Revised 04-13-2018

El Monte Union High School District

Course Outline

District: EMUHSD
High School: ALL

Course Title: Statistics AP P

Textbook(s): The Practice of Statistics

Copyright date/Edition: 2014/5th Ed.

Transitional*_____(Eng. Dept. Only)

Sheltered (SDAIE)*___Bilingual*___

***For CTE, **attach the CTE course outline** created in the online template (http://ctecourse.scoe.net/).

1. **Prerequisite(s):**

   B or better in Integrated Math 3 or equivalent OR teacher recommendation.

2. **Short description of course which may also be used in the registration manual:**

   The AP Statistics course is equivalent to an introductory, non-calculus-based college level course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes in the AP Statistics course: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

3. **Describe how this course integrates the schools SLO (former ESLRs- Expected School-wide Learning Results):**

   The AP Statistics course lends itself naturally to a mode of teaching that engages students in constructing their own knowledge. For example, students working individually or in small groups can plan and perform data

8. (See Below and Attached)

Objectives of Course:
The purpose of the AP course in statistics is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes:

1. Exploring Data: Describing patterns and departures from patterns
2. Sampling and Experimentation: Planning and conducting a study
3. Anticipating Patterns: Exploring random phenomena using probability and simulation
4. Statistical Inference: Estimating population parameters and testing hypotheses

Students who successfully complete the course and exam may receive credit, advanced placement or both for a one-semester introductory college statistics course.

Unit detail including projects and activities including duration of units
SEE ATTACHED DOCUMENT

Indicate references to state framework(s)/standards (If state standard is not applicable then national standard should be used)
SEE ATTACHED DOCUMENT

Student performance standards

Common Core Standards for Mathematical Practices:

Course Content Overview

The topics for AP Statistics are divided into four major themes: exploratory analysis (20ï 30 percent of the exam), planning and conducting a study (10ï 15 percent of the exam), probability (20ï 30 percent of the exam), and statistical inference (30ï 40 percent of the exam).

I. Exploratory analysis of data makes use of graphical and numerical techniques to study patterns and departures from patterns. In examining distributions of data, students should be able to detect important characteristics, such as sh G1ercent of the , loc7(c)TQq, vQqri-3(s(2)-6(0)]TJE10uct

3.1 Scatterplots and Correlation
3.2 Least-Squares Regression

Part II Producing Data: Surveys, Observational Studies, and Experiments

4. Designing Studies
    4.1 Sampling and Surveys
    4.2 Experiments
    4.3 Using Studies Wisely

Part III Probability and Random Variables: Foundations for Inference

5. Probability and Simulation: The Study of Randomness
    5.1 Randomness, Probability, and Simulation
    5.2 Probability Rules
    5.3 Conditional Probability and Independence
6. Random Variables
    6.1 Discrete and Continuous Random Variables
    6.2 Transforming and Combining Random Variables
    6.3 Binomial and Geometric Random Variables
7. Sample Distributions
    7.1 What is a Sampling Distribution?
    7.2 Sample Proportions
    7.3 Sample Means

Part IV Inference: Conclusions with Confidence

8. Estimating with Confidence
    8.1 Confidence Intervals: The Basics
    8.2 Estimating a Population Proportion
    8.3 Estimating a Population Mean
9. Testing a Claim

AP Statistics Curriculum Guide and CCSS Alignment

Unit 1

	Topics	Textbook (TPS)	Common Core Standards	Relationship to AP Statistics Course Description	AP Released FR Questions	AP Released MC Questions
7 days	1. Bar Graphs and Pie Charts 2. Two-Way Tables and Marginal Distribution 3. Relationships between Categorical Variables 4. Conditional Distributions 5. Dotplots, Describing Shape, Comparing Distributions, Stem plots 6. Histograms 7. Measuring Center: Mean and Median, comparing Mean and Median, 8. Measuring Spread: IQR, Identifying Outliers 9. Five Number Summary and Boxplots, measuring Spread: Standard Deviation, Choosing Measures of Center and Spread	1.1-1.3	S.ID.1, S.ID.2, S.ID.3, S.ID.5	IA, IB, IC, IE	2000: 3 2001: 1 2002: 5 2004: 1 2005B: 1 2006: 1 2007B: 1 2010B: 1 2011B: 1	1997: 10,14,21,22,30 2002: 7,14,20,27,28 2007: 1,7,12,15,18,24,29,40

				Course Description		

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5 days

1. Explanatory and response variables
2. Displaying relationships: scatterplots
3. Interpreting scatterplots
4. Measuring linear association: correlation
5. Facts about correlation
6. Least-squares regression
7. Interpreting a regression line
8. Prediction
9. Residuals and the least-square regression line
10. Calculating the equation of the least-squares regression line
11. Residual plots
12. Role of in regression.
13. Interpreting computer regression output

7 days

1. Sample Survey
2. Random Sampling
3. SRS vs. stratified random sample or cluster sample
4. Inference for Sampling (undercoverage, non-response, wording)
5. Observational Study vs. Experiment
6. Principles of experimental design
7. Inference for Experiments
8. Blocking, Matched Pair Design
9. Scope of Inference, Challenges of Causation
10. Class Experiments o

Unit 6

	Topics	Textbook	Common Core	Relationship to AP Statistics Course of Study	AP Released FR Questions	AP Released MC Questions
6 days	1. Discrete Random Variables, Mean (Expected Value of a Discrete Random Variable) 2. Standard Deviation (and Variance) of Discrete Random Variable, Continuous Random Variables 3.					

6 days	1. Sampling Variability, Describing Sampling Distribution 2. Sampling Distribution of , Using the Normal Approximation for 3. Sampling Distribution of ; Mean and Standard Deviation, Sampling from a Normal Population 4. Central Limit Theorem	7.1-7.3	N/A	IIID1, IIID2, IIID3, IIID4, IIID5, IIID6, IIID7, IIID8	1998: 1 2004B: 3 2006: 3 2007: 3 2007B: 2 2008: 2 2009: 2 2010: 2	1997: 20 2002: 30,36 2007: 23, 38

Unit 8

	Topics	Textbook	Common Core	Relationship to AP Statistics Course Description	AP Released FR Questions	AP Released MC Questions
7 days	1. Confidence Interval, Interpreting Confidence Levels and Confidence Intervals, Constructing a Confidence Interval 2. Conditions from Estimating p, Constructing a Confidence Interval for p 3. Four-Step Process, Choosing a Sample Size 4. When is known: The One-Sample z Interval for a Population Mean, When is Unknown: The t Distributions, Constructing a Confidence Interval for 5. Using t Procedures Wisely	8.1-8.3	S.IC.1	IIID7, IVA1, IVA2, IVA3, IVA4, IVA5, IVA6, IVA7, IVA8	2000: 2, 6 2002: 1 2002B: 4 2003: 6 2003B: 6 2005: 5 2008B: 3 2010: 3 2010B: 4 2011: 8 2011B: 5,6	1997: 1,7,16,24,33,35 2002: 8,9,13,18,26,29,33,37,40 2007: 33, 34

Unit 9

	Topics	Textbook	Common Core	Relationship to AP Statistics Course Description	AP Released FR Questions	AP Released MC Questions

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