BIZARRO by Dan Piraro

The Duplex **by Glen**

http://www.district196.org/evhs/People/baileyrcweb/

Randy Bailey -- EVHS Mathematics & Statistics

Hello, Scholars and Visitors! A bit o' miscellaneous trivia:

I'm from beautiful Lansing (the picture above shows the whole town!), near Austin, MN: Spamtown, USA. I hold BS and MEd degrees in mathematics education from the University of Minnesota, and spent '03-04 as the Visiting Master Teacher in math & statistics at St. Olaf College. I'm a private pilot; haven't crashed yet! Interested in flying?. Some sweet Eastview things: Debate , NHS , Math Team , Mr. Haugh , our nationally ranked football chain gang! Two of the world's great shrines (and my favorite places!) are here and here.

NOTE: As of fall 2011, I will be on leave from EVHS & my school email may not work. Try the phone book, or my home email: randy dot bailey at frontiernet dot net

2010 AP Stats Exam results are back!

Letter to incoming Fall 2011 AP Statistics Scholars!

*****AP Stats Course & Registration Info 2011-12*** (further info via AP Stats course link below)**

A dose of academic reality?

***Cookie recipes* from my lovely bride!**

Carleton 2010: Top Two Tips for new (and other) AP Stats Teachers pdf

"Welcome Wagon" document for new (and other) AP Stats Teachers

Hour(s)	Class / Link	Location of Learning
1st, 2nd, 4th, 5th	**AP Statistics**	**A104: *the "Dark Crucible of Knowledge"***

sweet-n-tasty email: randy.bailey@district196.org or randy.bailey@frontiernet.net
EVHS Math/Stats office: 952-431-8962; voicebox: 651-683-6969; #94403

Bailey's Top Two Tips for beginning (and other) APStat teachers

This document, and all others referenced herein, are available electronically at my website
http://www.district196.org/evhs/People/baileyrcweb/ ….or just google "Bailey EVHS"

1)* Join, monitor, and submit to the APStat "electronic discussion group" *****
http://apcentral.collegeboard.com/apc/public/homepage/7173.html

2a) Check the APS FAQ list (especially the "General Info for New Teachers"!)
http://www.mrderksen.com/faq.htm

2b) Stuck? Check the APStat Discussion Group Archives
(common questions – and expert answers from ACTUAL GURUS -- are here)
http://mathforum.org/kb/forum.jspa?forumID=67

2c) Use the APStat resources at AP Central:
http://apcentral.collegeboard.com/stats

2d) Stuck on how to teach/understand _____ ?
Check the archives. Check FAQ. Use an activity or lab.

2e) Open a professional account at AP Central and get rolling on your audit.
http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/46361.html
LOADS of audit resources, including sample audits for all major books:
http://web.mac.com/statsmonkey/APStats_at_LSHS/AP_Audit.html

2e) Use the variety of resources available!
Online resources your book provides, esp. quizzes & applets, applets, applets.
Newspapers/magazines have examples every day that you can use.
Teachers' websites: Jason's Statsmonkey, etc. Great list of these is available at FAQ!!

2f) Make (i.e., copy / heist / steal) a schedule -- *and stick to it.*
Schedules available with your book's resources, on FAQ, Statsmonkey, etc.
The kids WILL seem to "need just one more day…." for most every topic!
Trust that many stat ideas WILL 'come together' later in the course.

2g) Success on the AP Exam is our shared goal – from Day 1.
Hand out the APS formulas & tables on day 1. Open use on ALL tests, HW, etc.
Use old FRQ's for homework, on exams, for test prep, everywhere, from Day 1.
ALL old FRQ's are available from AP Central, and an index of year/question vs. topic is available at sites below! This is pure sweetness!
http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/47425.html
http://web.mac.com/mrmathman/MrMathMan/Downloads_files/FR%20correlation.doc
Let kids 'grade' their own FRQ's via associated Scoring Guide. Mmmm good!

2h) Keep taking workshops. Keep taking workshops. Keep taking workshops.

2i) it WILL be better in year (X+1) than it was in year X. (by mathematical induction)

AP Statistics IS much harder to teach well than any m _ _ h course.
…AND IT IS MUCH MORE REWARDING.

Send me a note – any time, any reason – at randy.bailey@frontiernet.net
http://www.district196.org/evhs/People/baileyrcweb/

From Derksen's APStats FAQ @ **http://www.mrderksen.com/faq.htm** **Mmm Sweetness.**

General Information for New Teachers

1. Why divide by n-1 in the standard deviation formula?
2. How do I explain R-squared?
3. Do I have to teach log and power re-expressions?
4. What's the difference between confounding and lurking variables?
5. What's the difference between independence and mutually exclusive?
6. How much probability do I need to teach?
7. What's the deal with adding variances? Var(2X) =?? Var(X) + Var(X)
8. I'm running out time and what can I do (especially with inference for slope)?
9. How much work do students need to show on the exam?
10. Which textbook should I pick?
11. What's a good review book?
12. Why do I use the pooled-p for a 2-proportion z-test?
13. How do you solve Sally and Betty? 2002 #39 MC?
14. How do I promote my class?

Resources

** **Where can I find good Internet applets?**
**** **Where can I find quality activities for my class?**
What journals and publications make for valuable reading?
What books and texts will I find valuable as a resource to keep handy on my bookshelf?
**** **Where can I find loaded dice?**
Where can I find web sites about AP Statistics?
Which video series would be valuable for AP Statistics?
** **Where can I get information about AP Statistics workshops?**

The Exam

**** **What content are students responsible for on the exam?**
What tables and formulas are provided for student use during the exam?
How do other teachers review for the exam?
Are there any good review books available?
What do experienced teachers recommend to do AFTER the exam?
Where can I obtain copies of previous exams and rubrics?
When will ETS release more multiple-choice questions?
Can I get information from the faculty consultants about their past Reading experiences (so I can better prepare my students for next year's exam)?
What is the College Board policy on calculator use during the exam?
What can I tell my students to help them prepare for answering free response questions that require the use of a calculator?

Google "Bailey EVHS" or go directly to http://www.district196.org/evhs/People/baileyrcweb/ and then click "AP Statistics"…..

"I keep saying that the sexy job in the next 10 years will be statisticians. And I'm not kidding." -- Hal Varian, Chief Economist at Google

AP Stats Course/Registration Info

Welcome letter for new 2011-2012 AP Statisticians!

Bailey's Top Two Tips for New (and other) APStats teachers and in pdf

Why Take AP Stats? Read this sweet informational brochure.....

Why should anybody ever take ANY stats? This 2 minute video will tell you.

Our AP Stats MOODLE site!

