**Central Limit Theorem:** Use the Central Limit Theorem to compute probabilities concerning the distribution of the sample means and comparing these to the probabilities of the related random variable.

**Confidence Intervals and Hypothesis Testing:** Compute the confidence intervals and conduct hypothesis testing for a variety of parameters, and perform non-parametric hypothesis testing

**B. COURSE OBJECTIVES** List the major learning objectives for course. These must be stated in behaviorally measurable terms and demonstrate critical thinking skills.

Provide a representative assessment method for each from this list. If you select “other” give an explanation.

Essay Exam	Performance Exams	Objective Exams	Oral Exam	Quizzes
Reading Reports	Written Homework	Laboratory Reports	Fieldwork	Class Performance
Term or Other Papers	Multiple Choice	Completion	Other _____	

1. Solve, graph and interpret linear equations, including understanding slope and intercepts in real-life applications. (Objective Exams)
2. Evaluate expressions correctly using order of operations and evaluate formulas given values for all necessary variables. (Written Homework)
3. Read and interpret a variety of tables, charts, and graphs including Bar Graphs, Pie Charts, Histograms, and Scatterplots. (Quizzes)
4. Translate applied problems into mathematical statements and translate mathematical solutions into verbal conclusions. (Objective Exams)
5. Convert between fractions, decimals, and percentages and understand the relative sizes of these values. (Written Homework)

**III. OUTLINE OF SUBJECT MATTER** Topics should be detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.

List hours as lecture or lab	Approx Time in Hours	Number each with a Roman numeral. I, II, III, etc.	<p align="center"><b>Major Topics</b></p> <p><i>Use outline format.</i>            A. List the Topic – Capitalize First Letter of All Words                1. List Subtopics with Numerals</p>
Lecture	3	I	<p>LINEAR EQUATIONS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Solving Linear Equations            B. Graphing Linear Equations            C. Interpreting Slope and Intercepts</p>
Lecture	3	II	<p>EVALUATING EXPRESSIONS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Order of Operations            B. Evaluating Formulas</p>
Lecture	2	III	<p>CALCULATOR SKILLS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Arithmetic on the Calculator            B. Rounding            C. Lists, Graphing, and Displays</p>
Lecture	4	IV	<p>TABLES, CHARTS AND GRAPHS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Reading and Interpreting Tables, Charts, and Graphs            B. Plotting Coordinates</p>
Lecture	4	V	<p>APPLICATIONS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Translating verbal statements into numeric expressions</p>

			B. Estimating the reasonableness of results C. Stating mathematical conclusions verbally
Lecture	<b>2</b>	VI	FRACTIONS, PROPORTIONS AND PERCENTAGES  Concepts and skills as needed through just-in-time work to support:  A. Fractional Arithmetic and Simplifying Expressions with Fractions B. Converting between Fractions, Decimals, and Percentages C. Understanding Fractions as Proportions D. Comparing values on the real line, including decimals and negatives
Total Lecture Hours	18		
Total Laboratory Hours	0		
Total Hours	18		

*Add additional fields as necessary.*

#### IV. PRIMARY METHODS OF EVALUATION AND SAMPLE ASSIGNMENTS

##### A. PRIMARY METHOD OF EVALUATION

Check the PRIMARY method of evaluation for this course.

- Substantial writing assignments
- Problem solving demonstrations (computational or non-computational)
- Skills demonstrations

##### B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION

Evaluate the following expression rounding your answer to two decimal places,  $\frac{.53-.50}{\sqrt{\frac{(.50)(.50)}{150}}}$

##### C. COLLEGE LEVEL CRITICAL THINKING ASSIGNMENTS

1. Suppose you are modeling the resale value,  $V$ , of a Nissan Versa based on its age in years,  $x$ . You build the following linear model,  $V = -1250x + 15000$ .
- (a) Write a sentence explaining what the slope of this linear model means in the context of this situation.
  - (b) Write a sentence explaining what the  $V$ -intercept of this linear model means in the context of this situation.
  - (c) Use this model to predict at what age a Nissan Versa will have no resale value.

