UNT SCHOOL of PUBLIC HEALTH

BIOS 5210: Biostatistics for Public Health I
Summer Institute 2009 (June 29 - July 17)

Class Time:	M-F; 8:30 - 11:00 a.m.	*Classroom:*	TBD

Instructor:	Sumihiro Suzuki	*Office:*	CBH 327
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Office Hours:	By appointment		

Required Text: *Biostatistics: A Foundation for Analysis in the Health Sciences,* by W. Daniel, 8th edition, Wiley 2005.

Recommended Text: *SPSS 10 Made Simple,* by P. Kinnear and C. Gray, Psychology Press, 2000.

Recommended Software: SPSS (will be used by instructor).

Prerequisite: College Algebra or equivalent.

Course Description: The course provides the basic knowledge and skills of biostatistics. Topics include, but are not limited to, choosing correct statistical methods and experimental design, descriptive statistics, probability, distributions, estimation, hypothesis testing, simple linear regression, and an introduction to using statistical software.

Course Objectives: At then end of the course the student will be able to:

1. Identify and classify variables from public health data.

2. Summarize data by using measures of central tendency and variation.

3. Carry out exploratory data analysis to reveal trends and relationships.

4. Identify, apply, and interpret the measures of frequency and association.

5. Define, obtain, and apply basic concepts of probability.

6. Define and interpret various distributions.

7. Compute, construct, and interpret confidence intervals.

8. Select, conduct, and interpret various hypothesis tests.

9. Define, compute, and interpret p-value.

10. Understand the equivalence of confidence intervals and hypothesis tests.

11. Compute, apply, and interpret simple linear regression.

12. Use a statistical software to conduct specific data analysis.

13. Select and apply the best means of data presentation.

Course Requirements and Policies:

1. The student is responsible for all material covered in class regardless of his/her presence in class, and irrespective of whether it is covered in the text.

2. Each class (except on days of exams) is structured so that there is (about) a two-hour lecture followed by a one-hour problem section.

3. During lectures, all electronic devices (cell phones, pagers, PDAs, laptop computers, mp3-players, blackberries, or any other berries, etc.) should be set so no sound is made to disturb and/or interrupt the class. **Each time a student's electronic device interrupts the class, one point will be deducted from his/her overall grade.** To preserve fairness, each time the instructor's electronic device interrupts the class, every student will be awarded one extra point on his/her overall grade.

4. Grading policies are as follows.

Grading:		Grade Distribution:	
Homework	0 %	A	(90, 100]
Project 1	10 %	A-	[90, 90]
Project 2	30 %	B+	[85, 90)
Exam I	30 %	B	[80, 85)
Exam II	30 %	C+	[75, 80)
Total	100 %	C	[65, 75)

Homework: Homework is assigned daily (except for days of exams). Each assignment is discussed and worked out during the corresponding problem section on the same day.

Projects: Two projects will be assigned during the course of the semester.

Project 1 Reply to the letter from the instructor attached to the syllabus. Attach a fairly recent picture of oneself to the letter, preferably one in which the face is clearly visible and distinguishable. The only requirement for the letter is that it is typed in English. The context, length, and format are completely up to the student. The picture can be as crude as a photocopy of one's driver's license or as elaborate as a wedding picture. This project will be due by 11:30 a.m. on June 30, 2009.

Project 2 The second project will be assigned on July 16, 2009 and may require the use of a statistical computer package. A relatively short report containing code (if any) and essential parts of the output along with comments, results, and answers should be submitted for grading by 11:59 p.m. on July 27, 2009.

Exams: There will be two in-class written exams during the semester (July 6 and July 13). Both exams are open-reference where the student is allowed to use the textbook (Daniel), any written or typed notes, and a calculator. **No make-up exams will be allowed except for documented emergencies approved by the instructor.**

Friendly Advise: This course will move at a very rapid pace. Many of the concepts will be progressive, so try not to fall behind. Most importantly,

Honor Code: The University of North Texas Health Science Center's primary concern is the student. It attempts to provide for all students an environment that is conducive to academic endeavor, social growth, and individual self-discipline. Enrollment is considered implicit acceptance of the rules, regulations, and guidelines governing student behavior promulgated by the health science center and the Student Handbook (available in UNTHSC Office of Student Affairs or on UNTHSC Web site) for which students are subject to discipline. Honor Code infractions by students constitute actions of dishonesty, cheating, plagiarism, stealing or lying to any school official. You should refer to the UNT Health Science Center regarding rules governing student academic conduct.