AP Stats Exam SCORING SIMULATOR!

Countdown to the AP Stats Exam: *High Noon on May 16th, 2012*:

334 days 19 hours 25 minutes 21 seconds

AP Stat INFO:	**Syllabus!**	**Book & Online Quizzes**	**Schedule/ Assignments!**	**Bailey's Secrets to Stat Success**	**College Board audits EV Stats!**	**CB's APStat site**
LABS:	**M&M data transformation Lab:** **Random Variables(MS Word)** **Random Variables (html)**	**Oreo Lab** 2-sample t test	**M&M** z-int/z-test for a proportion	**M&M / Skittles** z-test/z-int for a mean (easily adapt to t-procedures)	**M&M Chi-Square** Goodness-of-Fit	**Titanic ChiSq:** Word Html
FUN:	turn up your sound and take a nice **Study Break?**	**Our Manatee Page!**	**Ann's Cookie Recipes!**	**Zombie Preparedness Initiative**	**Book Checkout**	**Extra Motivation**?
RESOURCES:	**Coll. Credit Policy Project**	**Misc.Links & fun**	**APS review helper books**	**How Parents Can Help**	**Parent / Student Portal**	**Stat Careers: pwrpnt presentation**
SWEET:	**cool Stat talk!**	**Stats Rap Video!**	**Which Procedure When?**	**Exam FAQ**	**2010 (& prior) AP Exam Results!**	**Psychic Mind Reader!**
FUN and SWEET:	EV Honor Code!	Online Textbook Checkout !	Two big tips for college success!	The Dead Grandma Problem	MCA Prep help!	
MORE FUN:	**Class Shirts 1 2 3 4 5 6 7 8 9 10 11 12 13 14** **11F 11B**	**Shirt from Anna's pal!**	**What IS "Statistics", anyway?**	**a cool Stats lecture!**	Wall Street Journal's Stats Blog	Is H.S. really Different than College???

Eastview High School Statistics Department
Randy Bailey: Office A110, phone 952-431-8962, Email **randy.bailey@district196.org**

ADVANCED PLACEMENT STATISTICS

"Statistical thinking will one day be as necessary for effective citizenship as the ability to read and write." H. G. Wells (1866-1946)

I. COURSE OBJECTIVES—what successes are we targeting?

a. demonstrated mastery of the AP Stats curriculum as determined by the College Board.
b. use the tools of statistics to develop good problem-solving, critical thinking, and citizenship skills.
c. prepare for further success in college–level mathematics
d. keep college major and subsequent career options open.
e. GET COLLEGE CREDIT FROM THE AP STATS EXAM: 12:00 noon TUESDAY, MAY 16th, 2012.

II. EXPECTATIONS—what qualities will it take to be successful?

a. your best effort and greatest responsibility.
b. respect for all those in the room.
c. bring all proper and no improper materials to class.
d. compliance with EVHS absence and tardy policies.
e. knowledge of, respect for, and compliance with the EVHS academic honesty and integrity policy.

III. SUPPLIES—what items do I need to be successful?

a. 3-ring binder, paper, pencil
b. TI-83/84/+ graphing calculator and manual
c. awesome positive attitude
d. book cover

IV. ASSIGNMENTS/HOMEWORK—what should I do to be successful?

a. Read each section before we cover it in class.
b. Have all work completed to the best of your ability before class begins.
c. Avoid late work. There is no guarantee of any credit. Don't get, be, or stay behind.
d. Regular attendance is key to math success. There are two kinds of absences—those you <u>don't</u> know are coming and those you <u>do</u>. If you miss class for an unforeseen reason (i.e. sickness) your responsibilities are 1) connect with classmate(s) and get copies of any notes, tutoring, etc.; 2) stop by and see me before school when you return to pick up materials and schedule any makeup; 3) complete all makeup within the "2-for-1" policy set by EVHS. If you <u>do</u> know about an upcoming absence (i.e. field trip, activity practice, vacation, etc.) then your responsibilities are 1) notify me well ahead of the absence; 2) pick up any needed materials as soon as they're available; 3) arrange for classmate(s) to feed you copies of notes, handouts, tutor you, etc.; 4) possibly complete the work prior to missing class; 5) be caught up and in step with the class when you return. The "2-for-1" makeup rule does not apply to pre-planned absences. Every opportunity comes with a responsibility.
e. Don't let outside commitments get in the way of classroom success.
f. Be responsible about homework without having it 'checked' daily. You're in a college-equivalent AP class.

V. TESTS & QUIZZES—how will my success be measured and evaluated?

a. Tests will be announced. Quizzes may or may not be announced.
b. Time will usually be scheduled for review before chapter tests.
c. If you miss a test, quiz, or review day, you will generally make up the test/quiz the day you return. If you are gone, it is your responsibility to stop by before school the next day to make a plan.

VI. GRADES—how will my success be reported?

a. Our shared goal is DEMONSTRATED MASTERY OF THE MATERIAL on the way toward acing the AP exam. Percentage weights used for computerized grading <u>during</u> the quarter: 20% Assignments/Homework; 80% Tests, Quizzes, Projects; possible Cumulative Exam(s) covering the qtr./semester's material. I also reserve the right to use my own non-computerized professional judgment of your mastery in assigning your transcript grade.
b. Approximate cutoffs: 93%+=A, 90%+=A-, 87%+=B+, 83%+=B, 80%+=B-, 77%+=C+,73%+=C, 70%+=C-, under 70% = my professional judgement.
c. Pass/No Credit Option: 70%+=Pass, <70%=No Credit. Confirm req's w/Bailey before choosing this option.

VII. HELP !! —How can I increase my opportunity for success?

Options include study groups during study hall & outside school w/classmates, extra work before/after school, peer tutors, Homework Hotlines, and other math teachers. In AP Statistics, another great resource is the variety of online resources available. Our #1 shared goal is mastery of the course material on the way toward acing the AP exam, and I am willing to help out a responsible, hard-working student in most any way I can. If you have suggestions to improve the class, please see me! Be sure and communicate your needs and concerns.

