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Tricks and Tips for Teaching Hybrid: My Experience

California State Polytechnic University, Pomona, February 2019



MBA Data Analysis, Fall 2018



students are **tech savvy**

+

grading takes time

=

create **automatically graded tests**

Blackboard is your friend!



BFF

(Blackboard Friend Forever)

▼ Control Panel

► Content Collection →

▼ Course Tools

Achievements

Announcements

Attendance

Blackboard Collaborate Ultra

Blogs

Cengage Learning

MindLinks&#8482;

Contacts

Content Market Tools

Course Calendar

Course Messages

Custom Reports

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Link Checker

McGraw-Hill Higher Education

Mobile Compatible Test List

Pearson's MyLab & Mastering

Rubrics

Self and Peer Assessment

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Tasks

Tests, Surveys, and Pools

Turnitin Assignments

Turnitin Assignments by

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Homeworks (15%) ▼

Build Content ▼

Assessments ▼

Tools ▼

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HW04 SOLUTIONS (Correlation and simple linear regression)

Enabled: Statistics Tracking

These videos contain solutions to just one random version of this homework. Every student got a slightly different version.

1.	Correlation (conceptual)	
2.	Scatterplots and correlation	
3.	Compute correlation coefficient / table of correlations	
4.	Compute intercept and slope	
5.	Compute and interpret intercept	
6.	Compute and interpret slope	
7.	Predict Y	
8.	Compute Beta in CAPM model	

**BUA345 S19 - HW04 - Correlation and simple linear regression (due Feb 17, 11:59pm)**

- You must use FIREFOX or CHROME browser to complete this homework.
- This homework is **due on Sunday, February 17, 11:59pm.**
- You have **5 attempts** and unlimited time per each attempt.

COURSE MANAGEMENT

▼ Control Panel

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Tests, Surveys, and Pools

Tests

Tests are sets of questions that are graded to measure student performance. Once a test is created here, it must be deployed within a content folder before students can take the test. Test results are reviewed in the Grade Center. Note that some question types are not automatically graded.

Surveys

Surveys are not graded, and student responses are anonymous. Surveys are used for gathering information from students that is not used to evaluate student performance. Surveys must be deployed in a content folder.

Pools

Pools are sets of questions that can be added to any Test or Survey. Pools are useful for storing questions and reusing them in more than one Test or Survey.

2. Combine questions
into a test here

1. Create questions here



Available Question Types

Multiple Choice

Multiple Answer

True / False

Either / Or

Matching

Ordering

Jumbled Sentence

Calculated Formula

Calculated Numeric

Fill in the Blank

Fill in Multiple Blanks

Hot Spot

Essay

Short Answer

File Response

Quiz Bowl

Opinion Scale / Likert

BLACKBOARD TESTS

Cons:

- Students need a charged computer & Wi-Fi.
- Takes time to set up, but takes only 1 semester.



BLACKBOARD TESTS

Pros (for **instructor**):

- Environmentally friendly: No more paper wasted.



BLACKBOARD TESTS

Pros (for **instructor**):

- Environmentally friendly: No more paper wasted.
- No more grading.
- Minimize cheating: Can create many versions.
E.g., 10 problems \times 10 versions each = 100 different versions!
- 50 students? 100? 200? Not a problem! Classes are scalable.
- You design your own questions (& uncover your hidden artistic talent).
- Happy students \rightarrow Higher evaluations \rightarrow Happy life!



BLACKBOARD TESTS

Pros (for **students**):

- Immediate feedback!
- Visual, fun, interactive.
- Mac or PC.
- Grading is objective / uniform.
- Lots of practice due to multiple attempts.
- Save \$\$\$: no more Connect, MyFinanceLab, CengageBrain, etc.
- No more paper exams lost & never found.
- All materials are found in one place: Blackboard.



Here are examples from my recent homeworks.

BUA345 S19 - HW04 - Correlation and simple linear regression (due Feb 17, 11:59pm)

Multiple Attempts This test allows 5 attempts. This is attempt number 1.

Timed Test

This test has a time limit of 30 minutes.