American with Disabilities Act: The University of North Texas Health Science Center does not discriminate on the basis of an individual's disability and complies with Section 504 and Public Law 101-336 (American with Disabilities Act) in its admissions, accessibility, treatment and employment of individuals in its programs and activities.

The University of North Texas Health Science Center provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic and employment requirements. For assistance contact the Equal Employment Opportunity Office at the health science center.

Course Schedule (Subject to Change)

Date	Topics	Chapter/Section
June 29	**Projects 1 assigned.** Course introduction. Syllabus. Measurements. Descriptive statistics.	Ch 1, 2
June 30	**Project 1 due.** Probability.	Ch 3
July 1	Discrete probability distribution. Binomial distribution. Poisson distribution.	4.1 - 4.4
July 2	Continuous probability distribution. Normal distribution.	4.5 - 4.7
July 3	Sampling distribution.	Ch 5
July 6	**Exam I** (open reference).	
July 7	Statistical Inference (part one): testing and estimation	6.1, 6.2, 6.5, 7.1, 7.2, 7.5
July 8	Statistical Inference (part two): t distribution	6.3, 6.4, 7.2-7.4
July 9	Statistical Inference (part three): χ^2 and F distribution.	6.9, 6.10, 7.6-7.8
July 10	Statistical Inference (part four): power and sample size	6.7, 6.8, 7.9,7.10
July 13	**Exam II** (open reference).	
July 14	Categorical data. Goodness-of-fit. Contingency table.	12.1 - 12.6
July 15	Simple linear regression (part one): introduction and inference.	Ch 9
July 16	**Project 2 assigned** (due by 11:59 p.m. on July 27, 2008). Simple linear regression (part two): diagnostics.	Ch 9
July 17	Vital Statistics.	Ch 14

Dear Students,

As you have decided to enroll in my course this semester, I thought I would write you a letter as a first step in getting acquainted. I am eager to get to know you, and excited about the work we will do together this semester. You may wonder why I am so interested in getting to know you. The reason is two-fold. One, we only see each other a limited number of times during the course of one semester, mostly in class where we have very little time if any for decent conversation. The second reason reflects on my philosophy on higher education (more so on graduate education). For most of you, the ultimate goal for attending graduate school is not to graduate with a Masters or a Doctorate degree. I imagine it is to get the necessary training to someday land a job which you truly enjoy. By getting to know your interests and plans, I may be able assist you in the future through job referrals and recommendation letters.

Let me start by formally introducing myself. My name is Sumihiro Suzuki, most people call me Sumi, and I encourage you to do the same. I have been working at UNTHSC for about two years now. I was originally born in Sendai, Japan (northeast of Tokyo), but moved to Galveston (a small island town south of Houston) at a very young age. I lived in Galveston through high school where my parents still reside. I have an older sister who is happily (I think) married living in Yokohama, Japan (harbor city south of Tokyo).

Some of my favorite hobbies and activities, in no particular order, are cooking (but not baking), watching professional baseball and football (specifically the Houston teams), eating and drinking with friends while talking about baseball and football, eating and drinking with friends for any occasion, jogging (actually I do not like to jog, but do enjoy the sense of accomplishment afterward), racquetball, tennis, playing and figuring out optimal mathematical strategies for common card and board games (yeah, kind of geeky, I know), and stuffing myself with food to the brink of sickness then jogging the next day to somehow justify my gluttonous behavior.

I am very easily entertained, and very small things make me laugh, especially things which are paradoxical, ironic, witty, or just plain stupid. I almost drove my car off the road the first time I past by a shopping center in Dallas (southeast corner of Belt Line and Preston) where I saw a Jenny Craig two doors down from a doughnut shop (I still get a chuckle every time I see it). Another example, there is (at least there used to be) a display case at DFW airport of things which may not be taken onto a plane. At the center of this display case is a huge chain saw.

Some additional information and tidbits about myself: I used to weigh 250 pounds as a 19 year old. I would give my right arm to see the Houston Astros win the World Series (but if they can win without my arm, it would be better). I recently got LASIK eye surgery. I have very few dislikes when it comes to food but do not like liver, coconut flakes, and sweet and savory combinations (like the roast duck with the mango chutney). Favorite foods are anything deep fried (but not a monte cristo, because it is sweet and savory).

As we go through this learning experience together, I hope we get to know something more of each other and about ourselves. You have my best wishes for an exciting and successful semester. I look forward to hearing form you.

Best,

Sumi