Course	**GST 200: Quantitative Reasoning.** Obtaining a Pass or at least a 2.0 satisfies the Quantitative Foundation (QF) and Application (QA) graduation skill requirements.
Approach	This course is an on-line course. All homework, chapter quizzes and essay analysis are done online. There is no class attendance required for this class. Moodle forums will be used to discuss student questions, issues and problems.
Course Goal:	To help students read and interpret the summary statistics found in tables, graphs, statements, survey and studies. Students will analyze news stories that use summary statistics as evidence for causal connections. Students will learn how to distinguish stronger evidence from weaker evidence.
Essay Analysis	Analyzing articles from the media is a key component of statistical literacy. This involves understanding the context – the ability of different study designs, ratios and statistical comparisons to ward off the influence of plausible confounders.
Schedule	$1,675 per full-credit course online (1.0 credit). $770 fee for audit (0.0 credit) 4/19: Augsburg student registration opens online. 4/30: Walk-in and distance (fax) registrations processed. May 17: Classes begin. Last day for registration without a late fee. May 21: Last day for registration with a $100 late fee. July 2nd: Classes end.
Instructor	Milo Schield, 612-330-1153, Memorial 314 Schield@augsburg.edu
Instructor commitment	To log into the course daily. To respond to questions and grade essay homework within 24 hours. To e-mail the class whenever new assignments are posted.
Student commitments	To check Augsburg e-mail daily for any updates. To do all homework, forum posts and Odyssey challenges by the date/time due. This is a homework intensive class.
Textbook:	"*Statistical Literacy 2009*" textbook available in bookstore ($50). To order online:: http://augsburg.bncollege.com 1) Select term: *Summer 1*. 2) Select department: *GST* 3) Select course: *200*. 4) Select section: *L*. Press *Continue*. Step 2: Press "*View textbook list* Select "*New*" Press "*Add to cart*." Press *Checkout* Enter information needed to process book order online.
Data Analysis	Students will analyze survey data based on their survey questionnaire.
Grade Components	* 25% for Moodle homework (5 chapters; 5% each). Online, untimed * 25% for Moodle quizzes (Five quizzes at 5% each). Online, timed, 1 try * 25% based on your cumulative Odyssey power at end of the course**.** Online * 15% Final analysis of statistics in news stories and reports. Online. Comment on Causation, Association, Context, Assembly, Randomness and Error/Bias * 10% Final. Ch. 1-4. Online
Course	All homework and quizzes are on-line in Moodle.
Mathematics	Math level is arithmetic and algebra I.
Quiz & Test	Quizzes and final are on-line: open book but timed.

Class Schedule

#	Date	ACTIVITIES: Textbook	Text/Moodle Assign	Quiz	Odyssey
0	**5/23**	Due: Complete pre-course surveys	Moodle C0X		Intro
1	5/24	Assign: Ch 1 Statistical Literacy	Text: Entire chapter		
2	**5/30**	Due Sunday: Chapter 1	Moodle Chapter 1		Intro (more)
3	5/31	Assign Ch 2 Take Care.	Text: Entire chapter		
4	**6/06**	Due Sunday: Chapter 2	Moodle Chapter 2	Qz 1	Chapter 1
5	6/07	Assign Ch 3 Measures/Standardizing	Text: P. 113-158		
6	**6/13**	Due Sunday: Chapter 3	Moodle Chapter 3	Qz 2	Chapter 2
7	6/14	Ch 4 Percents & percentages: tables	Text: P. 187-211		
8	**6/20**	Due Sunday: Chapter 4	Moodle Chapter 4	Qz 3	Chapter 3
9	6/21	Ch 5 Attributed &Likely compares	P. 239-249, 257-265		
10	**6/27**	Due Sunday: Chapter 5	Moodle Chapter 5	Qz 4	Chapter 4
11	6/28	Final review: Ch 1-5, Essays reviews			
12	7/04	**Due Sunday Final Ch 1-4**		Qz 5	Summary

ODYSSEY OVERVIEW

This class uses a new on-line multiplayer game called "Odyssey" involving a number of challenges. In participating you gain "Power". For more details on Odyssey, see the Odyssey Introduction in Moodle.

MOODLE

Moodle is an online course management system. It contains your assignments, resources and your grade book. Moodle assignments are of two kinds: exercises and quizzes. For details, see the next page. Moodle also contains a forum. Anyone in the class can post a question or comment in the forum. Anyone can respond to a question or comment. The Moodle forum is our primary means of communication.

APPROACH TO ONLINE COURSE EACH WEEK

Doing well in an online course takes discipline. It is all too easy to procrastinate and get behind. Follow these steps initially and then modify them as needed for your situation. Estimated time: 8 hrs/wk.

1. Mon 20 (after first chapter): Review results of previous week's exercises posted in Moodle.
2. Mon 60 (after first chapter): Take the chapter quiz on the previous week's assignment.