Timer Setting

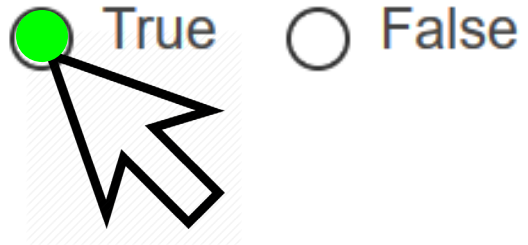
This test will save and submit automatically when the time expires.



Remaining Time: 29 minutes, 1 seconds.

Question type:
“True / False”

Independence implies **zero correlation**.



Question type: “Multiple Answer”

is a variation of Multiple Choice but multiple selections are required for full credit

From the list below, pick all those statements that are **TRUE** about **CORRELATION**.

- ☒ Correlation coefficient can only take values between -1 and +1.
- ☐ Correlation coefficient can take any negative value, any positive value, or zero.
- ☒ Correlation is used only for linear associations
- ☒ = CORREL (*all y values* , *all x values*)
- ☐ Correlation coefficient = 200.7 means that the positive linear association is also strong.
- ☐ When correlation coefficient = 0 , it means that the variables X and Y are not related to each other.
- ☒ = CORREL (*all x values* , *all y values*)

Question type: “Fill in Multiple Blanks”

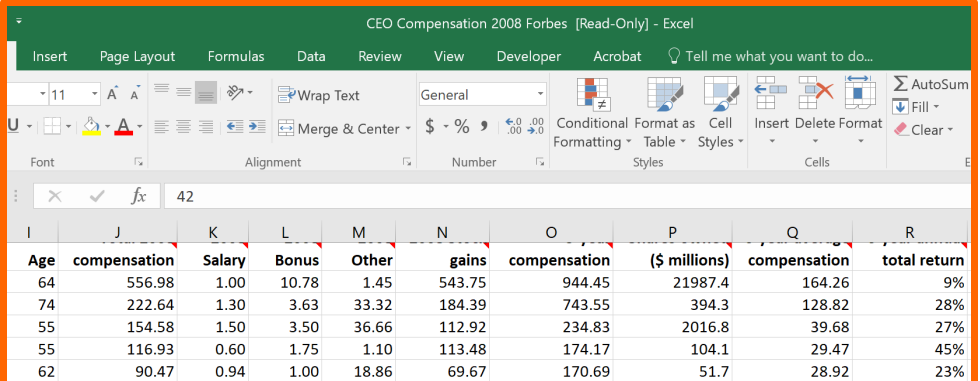
fill in numbers, words, or phrases

The pay levels of CEOs at the nation's top five publicly traded quick serves are often a combination of salaries, bonuses, and stock options.

					
CEO	 JIM SKINNER	 HOWARD SCHULTZ	 ROLAND SMITH	 DAVID NOVAK	 CLIFF HUDSON
PAY	\$4.16 MILLION	\$29.21 MILLION	\$3.4 MILLION	\$37.42 MILLION	\$1.5 MILLION
STOCKS	\$9.5 MILLION	\$482.3 MILLION	-	\$30.5 MILLION	\$301,502

SOURCE: FORBES.COM AND 2010 SECURITIES & EXCHANGE COMMISSION FILINGS

Click to open Excel file:



Age	compensation	Salary	Bonus	Other	gains	compensation	(\$ millions)	compensation	total return
64	556.98	1.00	10.78	1.45	543.75	944.45	21987.4	164.26	9%
74	222.64	1.30	3.63	33.32	184.39	743.55	394.3	128.82	28%
55	154.58	1.50	3.50	36.66	112.92	234.83	2016.8	39.68	27%
55	116.93	0.60	1.75	1.10	113.48	174.17	104.1	29.47	45%
62	90.47	0.94	1.00	18.86	69.67	170.69	51.7	28.92	23%

Use the **CEO Compensation 2008 Forbes.xlsx** dataset. This data set contains information on the 500 mostly highly compensated CEOs in 2008, according to Forbes. All monetary values are in \$ millions.

We would like to examine how the number of years a CEO has been with the company (Column H) affects his base salary (Column K). Develop an appropriate regression model.

The **intercept** = **10.573**. (Round to 3 decimal places.)

The **slope** = **0.724**. (Round to 3 decimal places.)