The first part of my schedule:

Cls	Qtr	Day	Date	ch.sec	Things to help you learn: practice probs, resources, etc.	Done?
1	1	T	5-Sep	1	Play Greed game. READ xii-xvii & sec. 1.1 http://www.mrderksen.com/art8.htm http://www.math.yorku.ca/SCS/Gallery/	
2	2	W	6-Sep	1.1	6, 8, 9, 10, etc. http://babynamewizard.com/namevoyager/lnv0105.html http://www.math.yorku.ca/SCS/Gallery/milestone/sec5.html http://researchnews.osu.edu/archive/chainspix.htm	
3	3	Th	7-Sep	1.1	(12), (13),(15), 16, 17 19, etc http://www.math.yorku.ca/SCS/Gallery/ http://www.stat.sc.edu/~west/javahtml/Histogram.html http://www.rossmanchance.com/applets/Histogram.html http://www-personal.umich.edu/~mejn/cartograms/	
4	4	F	8-Sep	1.1	20, 22, read 23-30. 29? READ 1.2 http://www.mrderksen.com/art3.htm http://www.mrderksen.com/art8.htm http://www.answers.com/topic/ogive http://www.pballew.net/arithm12.html#ogive	
5	5	M	11-Sep	1.2	31-34; read article: http://www.cancerguide.org/median_not_msg.html	
6	6	T	12-Sep	1.2	36, 38, 39, etc. http://abcnews.go.com/Technology/WhosCounting/story?id=2265555&page=1	
7	7	W	13-Sep	1.2	40,41,43, (check 48), etc.. Online Mult Choice!	
8	8	TH	14-Sep	1.2	45, 46... 50?, 51, 56, AP questions, Read Summary etc etc, Ch rev probs, Do as nec.	
9	**9**	**F**	**15-Sep**	**1**	**Ch 1 quizzalicious: in class AND take-along. Read 2.1**	
10	10	M	18-Sep	2	check quiz, more examples. READ 2.1.	
11	11	T	19-Sep	2.1	1, 2, 3, 4, 6, 7, 9, 11, 14, etc etc. READ 2.2.	
12	12	W	20-Sep	2.2	19-25, etc. http://www.kleinbottle.com/gauss.htm	
13	13	TH	21-Sep	2.2	26-29, etc etc from section 2.2 probs	
14	14	F	22-Sep	2.2	3 FRQ problems. Read 30-54, do as necessary for deep understanding AND mastery!	
15	15	M	25-Sep	2 all	Read 30-54, do as necessary, Online Practice MC	
16	**16**	**T**	**26-Sep**	**2**	**Ch. 1 & 2 Opportunity for Excellence. READ 3 intro & 3.1**	
17	17	W	27-Sep	3.1	check test. Reinforce scholarship habits. College Fair Day. 3 intro	

And later in the year……

145	14	TH	27-Apr	TH	26-Apr	1-14	Rev: Which Prcdr When? Sheet. Also MC fix/YMS Blue work day. FR's:
146	15	F	28-Apr	F	27-Apr	1-14	Rev: Which Prcdr When?. MC Due, continue YMS Blue etc.
		Sat	**22-Apr**	**Sat**	**28-Apr**	**1-14**	**DRESS REHEARSAL. Brkfst @ 8, Exam @ 8:30**
		Sun	**23-Apr**	**Sun**	**29-Apr**	**1-14**	**DRESS REHEARSAL. Brkfst @ 8, Exam @ 8:30**
147	16	M	1-May	M	30-Apr	1-14	Rev: All Things Linear
148	17	T	2-May	T	1-May	1-14	Rev: All Things Random Variable
149	18	W	3-May	W	2-May	F Lit	Rev: All Things Probability
150	19	Th	4-May	Th	3-May	F Lit	Rev: Wild Card!
151	20	F	5-May	F	4-May	06 FR	Rev: Wild Card!
152	21	M	8-May	M	7-May	1-14	Rev: Mnemonics: ShCtrSp, FrmDrStr, CnRndRep, PANIC, Phantoms. Tune up our calculators. Sleep the sleep of a well-prepared statistician.
153	22	T	9-May	T	8-May		***1-14 SHOWTIME! 12:00 NOON in MEDIA CENTER***
154	23	W	10-May	W	9-May	F Lit	AP Exam Debrief & discuss. Post-exam plans. Financial Lit Spreadsheet A vs. B
155	24	TH	11-May	TH	10-May	F Lit	Financial Lit II: Otis' loans, pmts, debt. Wksht Probs, plus one of your own
156	25	F	12-May	F	11-May	06 FR	48 Hr Wait period elapsed! GO OVER 2008 FRQ PROBS.

DAY ONE:

I. Descriptive Statistics

$$\bar{x} = \frac{\sum x_i}{n}$$

$$s_x = \sqrt{\frac{1}{n-1}\sum (x_i - \bar{x})^2}$$

$$s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{(n_1 - 1) + (n_2 - 1)}}$$

$$\hat{y} = b_0 + b_1 x$$

$$b_1 = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

$$b_0 = \bar{y} - b_1 \bar{x}$$

$$r = \frac{1}{n-1}\sum \left(\frac{x_i - \bar{x}}{s_x}\right)\left(\frac{y_i - \bar{y}}{s_y}\right)$$

$$b_1 = r\frac{s_y}{s_x}$$

$$s_{b_1} = \frac{\sqrt{\frac{\sum (y_i - \hat{y}_i)^2}{n-2}}}{\sqrt{\sum (x_i - \bar{x})^2}}$$

II. Probability

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$E(X) = \mu_x = \sum x_i p_i$$

$$Var(X) = \sigma_x^2 = \sum (x_i - \mu_x)^2 p_i$$

If X has a binomial distribution with parameters n and p, then:

$$P(X = k) = \binom{n}{k} p^k (1-p)^{n-k}$$

$$\mu_x = np$$

$$\sigma_x = \sqrt{np(1-p)}$$

$$\mu_{\hat{p}} = p$$

$$\sigma_{\hat{p}} = \sqrt{\frac{p(1-p)}{n}}$$

If $\bar{x}$ is the mean of a random sample of size n from an infinite populatio with mean μ and standard deviation σ, then:

$$\mu_{\bar{x}} = \mu$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

III. Inferential Statistics

Standardized test statistic: $\dfrac{\text{statistic} - \text{parameter}}{\text{standard deviation of statistic}}$

Confidence interval: statistic ± (critical value) · (standard deviation of statistic)

Single-Sample

Sample Mean	$\frac{\sigma}{\sqrt{n}}$
Sample Proportion	$\sqrt{\frac{p(1-p)}{n}}$

Two-Sample

Difference of sample means	$\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$ Special case when $\sigma_1 = \sigma_2$ $\sigma\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$
Difference of sample proportions	$\sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}$ Special case when $p_1 = p_2$ $\sqrt{p(1-p)}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$

Chi-square test statistic = $\sum \dfrac{(\text{observed} - \text{expected})^2}{\text{expected}}$

Survey: Parents clueless on booze, drugs at teen parties

By Donna Leinwand
USA TODAY

Parents' images of the typical teen party as generally drug- and alcohol-free are drastically out of whack with reality, according to a survey out today from the National Center on Addiction and Substance Abuse at Columbia University.