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3. **Tues** 20 Odyssey: craft and post your response to each challenge.
4. Tues 15 Odyssey: Post required reviews on other responses so your response is accepted.
5. Tues 5 Check your syllabus for the material is assigned for the next week.
6. Tues 20 Text: **Scan through chapter** pictures, graphs, tables and examples.
7. Tues 2 Text: Review the chapter objectives on pages 6-7.
8. Tues 5 Moodle: Check assignments to see what topics/pages are covered.
9. Wed 90 Text: ***Read JUST those parts of the chapter involving the Moodle exercises***.
10. Thurs 90 Moodle: Make one try on each of the Moodle exercises
11. Thurs 5 Moodle Grade book: See which topics you need to review in the chapter.
12. Fri 15 Text: Review those chapter topics needed to improve your Moodle scores.
13. Fri 45 Odyssey: Return to critique the reviews and critiques of others.
14. Sa-Su 45 Moodle: Complete your second try on your Moodle exercises.
15. Sa-Su 45 Odyssey: Return again to critique the reviews and critiques of others.
16. Sun Complete each week's work by 6 PM (CST).

Moodle exercises each focus on a single topic. Almost all are multiple choice exercises. A few involve single sentence responses. These online exercises give students immediate feedback on how well they know the associated materials. Each exercise typically has 10 questions each so students can complete a set in 5 to 15 minutes. Typically a student has two tries. After the first try Moodle displays which questions were missed. Students can then review the book to see what they were doing wrong. Then they have a second try. The system records their highest score. Moodle exercises are excellent review for the chapter quizzes since the chapter quizzes are based on these exercises.

Moodle quizzes cover the topics in a single chapter. Like the exercises, the quizzes are mainly multiple choice questions with a few one-sentence essay answers. Unlike the exercises, the Moodle quizzes are timed and give the student only one try. Moodle does not identify which questions were missed until the quiz is closed.

ID	Pages	**CHAPTER 1: STATISTICAL LITERACY**
C1F	21-25	Distinguish Association-Causation in time-independent studies
C1G	21-25	Distinguish Association-Causation in time-based studies
C1H	21-25	Distinguish Association-causation: Likely/risk/can expect
C1J	42-46	Identify which definition gives a higher count or total
C1K	42-46	Calculate effect of grouping on counts
C1L	24-25	Distinguish causal phrases
C1P	42-46	Calculate the influence of grouping on counts
C1Q	42-46	Impact of word change on number
C1R	42-46	Re-define groups to increase (decrease) number
C1V	52-53	Distinguish major types of error or bias
C1X	33-53	Distinguish Context, Assembly, Randomness or Error (p. 16)

ID	**CHAPTER 2: TAKE CARE**
C2A	Identify compare given type, test and base (incl. %pt)
C2B	Identify type comparison given full compare (incl. %pt)
C2C	Calculate size of comparison given test, base and compare grammar
C2D	Identify compare given test, base and size (Incl. %pt)
C2E	Compare percentages and rates (Incl. %pt)
C2F	Identify biggest comparison of two numbers
C2G	Calculate test or base given opposite and compare (Incl. %pt)
C2H	Compare test and base after scaling (Incl. %pt)
C2I	Calculate effect of definitions on averages
C2J	Distinguish Longitudinal vs. cross-sectional association
C2K	Distinguish longitudinal cohort from non-cohort
C2L	Distinguish Experiment vs. observational
C2M	Distinguish Controlled vs. uncontrolled
C2N	Distinguish Longitudinal vs. cross-sectional association (cohort vs non)
C2O	Randomness: Meaning of Statistical Significance
C2P	Randomness Determine statistical significance from ME
C2Q	If bias is created or eliminated, identify which type of bias.
C2R	Write re-definitions to increase/decrease count
C2S	Compare random assignment and random selection
C2T	Longitudinal: controlled vs. uncontrolled.
C2U	Which type of study is stronger?
C2V	Calculate % point difference given rate and % chg
C2W	Calculate %chg given rate and PctgPtDiff
C2X	Calc test & base given %chg and PctgPtDiff

C2Y	Write out different types of comparisons
ID	**CHAPTER 3: MEASUREMENTS**
C3A	Calculate & compare ranks from scores
C3C	Identify which percentile, score or rank is higher
C3D	Identify which mean is higher in closely related groups
C3E	Compare averages from extremes of a distribution
C3F	Calculate weighted average given subgroup averages
C3G	Calculate mean, median & mode given data values
C3H	Calculate/compare weighted average before/after standardization
C3I	Standardize measures for binary confounder
ID	**CHAPTER 4: DESCRIBING RATIOS**
C4A	Identify part in questions using "What percentage…"
C4B	Calculate percentages from simple count tables
C4C	Identify part in percent grammar statements
C4D	Identify part in percentage grammar statements
C4E	Convert statements: percentage to percent grammar
C4F	Convert statement: percent to percentage grammar
C4G	Identify part in questions using "What is the percentage…"
C4H	Identify part in statements: percent or percentage grammar
C4I	Identify part in questions: percent or percentage grammar
C4J	Calculate percentage from a complex count table
C4X	Identify influence of assembly on percentages and rates.
ID	**CHAPTER 5: COMPARING RATIOS**
C5B	Calculate percentage attributable from percentage/rate data.
C5C	Calculate cases attributable given rates and # of exposure cases
C5Q	Likely grammar compare: identify part/whole, test/base, common/distinct part