Question type: “Calculated Formula”

Blackboard computes correct answer
following a given formula

These 3 numbers are randomly generated

(e.g., 100 different combinations)

Full credit if within $\pm 5\%$ of correct value

Partial credit if within $\pm 30\%$



In a regression model to predict the **selling price of a house** using the **square footage** as a predictor, the following coefficients were obtained:

- Intercept = 51,785.7 **A**
- Slope = 46,549.04 **B**

The measurement units of the two variables are:

- Selling price: \$
- Square feet: thousands of square feet

A house with 2,535 square feet is currently on the market. Based on your regression model, how much would you predict the house to sell for?

In the space below, provide your numerical answer. Round to 2 decimal places. DO NOT use the "\$" sign.

75879.01

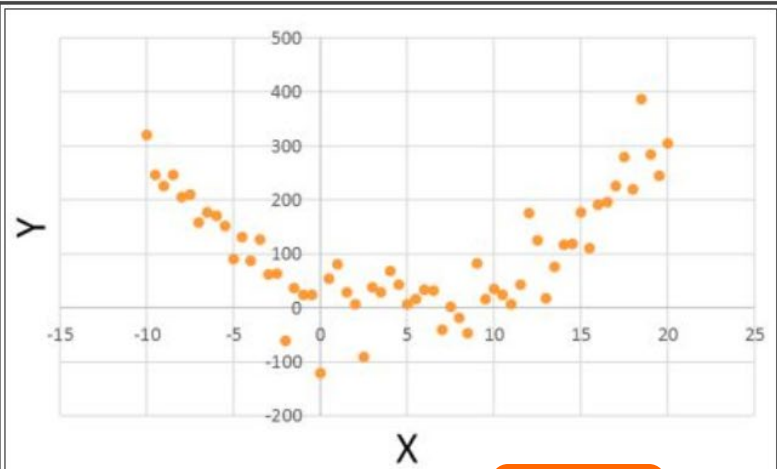
FORMULA: $A + B * C$

Question type: “Jumbled Sentence”

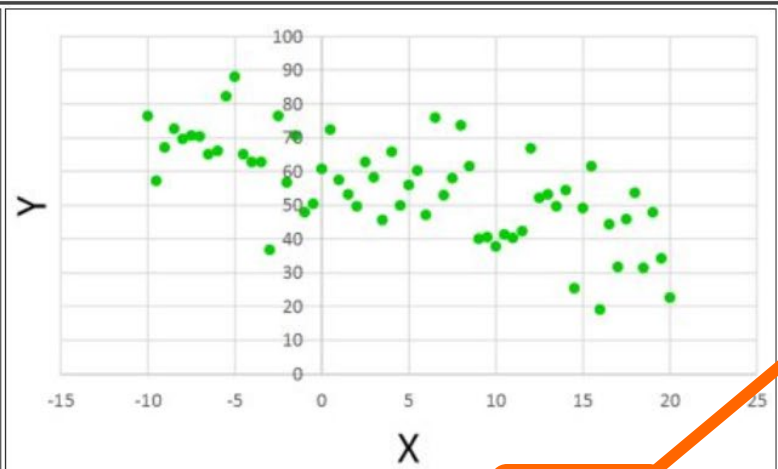
is a variation of Multiple Choice

For each scatterplot below, guess the value of the **correlation coefficient**.

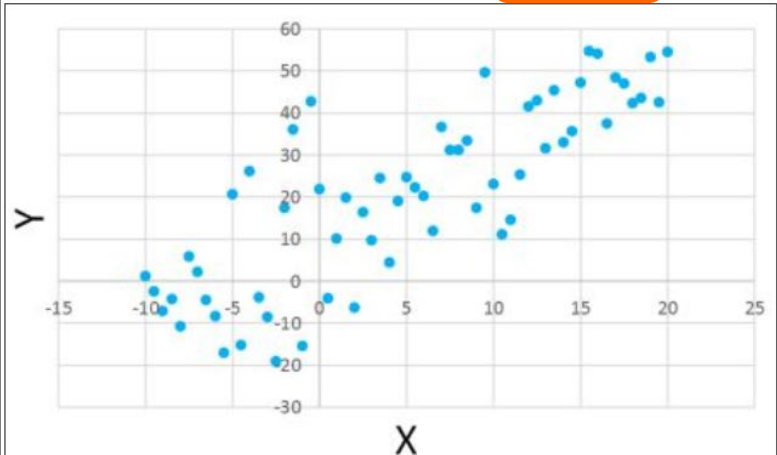
Each value of the correlation coefficient can be used only once.