The 11th annual survey of teenagers and parents finds that half of teens who attend parties say alcohol, drugs or both are available, but 80% of parents believe their teens attend substance-free parties.

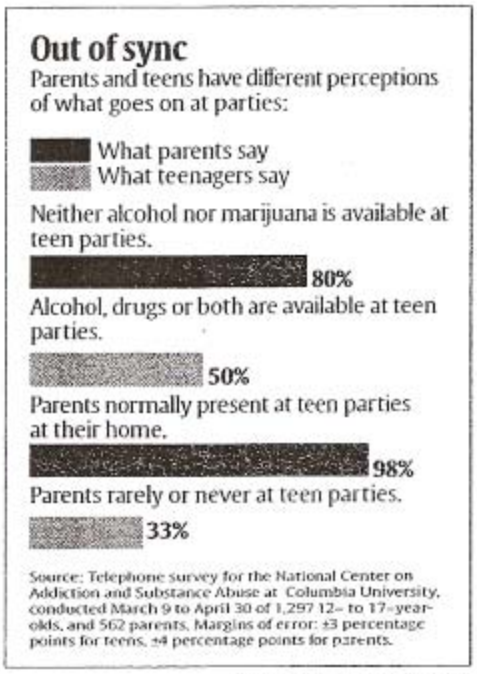
"They smell no pot, they see no drinking and they hear nothing of the drugs that their kids are using," center chairman Joseph Califano says. "I think they really have no sense of how awash their teens' world is in alcohol and drugs. There is a terrible disconnect."

Parental supervision at parties deters some drug use but does not guarantee kids won't sneak alcohol and drugs, the survey shows. Although 99% of parents say they would not be willing to serve alcohol at their teen's party, 28% of teens say they have been at supervised parties where alcohol is available.

Carol Falkowski, director of research communications at the Hazelden Foundation, an addiction-treatment facility in Center City, Minn., speaks to parent groups across the country and finds that their own teen experiences color their image of today's parties.

"It's much different today. Parents need to catch up," Falkowski says. "We live in a world where eight out of 10 kids are going to drink alcohol before they get out of high school and 50% will have tried marijuana."

The move from middle school to high school is a critical point where the risk of alcohol and drug abuse rises dramatically, according to the survey. It finds 14-year-olds are four times more likely to be offered prescription drugs and three times more likely to be offered Ecstasy or marijuana than 13-year-olds.



By Robert W. Ahrens, USA TODAY

The older teens also are far more likely to encounter alcohol and drugs at parties even when parents are supervising, the survey says.

"The parents may be home, but they are rarely walking into the room where their kids are having a party," Califano says.

Tessa Vining, who runs Phoenix House's IMPACT, a drug rehabilitation program in New York City, says parents often suspect their children are experimenting with drugs, but don't realize how much or how often.

"Kids will party in a house if the parents go out to dinner for three hours," she says.

Falkowski recommends talking regularly to kids: "Be nosy and stay engaged."

Se[redacted] active teens wish they had waited

ASSOCIATED PRESS

NEW YORK

A majority of [redacted]ally active teen-agers wish they had waited until they were older, according to a national poll.

Although very few high school students said they felt pressure from their peers, partners or the media to have [redacted] 54 percent of those who have had [redacted] said they should have waited, the Roper poll found.

The teen-agers gave, on average, 17 as the "best age" to [redacted] two years older than those polled reported that they began.

Results were to be broadcast today on "Rolanda," a nationally syndicated talk show that commissioned the poll in association with the Sexuality Information and Education Council of the United States, a New York-based interest group.

The report "Teens Talk Abou[redacted] is available for $12 from SIECUS Publications, 130 W. 42nd St. Suite 2500, New York, N.Y. 10036.

Telephone interviews with 503 students in grades 9 through 12 were conducted last month by Roper Starch Worldwide, which said results have a margin of sampling error of less than 5 percentage points.

Teen-agers' [redacted]al attitudes and experiences are of intense interest to AIDS prevention specialists, who often complain that their efforts to get government studies are blocked by religious conservatives.

The Roper questionnaire includes the sort of fratik questions that have caused uproars in school-based surveys.

AIDS and teen-age pregnancy rated as very high concerns in the survey, and 75 percent of those having sex said they were using control always or most of the time. Fourteen percent said they did not use a [redacted] all or most of the time to prevent AIDS or other sexually transmitted diseases.

The number who said they had [redacted] 36 percent, was much lower than the 54 percent in a 1990 survey by the U.S. Centers for Disease Control. But it was not clear whether that was a real dr[redacted]ower teen-agers may be willing to repor[redacted]rather called at home, compared to the federal survey's use of a written questionnaire in a sealed envelope at school.

But when the p[redacted]sked about deep kissing, petting and othe[redacted]al behavior, only 8 percent of the young people reported no sexual involvement.

Fully 72 percent of those who reported [redacted]sex said they did it in the homes of their parents or their partner's parents. Six in 10 believe their parents know about their sexual behavior, the poll found.

Debra Haffner, SIECUS executive director, said the [redacted]lity information clearinghouse planned to distribute results to promote more sex education in schools and in the home.

"One of the things this poll suggests is how confused young people are in America about sexuality," she said.

"I think there's a lot of contradiction between their attitudes and what they're doing, which I think is not something we as adults should feel good about," Haffner said.

HILA

▼ CONTINUED FROM

The Tuesda[illegible] was another bi[illegible] week for Hil[illegible] edged on Thu[illegible] almost $100,0[illegible] chines, primar[illegible] Casino. She al[illegible] ruptcy, and S[illegible] repayment of [illegible] took out last [illegible]

Hilary ad[illegible] she asked [illegible] "When I wa[illegible] going to be [illegible] tion, as a la[illegible] him," she [illegible]

Concedi[illegible] ing day, [illegible] board's [illegible] suggestic[illegible] herself f[illegible] the revi[illegible]

"Cor[illegible] and u[illegible] need som[illegible] dre[illegible]

Or[illegible]

kids about 1954 desegregation ruling

Feb 2008

Survey: Drug, alcohol use on decline in District 196

by Andrew Miller
THISWEEK NEWSPAPERS

There's good news for stu-
its and parents in School
trict 196.
Smoking, drinking and
g use are on the decline in
district, according to the
7 Minnesota Student Sur-

The survey was given to
h-, ninth- and 12th-grad-
and measured substance
sexual behavior, percep-
s of gang activity and
r factors affecting stu-
life. Students taking the
ey were guaranteed ano-
ity.
n the whole, the district
een positive change since
, the last year the survey
administered.
The results are down
e they should be and up
e they should be," said
Parr, the district's di-
r of secondary educa-
who delivered an over-
of the survey results to
School Board on Feb. 11.

