


What is AP Statistics?

Keith Ord
November 16, 2013



The AP Philosophy

- The AP® Program unequivocally supports the principle that each individual school must develop its own curriculum for courses labeled "AP."
- The AP Course Audit provides each AP teacher with a set of expectations that college and secondary school faculty nationwide have established for college-level courses.
- AP teachers are encouraged to develop or maintain their own curriculum that either includes or exceeds each of these expectations.

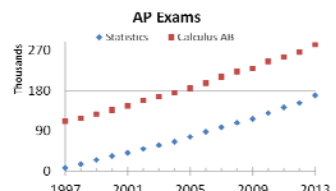
Cause and Effect?? [Source AP Website]

- Multiple research studies have shown that AP students who earn credit and advanced placement for the corresponding introductory college course:
 - Perform well in subsequent courses within the same discipline
 - Take more, not fewer, courses in the discipline for which they've received AP credit
 - Tend to earn higher GPAs than non-AP students.
 - Are more likely to graduate from college in four or five years

What is AP Statistics?

- The purpose of the course should be to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data.
- Students enrolling in AP Statistics should have completed second-year algebra or its equivalent.
- **More Than 1 Million and Counting: The Growth of Advanced Placement Statistics**
 - Robert Rodriguez, ASA President in AmStat News, September 2012

Growth of AP Programs



Data Source: College Board

Student Numbers	Statistics	Calc. AB	Calc. BC	Comp Sci	Physics B	Physics C Mech
2012	152,750	266,994	94,403	26,103	80,584	38,630

AP Statistics: Topical Coverage

- **Exploring Data:** Describing patterns and departures from patterns (20–30%)
 - Exploratory analysis of data makes use of graphical and numerical techniques to study patterns and departures from patterns.
- **Sampling and Experimentation:** Planning and conducting a study (10–15%)
 - Data must be collected according to a well-developed plan. This plan includes clarifying the question and deciding upon a method of data collection and analysis
- **Anticipating Patterns:** Exploring random phenomena using probability and simulation (20–30%)
 - Probability is the tool used for anticipating what the distribution of data should look like under a given model
- **Statistical Inference:** Estimating population parameters and testing hypotheses (30–40%)
 - Statistical inference guides the selection of appropriate models.

The AP Examination

The AP Statistics Exam is 3 hours long and consists of two equally weighted components:

1. a 90-minute multiple-choice section testing proficiency in a wide variety of topics, and
2. a 90-minute free-response section requiring the student to answer open-ended questions and to complete an investigative task involving more extended reasoning

Students are provided with an extensive formula sheet and may use a "graphing calculator". They are expected to use computers for data analysis during the course.

AP Score Qualification

- 5 Extremely well qualified
- 4 Well qualified
- 3 Qualified
- 2 Possibly qualified
- 1 No recommendation

- AP Exam scores of 5 are equivalent to A grades in the corresponding college course.
- AP Exam scores of 4 are equivalent to grades of A-, B+ and B in college.
- AP Exam scores of 3 are equivalent to grades of B-, C+ and C in college.

Grade Distributions [Source: Wikipedia]

Grade	5	4	3	2	1	Mean Grade
2001	11.5	23.4	24.9	19.1	21.1	2.85
2002	11.2	21.8	23.9	19.2	23.9	2.77
2003	13.2	22.3	26.4	19.5	18.6	2.92
2004	12.6	22.4	24.8	19.8	18.1	2.87
2005	12.6	22.8	25.3	19.2	20.1	2.88
2006	12.6	22.2	25.3	18.3	21.6	2.86
2007	11.9	21.5	25.4	17.1	24.1	2.80
2008	12.9	22.7	23.7	18.8	21.8	2.86
2009	12.3	22.3	24.2	19.1	22.2	2.83
2010	12.8	22.4	23.5	18.2	23.1	2.84
2011	12.1	21.3	25.1	17.7	23.8	2.80
2012	12.6	20.2	25.0	18.8	23.4	2.81
2013	12.2	20.9	25.7	18.1	23.1	2.80
Means	12.3	22.0	24.9	18.7	21.9	2.84

Analysis of Top 30 Schools in Business Week Rankings

[Guidelines refer to institutions, not necessarily their B-Schools]
Source: data collected from AP website]

Row Labels	3	4	5	NA	Grand Total
Private	2	11	4	2	19
Public	7	4			11
Grand Total	9	15	4	2	30

Row Labels	1	3	4	NA	Grand Total
Private	1	9	5	4	19
Public		10	1		11
Grand Total	1	19	6	4	30

Questions for Discussion

- Should we give credit for AP Statistics?
- If so, what is the minimum grade that we should accept in order to give students credit for their AP Statistics?
- How many semester-length credits should be awarded?
- Are the College Board claims justified with respect to AP Statistics?
 - Perform well in subsequent courses within the same discipline
 - Take more, not fewer, courses in the discipline for which they've received AP credit
 - Tend to earn higher GPAs than non-AP students.
 - Are more likely to graduate from college in four or five years
- Even if justified, can we identify 'cause and effect'?

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GEORGETOWN
UNIVERSITY

McDonough
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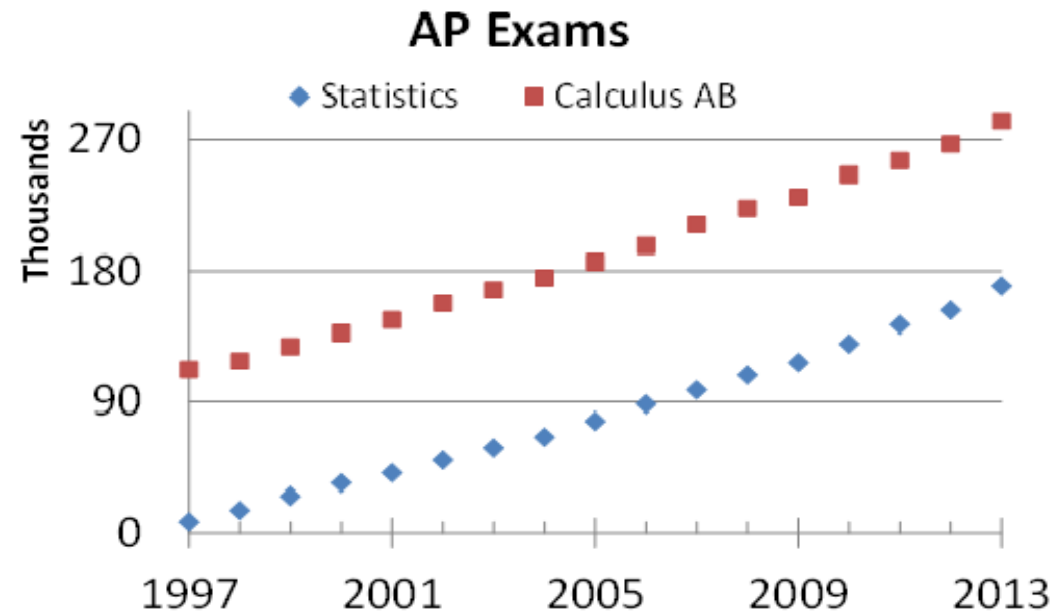
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Count of # credits	Column Labels					
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