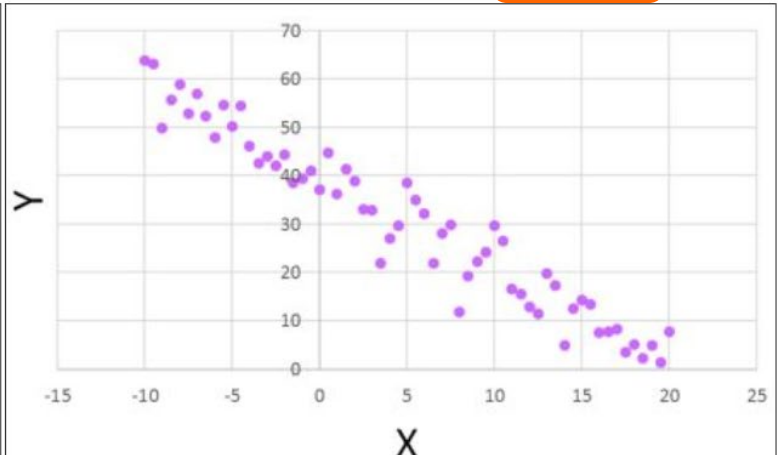
Correlation coefficient =



Correlation coefficient =



Correlation coefficient =



Correlation coefficient =

▼

-1

-0.97

-0.68

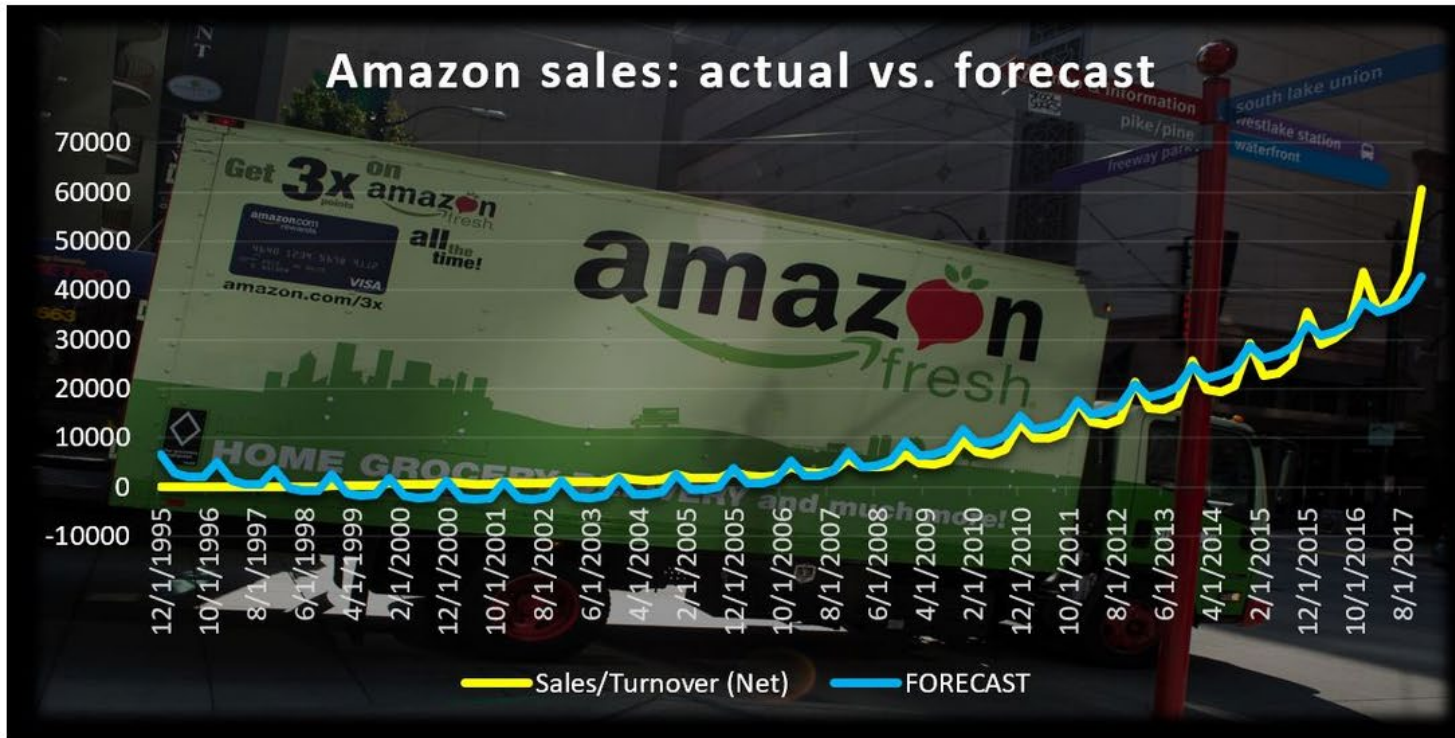
0.08

0.82

0.97

+1

Amazon sales: actual vs. forecast