Survey results include:

• **Alcohol use** – The number of students who reported using alcohol in the past year decreased by about 3 percent in all three grade levels.

Six percent of sixth-graders, 36 percent of ninth-graders and about 60 percent of 12th-graders said they'd used alcohol in the past year.

• **Marijuana use:** Marijuana use in the past year declined for district sixth- and 12th-graders.

One percent of sixth-graders and a third of all 12th-graders reported marijuana use in the past year. Marijuana use for ninth-graders remained steady at 13 percent.

• **Tobacco use:** The percentage of heavy smokers remained nearly level between 2004 and 2007.

About 5 percent of 12th-graders and about 1 percent of both sixth- and ninth-graders reported smoking half a pack a day or more – but all three grade levels saw declines in social smoking, or "tobacco use in the past 30 days."

About 30 percent of 12th-graders reported tobacco use in the past 30 days, compared with 11.5 percent of ninth-graders and 1 percent of sixth-graders.

• **Sexual activity:** Sexual activity jumped from 42 to 46 percent for 12th-grade males between 2004 and 2007, while sexual activity for 12th-grade females remained steady at 40 percent.

The number of ninth-grade males reporting sexual activity also saw a slight increase, jumping from 19 to 21 percent, while ninth-grade females reporting sexual activity dropped from 15 to 13 percent.

• **Gang activity:** Students were asked if gangs are a problem at their schools. About a fifth of sixth-graders thought gangs are a problem, a slight increase from 2004. About a fifth of all ninth-graders and less than 10 percent of 12th-graders perceived gangs as a problem at school.

Survey data will be used to refocus drug and alcohol prevention efforts, Parr said. Specifically, the district will look at ways that curriculum can be modified.

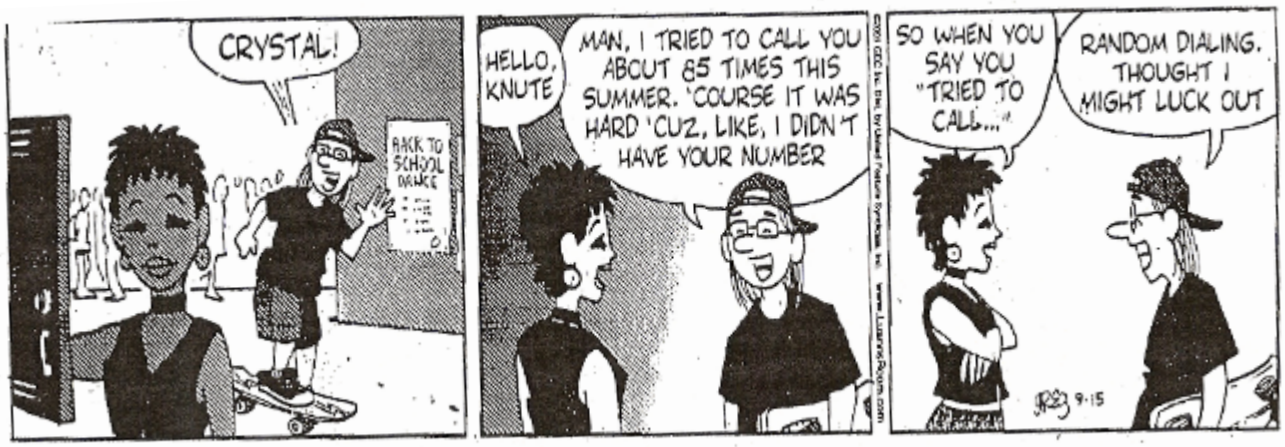
Information from past surveys have resulted in "significant changes" to the district's Developmental Psychology program, Parr said.

The survey is given throughout Minnesota every three years. It was first administered statewide in 1989. District participation is mandatory to be eligible for Federal Safe and Drug-Free Schools funding.

Andrew Miller can be reached at av.thisweek@ecm-inc.com.

5.1
sampling method

ONE BIG HAPPY RICK DETORIE



Close to Home: *By John McPherson*

Sensitive to the feelings of those kids who routinely got picked last for teams, gym coach Ray Mulnak devised a more humane player selection method.

M&M / Skittles Candy Lab: z-interval for a mean & z-test of a mean

(easily adaptable to t-procedures)

Lab Sheet -- what I give the kids. it has a front & a back side.

Data Spreadsheet - to check answers etc.. Really neat if you can project it on board.

Template - an ALL-PURPOSE template for Confidence Intervals & Significance Tests!

Conclusions -- what their writeup might look like

Pictures of Scholars doing this lab: Picture1 Picture2 Picture3

Tips/hints for lab

-- on lab days, my kids are randomly assigned to a team. Every group of 4 seats has a name: Alpha, Bravo, Charlie, etc. Kids pick a slip of paper from a pile on the way in and go sit at the table with the name they picked. First thing: Tell everyone on your team your name. Second thing: say something nice about everyone on your team. OK, now start the lab!

-- have at least 2 (preferably 4) balances for the kids to weigh things.

-- remind them repeatedly that we have **TWO DISTINCT** tasks: 1) write a CI for the mean number of items in a bag and 2) do a sig test on the mfg's claimed mean net weight.

-- give each group paper plate(s), napkins, cups, etc.; see above pictures of kids doing lab (more pix avail if wanted)

-- remind them that for the weight test we care about NET weights (candy only!) not gross weights.

-- give each team 1 bag of MM, 1 bag of skittles. But if you want to cut things down (perfectly OK) , just do ONE candy.

--esp. for beginning statisticians: do ALL work on the Template sheet. Get used to a good format for writing CI's and Sig Tests.

-- put a copy of the data tally sheet on the overhead projector; have teams come up & fill in data as they get it.

-- If you've got Excel, load their numbers into the Data Spreadsheet in the appropriate places for a quick automatic check on their work. Even better if you can project this spreadsheet on the board for all the cherubs to see.

-- take pictures. Save for next year. Print a few & post in classroom. Use for recruiting next year.

-- I've got an MM PROPORTIONS lab that I'll be posting soon.

