

February 8, 2012
It is E370 Time!!!

☐ Announcements

- ✓ Please remember that if you attend a CL session other than the one to which you are assigned, you will not get credit for that CL.**
- ✓ I must cancel my Concept Class this Friday. I must travel north for a family emergency.**
- ✓ If you have questions about your team and what your responsibilities are, do direct them to your lab coach. Lab coaches have all the information about team members, data sets already claimed, and what teams do.**
- ✓ I-Pods must be added to the list of electronic equipment which may not be used in class, unless it is as a calculator. They are very distracting to other students.**

- **A question to get you thinking: Use these summary tables and the additional information to fill in the contingency table below.**

Economic Status		Result	
I	325	Died	1029
II	285	Survived	1172
III	706		
Other	885		

Economic Status of Population Exposed to Risk					
Result	I	II	III	Other	TOTAL
Died					
Survived					
TOTAL					

122 of status I died.

118 of status II survived.

673 of status Other survived.

□ **What will we do today?**

- ✓ **Practice creating a contingency table.**
- ✓ **Practice calculating probabilities with a contingency table.**
- ✓ **Transition from variables to random variables.**
- ✓ **Discuss describing random variables.**
- ✓ **Compares methods of calculating center and spread.**
- ✓ **Note that finding means and variances of random variables is more of the same stuff we have already done.**
- ✓ **Look at transforming variables.**



Economic Status of Population Exposed to Risk					
Result	I	II	III	Other	Total
Died	0.06	0.08	0.24	0.09	0.47
Survived	0.09	0.05	0.08	0.31	0.53
Total	0.15	0.13	0.32	0.40	1.00

- What is the probability that a person survived the risk?**
- What is the probability that a person had economic status=II and did not survive?**
- Given that a person had economic status III, what is the probability that person survived the risk?**
- Given that a person survived, what is the probability that person had economic status I?**

- Is there evidence that suggests that economic status and whether or not a person survived the risk are independent?

Economic Status of Population Exposed to Risk					
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Total	0.15	0.13	0.32	0.40	1.00

Economic Status of Population Exposed to Risk (<i>Product of Marginals</i>)					
Result	I	II	III	Other	Total
Died	0.071	0.061	0.150	0.188	0.47
Survived	0.079	0.069	0.170	0.212	0.53
Total	0.15	0.13	0.32	0.4	1



Value of 'one item purchases' by payment method.				
Item Price	Cash	Credit Card	Debit card	Total
\$0.01 - \$20	15		10	30
\$20 - \$100		45		85
\$100 - \$250	5		30	
Total		100	70	200

- ✓ **What is the estimated mean value of a single item sale?**

- ✓ **What is the estimated variance of the value of a single item sale?**

- Random Variables and How to Describe Their Distribution**

- What makes a variable “random”?**

- What do we need to know about a variable in order to completely describe it?**

- How will random variables be defined?**

□ **Three formulas for means**

$$\bar{X}_w = \sum_i \frac{w_i}{n} * X_i$$

$$\bar{X}_{est} = \sum \left(\frac{f_i}{n} \right) * M_i$$

$$E(X) = \sum_i X_i * P(X_i)$$

□ Probability Distribution for Number of Food Service Meals Purchased by students per day

X_i	$P(X_i)$
0	0.21
1	0.44
2	0.35

□ What is the expected number of meals purchased by a typical student?

□ How much do students vary in the number of meals purchased?