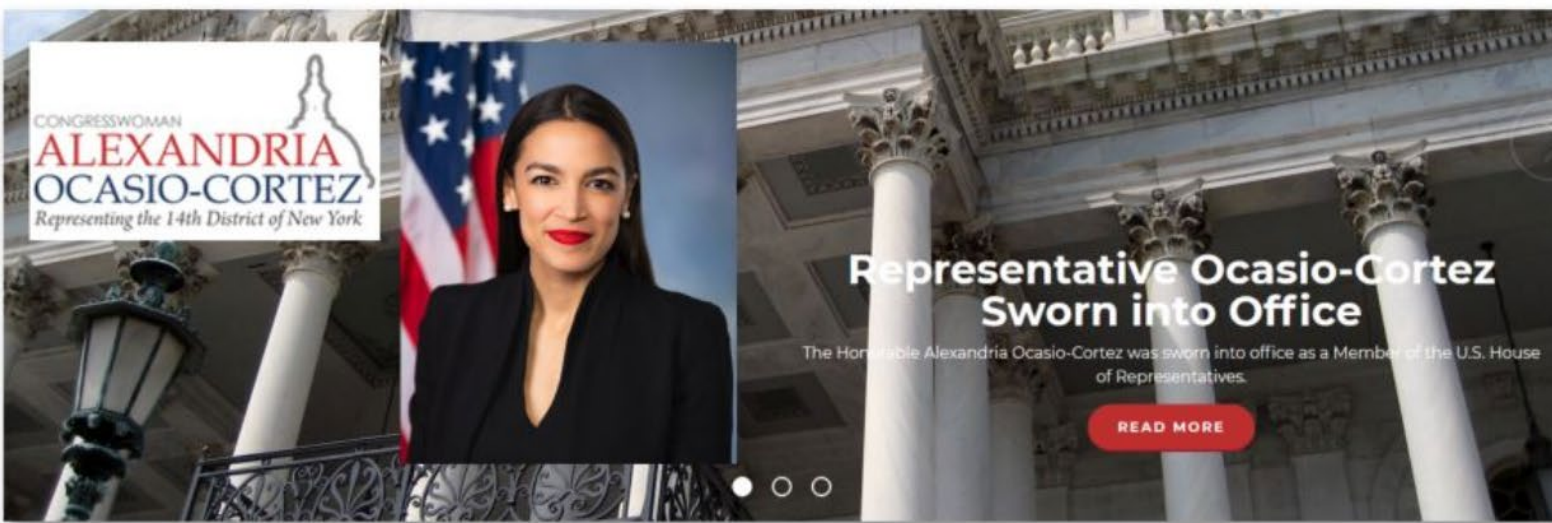


Please see Excel file [WMT AMZN sales.xlsx](#). It contains historic sales data for Walmart and Amazon. Please go to the **"Amazon" tab** that contains the data for **Amazon** for the period 1995 Q4 until 2017 Q4.