Please contact me with any other q's. -- randy.bailey@district196.org

APStat CandyLab 2011 x_____

Materials: 4 centigram balances; Per group: 47.9 g bag MMs, 61.5 g bag Skittles, plates, spoons, cups

Today's tasks:

1) calculate confidence interval for the true (and unknown!) mean number of edible items in a sales unit.
2) test each manufacturer's claimed mean net weight (μ) for its sales unit

Corporate policies:

-- all sampling of sales units must be of size n = ____.(# of groups)
-- each team will weigh & count 1 MM bag AND 1 Skittles bag, then contribute their data to the class.
-- even though you have data for BOTH candies, you only pick ONE candy to analyze: either MM or SK.
-- all confidence intervals must be listed at the 0.95 level.
-- all significance tests are done at the $\alpha = 0.05$ level
-- the pop. std. deviation (σ) for NUMBER of items per bag is known to be **2.** (thank you, Stats Fairy!)
-- the pop. std. deviation (σ) for WEIGHT is known to be = **(1/30) μ.** (thank you, Stats Fairy!)

Sample Data to be ORGANIZED & listed on reverse side. Do remaining work on CI/TS template sheet
Reports must show all raw data, work, and methods clearly. *Communicate* your work and findings.
Reports must contain correctly calculated confidence intervals, with interpretation in context!
Reports must show a complete test of significance. Clear! Communicate! Concise! Context!!!!!!
Because sampled merchandise that is handled by serious researchers cannot be allowed to go back into stores for public sale, ALL sampled material must be destroyed at the conclusion of the study !!
Use the method of your choice for disposal.

x																
Skittles	Weight															
	Number															
MM's	Weight															
	Number															
	Team	Alpha	Bravo	Charlie	Delta	Echo	Foxtrot	Golf	Hotel	India	Juliet	Kilo	Lima	$\bar{x}$	σ	n

1st Period	M&M's		Skittles	
	# in bag	net wt (g)	# in bag	net wt (g)
Alpha	55	48.24	61	64.81
Bravo	57	49.6	55	58.8
Charlie	53	46.88	61	65.6
Delta	55	48.5	56	62.81
Echo	54	47.49	57	61.36
Foxtrot	54.5	48.41	62	66.05
Golf	53	46.99	59	62.97
Hotel	54	47.92	58	61.77
India	55	48.99	60	63.87
xbar	54.50	48.11	58.78	63.12
n	9	9	9	9
σ	2	1.60	2	2.05
95% m.o.e.	1.31		1.31	
95% CI:_+-_	54.5 +- 1.31 grams		58.78 +- 1.31 grams	
95% CI:(_,_)	(53.19 , 55.81) grams		(57.47 , 60.08) grams	
	Ho: μ =	47.9	Ho: μ =	61.5
	z =	0.40	z =	2.36
	p-value =	0.689	p-value =	0.018

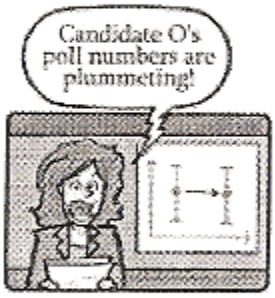
From a 2010 course evaluation:

"I did the homework and everything, but what really tied things together for me was the labs we did. Those are the days I learned the most about statistics"

Dear News Media,

When reporting poll results, please keep in mind the following suggestions:

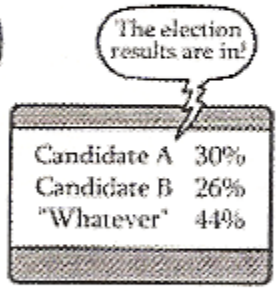
1.
If two poll numbers differ by less than the margin of error, it's not a news story.



2.
Scientific facts are not determined by public opinion polls.

3.
A poll taken of your viewers/internet users is not a scientific poll.

4.
What if all polls included the option "Don't care"?



Signed,

-Someone who took a basic statistics course.

JORGE CHAM © 2010

AP Statistics CAPSTONE RESEARCH
& Practical Final Exam:

BE A STATISTICIAN!

Executive Summary:
1) Identify & refine a researchable question or testable hypothesis with measurable variables
2) Design a proper experiment or observational study to generate appropriate data
3) Carry out your experiment or study
4) Do a full and proper analysis of resulting data in order to answer your question/hypothesis.
5) Choose & execute a proper method of presenting 1) through 4) to your peers….AND the Executives in Upper Management.

The emphasis is on the application of proper study design and data analysis techniques, not so much on gathering a huge data set and reaching an authoritative conclusion – but that's nice, too!