2. Suppose you are studying the students in a math class. You classify the students according to gender and age bracket and get the following data:

	18-21 years old	22-25 years old	25+ years old
Male	9	2	4
Female	7	5	6

- (a) How many students were in this math class?
- (b) What percent of the students in this math class were Female? (Round to the nearest tenth of a percent)
- (c) What percent of the students in this math class were 22-25 years old? (Round to the nearest tenth of a percent)
- (d) What percent of the Male students were 18-21 years old? (Round to the nearest tenth of a percent)
- (e) What percent of the 25+ year old students were Female? (Round to the nearest tenth of a percent)



**D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS: Select from this list. Use all that apply.**

A. Check all planned instructional activities that apply:

- |   |  |
|---|--|
| <input type="checkbox"/> Class Performance              | <input checked="" type="checkbox"/> Objective Exam   |
| <input type="checkbox"/> Clinical Evaluation            | <input type="checkbox"/> Oral Exams                  |
| <input type="checkbox"/> Completion                     | <input checked="" type="checkbox"/> Other Exams      |
| <input type="checkbox"/> Embedded Questions             | <input type="checkbox"/> Performance Exams           |
| <input type="checkbox"/> Essay Exams                    | <input type="checkbox"/> Presentation                |
| <input type="checkbox"/> Fieldwork                      | <input checked="" type="checkbox"/> Quizzes          |
| <input checked="" type="checkbox"/> Homework Problems   | <input type="checkbox"/> Reading Reports             |
| <input type="checkbox"/> Journal kept throughout course | <input type="checkbox"/> Term or Other Papers        |
| <input type="checkbox"/> Laboratory Reports             | <input type="checkbox"/> True/False                  |
| <input type="checkbox"/> Matching Items                 | <input checked="" type="checkbox"/> Written Homework |
| <input type="checkbox"/> Multiple Choice                | <input type="checkbox"/> Other (specify)             |

**V. INSTRUCTIONAL METHODS: Select from this list. Use all that apply.**  
*Double click box to check.*

B. Check all planned instructional activities that apply:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Lecture       | <input checked="" type="checkbox"/> Group Activities |
| <input type="checkbox"/> Lab                      | <input type="checkbox"/> Role play/simulation        |
| <input checked="" type="checkbox"/> Discussion    | <input type="checkbox"/> Guest Speakers              |
| <input type="checkbox"/> Multimedia presentations | <input type="checkbox"/> Field trips                 |
| <input type="checkbox"/> Demonstration            | <input type="checkbox"/> Other (specify)             |

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

**VI. WORK OUTSIDE OF CLASS: Select from this list. Use all that apply.**

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- Study
- Answer questions
- Skill practice
- Required reading
- Problem solving activity
- Written work (such as essay/composition/report/analysis/research)
- Journal (done on a continuing basis throughout the semester)
- Observation of or participation in an activity related to course content (such as

- theatre event, museum, concert, debate, meeting)
- Course is lab only - minimum required hours satisfied by scheduled lab time
  - Other (specify)

**Estimated Study Hours Per Week: 2      This should be 2 hours for each hour of lecture.**

**VII. TEXTS AND MATERIALS**

**A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS**

Statistics, Informed Decisions Using Data 5<sup>th</sup> Edition, Michael Sullivan III, Pearson, 2017  
 Elementary Statistics, Second California Edition, Triola, Pearson, 2013.

**A. REQUIRED TEXTS (title, author, publisher, year)**

**B. REQUIRED SUPPLEMENTARY READINGS**

**C. OTHER REQUIRED MATERIALS**

**VIII. CONDITIONS OF ENROLLMENT**

**A. Requisites (Course and Non-Course Prerequisites and Corequisites)**

Requisites	Category and Justification
<b>Math 150</b>	<p style="text-align: center;"><b>Corequisite</b></p> <p>This corequisite course is necessary to satisfy AB 705. Its intent is to strengthen and supplement the essential skills needed for success in statistics. The implementation of this course will allow Math 150 classes to focus on and explore new topics in statistics to a greater extent rather than devote time in class to covering prerequisite topics in statistics.</p>

**B. Requisite Skills**

<b>Requisite Skills</b>
<p>Math 150            Identify, compare and contrast various types of data and sampling techniques</p> <p>Math 67 - Describing and Displaying Data</p> <ul style="list-style-type: none"> <li>A. Types of data and variables</li> <li>B. Gathering, organizing, and interpreting data in tables</li> <li>C. Creating and interpreting visual displays of data or distributions: dot plots, bar graphs, pie charts, and scatter plots</li> <li>D. Verbal descriptions of distributions, including notions of typical value</li> <li>E. Measures of central tendency: mean, median, mode</li> </ul>

**C. Recommended Preparations (Course and Non-Course)**  
**Recommended Preparation** **Category and Justification**

**D. Recommended Skills**  
**Recommended Skills**

**E. Enrollment Limitations**  
**Enrollment Limitations and Category** **Enrollment Limitations Impact**

Course created by **Benjamin Mitchell**

BOARD APPROVAL DATE: (Leave Blank)

LAST BOARD APPROVAL DATE: Leave Blank)

Last Reviewed and/or Revised by 10/17/2018