The time series plot above illustrates the actual amount of sales (\$ millions) and the forecast amount. From the figure, it's clear that the forecast model is a regression-based model with **quadratic trend** and **seasonality**.

a) What is the **adjusted R-squared** of this model? 0 .

b) Based on the model, what is the **sales forecast** (\$ millions) for **2018 Q1**? , .



GovTrack.us tracks the United States Congress and helps Americans participate in their national legislature. For a number of years, they've been keeping track of all US House representatives and senators and have been assigning a **conservatism score** to every one of them. This is a conservative/liberal scale from 0 to 1, where 0 = very liberal and 1 = very conservative.

www link

Let's take a look at the data from 2018. Go to <https://www.govtrack.us/congress/members/report-cards/2018/house/ideology>. On the right hand side, under "Ideology Score", you will see the data.

Using these data and the techniques that you have learnt in this class, find the answers to the following questions:

- 0
- 0.1015
- 0.1104
- 0.2492
- 0.3079
- 0.5539
- 0.7606
- 200
- 238
- 438
- 0.50 %
- 4.00 %
- 4.11 %
- 7.56 %
- 7.99 %
- 17.50 %

		IDEOLOGY SCORE		
	Count	St. Deviation	Proportion with score > 0.9 (%)	Proportion with score < 0.3 (%)
Democrats	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Republicans	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
All representatives (both parties):	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



A **FICO score** is a number that represents a person's creditworthiness, or the likelihood that the person will pay his or her debts. Lenders, such as banks and credit card agencies, use credit scores to assess the potential risk posed by lending money to customers. The FICO score was first introduced in 1989 and is currently used by the vast majority of banks. It is based on consumer credit files of the three national credit bureaus: Experian, Equifax, and TransUnion. Because a consumer's credit file may contain different information at each of the bureaus, FICO scores can vary depending on which bureau provides the information to FICO to generate the score.

The data contains information on 500 customers. [Credit Card Holder Sample.xlsx](#)

d) Interpret the **slope**:

- #1: For every additional unit in FICO score, years of education are predicted to decrease by **0.5153 years**.
- #2: For every additional unit in FICO score, years of education are predicted to decrease by **0.0017 years**.
- #3: For every additional year of education, FICO score is predicted to decrease by **0.00172**.
- #4: For every additional year of education, FICO score is predicted to decrease by **0.5153**.
- #5: When FICO score is 0, years of education are predicted to be **14.5 years**.
- #6: When a borrower has zero years of education, FICO score is predicted to be **631.17**.
- #7: When a borrower has zero years of education, FICO score is predicted to be **14.52**.

Question type: “Hot Spot”

correct answer is a point on a map / image



You are working for an environmental research organization. There has been an increasing concern about environmental pollution. Air pollution is the world's largest environmental risk, according to WHO. As reported in a recent New York Times article "India's Air Pollution Rivals China's as World's Deadliest."

The dataset **India_air.xlsx** is from the Ministry of Environment and Forests and Central Pollution Control Board of India. Please save the Excel file on your computer and then open it.

Can we detect any local trends? Can we relate the air quality changes to changes in environmental policy in India?

Use the data to create a **3D heat map** that plots the **maximum concentration of Sulphur Dioxide (s02)**, by "location".

Based on the map, which location in India has had the most concentration of Sulphur Dioxide in the air?

Zoom in on your map so that its scale is approximately the same as the scale of the map in the picture below. Click on the location on the map that is your answer.



Question type: “File Upload”

require students to upload a file
(e.g., Excel file with work; Word file with essay)

UPLOAD YOUR EXCEL FILE HERE.

Attach File

Browse My Computer

Browse Content Collection

PLEASE
FILE I



LE YOUR
PLOADED

Question type: “Essay”

students must write an essay inside a box

Please describe 10 things that you like about Cal Poly.

1. I love Cal Poly because the weather is great and it's always sunny!
2. I love Cal Poly because my professors teach really well.
3. I love Cal Poly because I can go surfing on weekends.
4. I love Cal Poly because I am studying finance and when I graduate I will become an investment banker and make a ton of money.

...

10. OMG, I just luuuuv Cal Poly cuz it's, like, so totally AWESOME !! LOL :-)