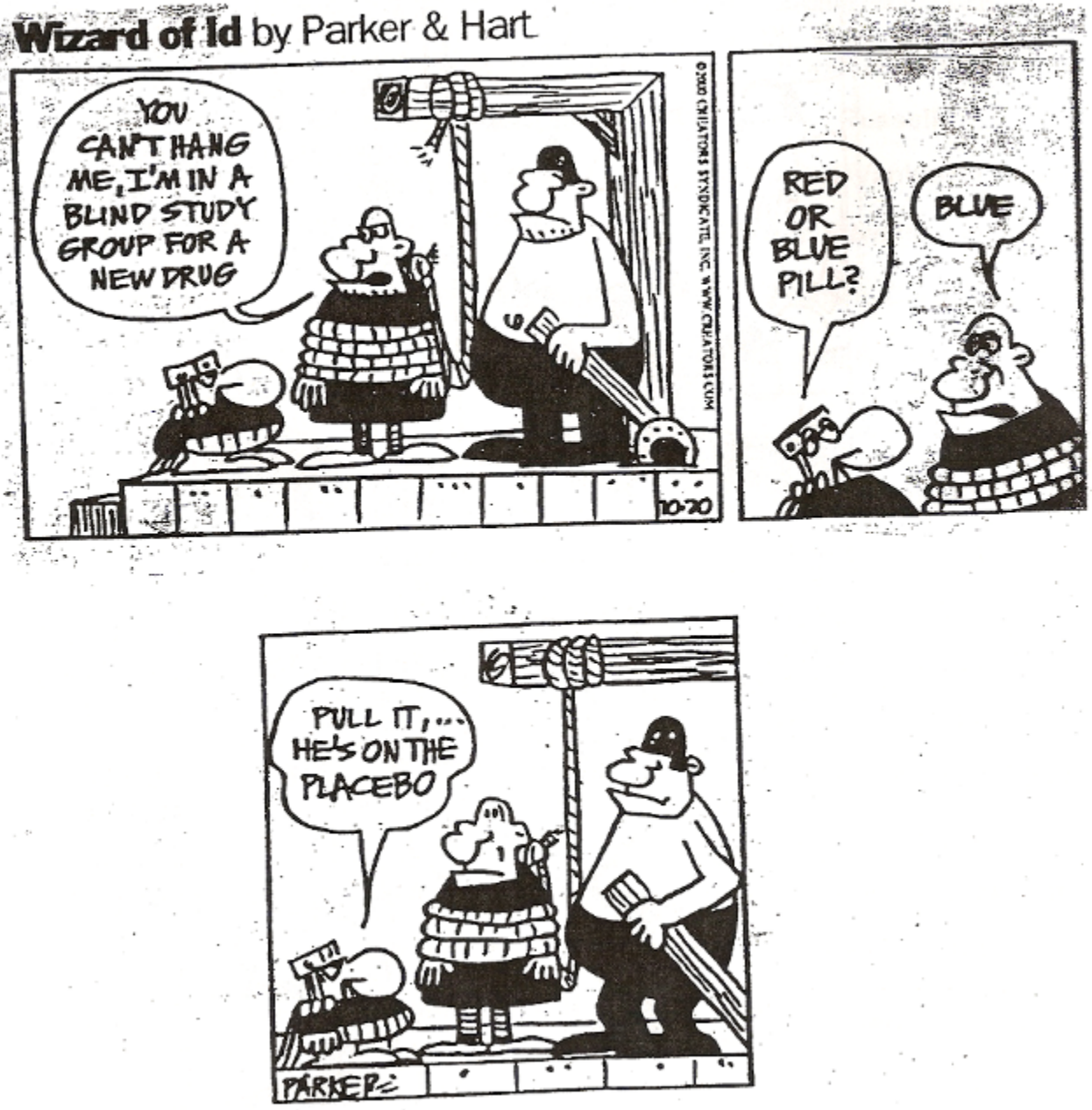
OK, further details:
1) Identify & refine a researchable question or testable hypothesis with measurable variables
    -- your question should be…worthwhile! interesting! valuable! do-able!
    --
2) Design a proper experiment or observational study to gather appropriate data
    -- surveys and/or use of existing data are VERY discouraged. YOU generate ORIGINAL data.
    -- if you can't get the data to analyze, a great idea…isn't!
    -- if your research involves people, be prepared for attendant 'issues'!
    -- if you do ANYTHING to or with human subjects, it must be approved by Upper Management.
3) Carry out your experiment or study
    -- do you have the time? the equipment? the resources? the funding? the subjects?
    -- **Take PICTURES! Document your work!!**
    --
4) Do a full and proper analysis of resulting data in order to answer your question/hypothesis.
    -- PANIC? PHANTOMS? Graphs! Charts!
    -- conclusion(s)? items/ideas for further research that were suggested by your results?
    --
5) Choose & execute a proper method of presenting 1) through 4) to the Executives in Upper Management.
    -- consider how you might communicate the results…*to expert and/or lay audiences.*
    -- powerpoint, PICTURES, video, skit, poster, booklet, packet, report, video, movie, slideshow, overheads, handouts, _____?, _____?

Timeline:
May___: Intro to Capstone project. Take a look at some previous Capstones. Generate research question.
May ___: Completed form describing the research question, hypotheses, design, & data analysis plan. Refine ALL.
May ___: Refined/final description of research question, experiment/study design, and data analysis plan
May ___: Gather data. Raw data from your experiment/study should be IN.
May ___: All data should be IN and you're doing analysis; starting to plan/generate yourpresentation.
May ___: Random assigment to a presentation slot on the calendar. (Then you can trade if you want!)
May ___ - ____: Presentations to the Class and Executive(s) in Upper Management. Balloting/grading.

Pr	#	Likely Day	Topic	Researchers
1	1	T 3/29	Rotten Apples: Air vs. 7Up	Shega Chodek
1	2	T 3/29	Answer Pattern: does it affect performance?	Race
1	3	T/W ?	Froot Loops: Name Brand vs Generic	C Nels V Nels Sagstuen2 Bauer
1	4	W 3/30 ?	Starburst Sensory Extravaganza X42	LPetrsn Gebert EPedrsn Williams
1	5	W 3/30 ?	Corner Pocket! Billiard Study	Kalafut deGuzman Olson2
1	6	W 3/30 ?	Rainy Days Get Me Down: Weather vs Mood	Halvorsen Koch
1	7	W 3/30 ?	Turn Turn Turn: Who follows the Law?	Reishus Larsen2
1	8	W	Advertising Proyecto de la sweetnesse	Russell
1	9	W/Th ?	Drain Brain: Reactions vs. Sleep	LVanKemp OVanKemp DawnFE
1	10	Th 3/31 ?	O Say Can You Stand? Pledge Participation	Dorsch Edwinson Houser
1	11		Breaking Silence: Sociability and Gender	Simbana Carpenter
1	12		Marshmallow Abuse: burn baby burn!	McDermott

Pr	#	Likely Day	Topic	Researchers
2	1	T 3/29	Caribou Cage Match: Drink type vs. Gender	Welter Szempruch
2	2	T 3/29	Lemonade Stand: Ageism in a cup!	Hayden Woelfel1
2	3	T 3/29	Bad Breath: Lung Capacity vs.Gender	Dahlke Harvey
2	4	T 3/29	Slacker City: Gender Wars!	Folkerts Benner
2	5	W 3/30 ?	Hang up & Drive! Cell Phones in Car	Wadsworth Galau
2	6	W 3/30 ?	"Transmit" your love: Teachers vs. Students	Pellicci Lucke Spelbink Zhao
2	7	W 3/30 ?	Re-Learning Relay Really Rocks!	Belgarde Terhune
2	8	W/Th ?	Auto Bling: 'Loser' Lot vs. 'Real' Lot	Howard Rondeau Bronson6
2	9	W/Th ?	Lookism: Appearance vs. Greet Time	Bierlein Voight
2	10	Th 3/31 ?	Spatial Intelligence: Music & Math	Boyd Sirany Flom Hager Determan

Wizard of Id by Parker & Hart



AP Stats Exam Questions by Topic
(courtesy of Derksen's Sweet FAQ!)

