

February 16, 2011
It is E370 Time!!!

Announcements

- ✓ Exam Two-Practical-information is posted.
- ✓ There will be a review session on Wednesday evening from 7:00 to 9:00 PM in BH310.
- ✓ Please note that the reviewer will not prepare a study guide for you but will answer your questions about the material.
- ✓ Did you know: there are 119 single men—never married, widowed or divorced—in their 20s for every 100 single women of the same age?

- A question to get you thinking: Calculate the expected Valentine's Day spending and expected standard deviation of spending on Flowers. Calculate the same thing for Candy.

Valentine's Day Gifts Purchased by Males			
State of Commitment	Probability of State	Flowers	Candy
Engaged	0.4	\$100	\$50
Steady	0.2	\$50	\$33
First Date	0.4	\$15	\$25

$E(F) =$

$E(C) =$

$\sigma_F =$

$\sigma_C =$

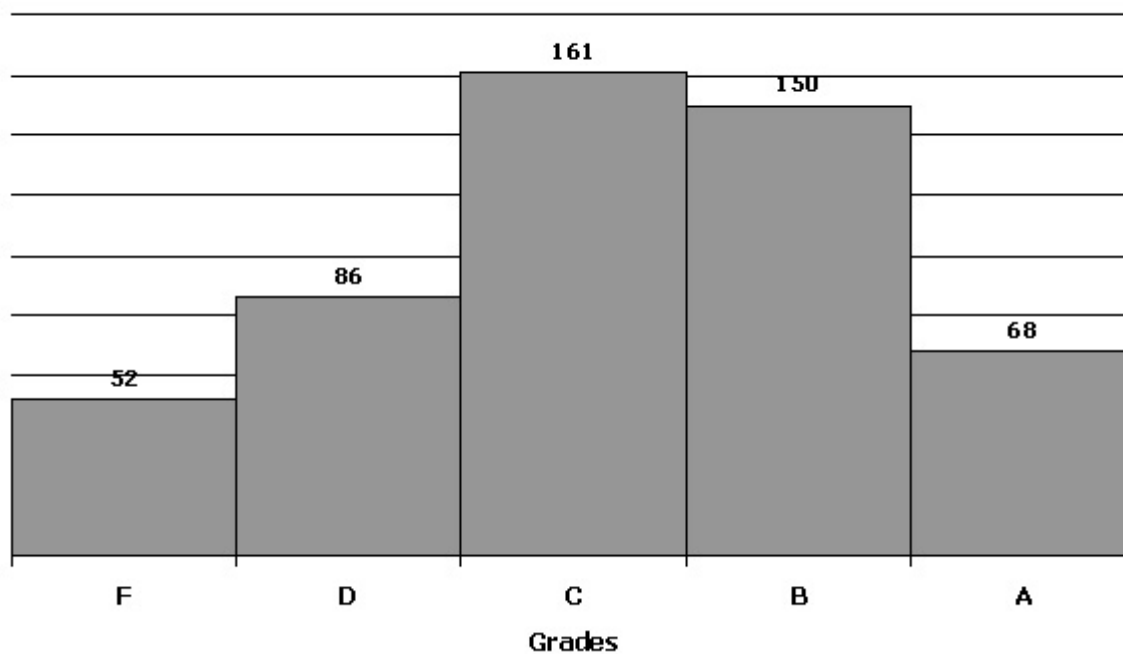
□ What will we do today?

- ✓ Practice calculating expected values from probability distributions.
- ✓ Talk about exam results.
- ✓ Practice linear transformations.
- ✓ Create linear combinations of variables.
- ✓ Calculate expected values of linear combinations.
- ✓ Consider two 'cases' of expected variance.
- ✓ Review the relationship between covariance and correlation.
- ✓ Practice some linear combination calculations.

□

Points	
Mean	70.65
Median	73
Mode	73
Standard Deviation	14.79
Variance	218.75
Skewness	-0.48
Range	81
Minimum	19
Maximum	100
Sum	36526
Count	517

Exam One



- ❑ Did you know 53% of women will dump their boyfriends if they don't give them anything on Valentines' Day?



- ❑ A simple transformation: To transform °F to °C, use this formula:

$$^{\circ}\text{Celsius} = 5/9 * ^{\circ}\text{Fahrenheit} - 17.77$$

$$E(F) = 98.2$$

$$V(F) = 0.04$$

- ❑ What is the expected temperature of the human body in degrees Celsius?
- ❑ What is the standard deviation of the temperature of the human body in degrees Celsius?

- Use the information calculated about Valentine's Day gifts. You have polled your 4 best buds and find that between them they are purchasing 3 bouquets and 2 boxes of candy.
- How much in total would you expect your buds to spend on Valentine's day gifts?
- If flowers and candy are independent, what is the expected variance of your buds' spending?
- Do you think flowers and candy are independent?
- If the covariance of flowers and candy is 430.40, what is the expected variance of your buds' spending?
- What is the correlation coefficient for the relationship between Flowers and Candy?

- Jonas H. Tippler, an economist for the T-Total party, wants to develop a position paper on the balance of trade between the US and Barbados, the independent Caribbean island nation historically noted for its rum production. The balance of trade (W) (also known as Net Exports, X_n) is a function of imports (M , goods imported by the US from Barbados) and exports (X , goods exported from the US to Barbados), related simply as $X_n = X - M$. Tippler's investigations have yielded the following information (measured in millions of dollars, but for computational ease, ignore the millions):

Variable	Mean	Standard Deviation
Imports	200	30
Exports	75	25

- According to Tippler, what is expected net exports?
- Based on Tippler's information, what relationship does he assume exists between exports and imports? What is the variance of net exports?
- Tippler discovered that the correlation coefficient between X and M is -0.50 . What is the effect of this information on the variance of net exports? Calculate the difference.