Exploring data

1997 #1
2001 #1, 6a
2002 B #5, 6c
2004 #1
2005 #1a, 2d
2006 #1
2007 #1ab
2008 #1
2009 #1ab
2010 #6b
2011B #1
2000 #3
2002 #1
2003 #1ab
2004B #5a
2005B #1
2006B #1
2007B #1
2008B #1a
2009B #1
2010B #1

Normal distribution

1999 #4
1998 #6a
2000 #6d
2005B #6b
2008B #5bc
2011 #1
2002 #3a
2003 #3ab
2004B #3ab
2006B #3ac
2009 #2a

Regression

1998 #2
1998 #4
1999 #1
1999 #6c
2000 #1
2005B #5ab
2007 #6abde
2008 #3ab, 6b
2010 #1b
2011 #5abc
2002 #4
2002 B #1
2003 B #1
2005 #3
2006 #2ab
2007B #4
2008B #6abd
2010B#6abe
2011B #6ab

Transformations for linearity

1997 #6
2007B #6cd
2004B #1

Designing surveys and experiments

1997 #2
1998 #3
1999 #3
2000 #5
2001 #4
2004 #2, 3d, 5b
2005 #1bc, 5ac
2006 #5
2007 #2, 5a
2008 #2
2009 #3
2010 #1a, 4c
2011 #3
2002#2
2002 B #3
2003 #4
2003 B #3a
2003 B #4abd
2004B #2, 6c
2005B #3
2006B #5, 6f
2007B #3
2008B #4a
2009B #4, 6a
2010B #2
2011B #2

Probability

1997 #3
1999 #5
2003 B #5a
2005B #6c
2009B #2
2011 #2, 6b
2002 B #2
2003 B #2
2004 #3bc, 4a
2006 #3b
2010B #5abc
2011B #3ab

Random variables

1999 #5
2000#6bc
2001 #2
2003 B #5b
2005 #2abc
2006 #3a
2008 #3
2002 #3
2002 B #2
2004B #6b
2004 #4bc
2005B #2
2007B #2a
2008B #5a

Binomial/geometric & simulations

1998 #6bcde
2001 #3
2003 #3c
2007B #2b
2010 #4ab
2011B #c
2004 #3a
2005B #6d
2006B #6c
2009 #2b
2010B #3

CLT

1998 #1
2006 #3c
2007 #3
2008B #3
2010 #2
2004B #3cd
2006B #3b
2007B #2c
2009 #2c
2011B #6cd

Inference with t for μ

1997 #5
1999 #6ab
2000 #4
2000 #2
2001 #5
2004B #4, 5bc
2006 #4
2007 #1c, 4
2008 #6a
2009 #4, 6a
2010 #5
2011 #4
2002 B #6a
2003 #1c
2003 B #4
2004 #6
2002 #5
2005 #6
2006B #4
2007B #5
2008B #1b-34b-6c
2009B #5
2010B #4

Inference with z for p

1997 #4
1998 #5
2000 #6
2003B #3b, 6
2005 #4, 5b
2006B #2, 6abde
2007B #6a
2009 #5
2010 #3
2011B #5
2002 B #4
2003 #2, 6
2002 #6abd
2004B #6a
2005B #4, 6a
2007 #5bcd
2008 #3c
2009B #3, 6b
2011 #6a

Chi-Square

1999 #2
2002 #6
2002 B #6b
2008 #5
2010B #5d
2003 #5
2003 B #5c
2004 #5a
2009 #1c
2011B #4

Inference for Regression

2001 #6c
2006 #2c
2007B #6b
2011 #5d
2005B #5c
2007 #6c
2008 #6c

Stretching into something new!

2006 #6
2009 #6bcd
2010 #6cde
2011 #6cd
2008 #6d
2009B #6cde
2010B #6cd
2011B #6ef

Greetings, 2011-2012 EVHS A.P. Statistician!

We're Ken Mulsoff and Judy Hoffman, EVHS teachers who will be leading the AP Statistics course in 2011-2012. We suspect that the academic challenges of next fall may not be at the forefront of your thoughts right now, but perhaps things will change over the summer! We write to offer you a few ways to be a step ahead with a pre-warmed brain when AP Statistics gets rolling in September.

First, poke around under "AP Statistics" at the Eastview Stats site: http://www.district196.org/evhs/People/mulsoffweb/
You'll find tips, hints, etc., and learn about the basics of AP Stats at Eastview.

Second, keep your eyes & ears open for the stats you're exposed to every day…..

The weather broadcaster will tell you today's average high temperature, and will often compare today's high with the average, but how do they really compare? Are you told how unusual today is compared to the average? How would you decide if a day is unusually hot or cool? How many degrees above the average make a day really unusual? What information could be given to help you make this decision?

Medical studies are often in the news. Do certain foods/drinks really extend (or shorten!) human life? How much does smoking really harm you? Are the people who volunteer for medical studies just like the rest of folks? Should I spend money on vitamins?

Elections are coming! Every good poll reports a margin of error, with a specified confidence level. What the heck is that truly measuring, what does it mean, and how is it calculated?

Third, there are many good books that deal with deep statistical ideas without getting too technical. Consider picking up one of these and giving it a read before school starts. (stars indicate favorites and/or an especially high recommendation)

** **Outliers**, by Malcolm Gladwell. Little, Brown, & Co 2008
** **Innumeracy**, by John Allen Paulos. Hill and Wang
** **Freakonomics**: A Rogue Economist Explores the Hidden Side of Everything, by Levitt & Dubner, 2005.
** **A Mathematician Reads the Newspaper**, by J. A. Paulos. Basic Books, 1995.
** **Moneyball**: The Art of Winning an Unfair Game, by M. Lewis. Norton, 2003
(tells how the Oakland A's revamped their baseball team using basic stats)
* **The Lady Tasting Tea,** by D. Salsburg. Owl Books, 2001
* **200% of Nothing**, by A. K. Dewdney. John Wiley and Sons, 1993.
Bringing Down the House: How Six Students Took Vegas for Millions, by Ben Mezrich
(Breaking Vegas & "21" movie are based on this book). Free Press
Fooled by Randomness: The Hidden Role of Chance in Life and in the Markets, by N. Taleb. Thomson, 2004
The Black Swan: The Impact of the Highly Improbable, by N. Taleb. Thomson, 2007
Tainted Truth: The Manipulation of Fact In America, by C. Crossen
The Ghost Map: The Story of London's Most Terrifying Epidemic—and How
It Changed Science, Cities, and the Modern World, by S. Johnson
The Tipping Point: How Little Things Can Make a Big Difference, by M. Gladwell, Little, Brown & Co., 2002

Fourth, as you complete THIS academic year, make sure you 'finish strong' and are fully prepared for the AP Statistics opportunity. As described in the materials available when you registered, you must be a self-motivated student with a very strong Algebra II background -- generally 'A' grades, possibly 'B' – and, even more important, very strong scholarship and attendance habits. If you fit this description, super! If not, you might want to reconsider your course selection. Contact one of us (or your guidance counselor) with any questions.

So…those were a few ideas to keep (or get!) your stat-brain rolling. Watch out -- if you're not careful, you might notice stats around you all the time. We can't wait to see you all in fall. In the meantime, we hope your summer is statistically significantly great. (p-value < 0.05)

If you have any questions about anything, feel free to send a note.

Ken Mulsoff & Judy Hoffman (kenneth.mulsoff@district196.org & judy.hoffman@district196.org)
EVHS Math/Stats/Computer Science Department