INDIANA UNIVERSITY

Department of Economics Summer 2015

Course: E370 – Statistical Analysis for Business and Economics (section 3693) **Location:** Wylie Hall 125 **Time:** 12:45pm – 2:00pm (Daily)

Instructor: Jake Schild Office: Wylie Hall 250 E-mail: jjschild@indiana.edu Office Hours: Tuesdays and Thursdays 2:00 – 3:30 in Wylie Hall 344. Additional appointments can be scheduled via email.

Course Objectives:

- 1) Develop an understanding of key statistical concepts used in economics and business
- 2) Learn basic methods of sampling and data collection
- 3) Learn foundational statistical methods of data analysis
- 4) Gain practical skills by applying statistical methods to actual data using Microsoft Excel
- 5) Learn to draw statistical inferences, and make predictions using basic linear models
- 6) Learn to evaluate statistical techniques reported in the popular press

Prerequisites:

E201 – Introduction to Microeconomics. M118 – Finite Mathematics (or equivalent).

Required Materials:

Statistical Analysis for Business and Economics, sixth edition. Camp, Mary Elizabeth, Great River Technologies, 2014. (Available in bookstore).

Access to Microsoft Excel 2011 or newer. Excel is available as a free download through IUB at <u>https://iuware.iu.edu/Windows/Title/1786</u>

Recommended Textbook: (optional)

The Practice of Statistics for Business and Economics, third edition. Moore, McCabe, Alwan, Craig, and Duckworth. W.H. Freeman and Company.

Grades:

Homework -15% of final grade In Class Labs -25% of final grade Exam 1-20% of final grade Exam 2-20% of final grade Exam 3-20% of final grade

Grading Scale:

A+ (98-100%)	B+ (85-87%)	C+ (73-75%)	D+ (62-64%)	F (Below 55%)
A (91-97%)	B (79-84%)	C (68-72%)	D (58-61%)	
A- (88-90%)	B- (76-78%)	C- (65-67%)	D- (55-57%)	

Homework:

Approximately two short homework assignments per week. This is a six-week course, and we move quickly. Completing homework assignments is essential to keeping up with the material. Homeworks will be due two days after they are assigned. No late homework will be accepted.

In Class Labs:

Labs are held in our normal lecture room at our usual time and must be completed in class. In lab we will use Microsoft Excel to analyze real world data. You must be present on lab days to receive lab points – there are no make-up labs.

Exams:

There will be 3 exams of equal weight that will be comprised of multiple choice and short answer style questions. The material in this course is inherently cumulative – all exams are cumulative.

The *tentative* schedule is as follows (dates will change only if necessary)

- Lab 1 Friday, May 15th
- Lab 2 Wednesday, May 20th
- Exam 1 Friday, May 22^{nd}
- Lab 3 Wednesday, May 27th
- Lab 4 Friday, May 29th
- Lab 5 Wednesday, June 3rd
- Exam 2 Friday, June 5th
- Lab 6 Wednesday, June 10th
- Lab 7 Friday, June 12th
- Lab 8 Wednesday, June 17th
- Exam 3 Friday, June 19th

Attendance:

Students are expected to attend every class. While lecture attendance does not directly affect a student's grade, it will be <u>very</u> difficult to perform well on the exams and labs without having attended lecture. Furthermore, you must be present in lecture to complete in class labs and turn in homework assignments.

Last Day to Drop:

The last day to withdraw from the class and receive an automatic "W" is **Tuesday**, **May 26th**, **by 4:00p.m**. This is also the last day to get a withdrawal slip signed without a special petition. After this date, you can obtain a late withdrawal from a course only by first receiving special permission from the dean of the college. Such permission is <u>VERY</u> difficult to get. University rules specify that permission for late withdrawals is "given only for urgent reasons relating to

extended illness or equivalent distress" to a student who is "passing the course on the date of withdrawal."

To add or drop classes: http://registrar.indiana.edu/dropadd.shtml

Make-Up Policies:

During the course many possible events may occur that would result in your inability to attend class and/or exams. Illness or injury, family emergencies, certain University-approved curricular and extra-curricular activities, and religious holidays can be legitimate reasons to miss class or to be excused from a scheduled examination or lab.

In the case of your own illness or injury, a note from a physician, physician's assistant, or a nurse-practitioner that says, among other things, "...**unable to attend**..." is <u>required</u>. The note must be provided to the instructor within one week of the missed course event (*in cases of extended illness or incapacity, the note must be provided within a week of the end of your illness or incapacity, and it should specify the period of your inability to attend the course).*

With regard to family emergencies, you must provide verifiable documentation of the emergency. Unless the emergency is critical you should notify the instructor in advance of your absence from the scheduled course event. In cases of critical emergencies, you must notify the instructor within one week of your absence.

For University-approved curricular and extra-curricular activities, verifiable documentation is also required. The student should obtain from the unit or department sponsoring the activity a letter (or class absence form) indicating the anticipated absence(s). The letter must be presented to the instructor at least one week prior to the first absence.

In the case of religious holidays, the student should notify the instructor by the end of the first week of the course of any potential conflicts. IU website: http://www.indiana.edu/~vpfaa/docs/religious_observances/religious-observances-calendar-2013-2018.pdf

Policy on Missed Exams: In the event of an approved absence from an exam, the exam's weight will be distributed evenly amongst the remaining exams. In the event a student misses the third exam for an approved reason, a make-up exam will be scheduled. Unexcused absences will receive a zero.

Policy on Missed Labs: In the event of an approved absence from a lab, the student's missed lab will be allocated the *average* score of his or her other labs. Unexcused absences will receive a zero.

Office of Disability Services for Students (DSS):

If you desire classroom/testing accommodations for a disability, see me outside of class. Present the written supporting memorandum of accommodation from the Office of Disability Services for Students (www.indiana.edu/~iubdss). Requests for accommodations must be made <u>no less</u>

<u>than one week</u> in advance of need. No accommodation should be assumed until authorized by your instructor.

Academic Misconduct:

Dishonesty of any kind is not tolerated in this course. Dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with academic work of other students. Students who are found dishonest will receive the most severe academic sanction consistent with IU polices. A minimum penalty for any breach of academic integrity is the grade of "F" for the course. The University of Indiana has information at its website: <u>http://www.iu.edu/~code/code/responsibilities/personal/index.shtml</u>. Be sure to read the contents of this site.

General Course Topics:

- Graphing data: Histogram, Frequency Polygon, Cumulative Frequency Polygon (Ogive), Pie chart, Bar Chart, Pareto Diagram, Scatter Plot
- Summary Statistics: Mean, Median, Mode, Variance, Standard Deviation, Standard Error, Coefficient of Skewness, Percentiles
- Linear Relationships: Covariance, Coefficient of Correlation, Least Squares Line
- Gathering Data and Sampling: Population vs. Sample, Random Sample, Selection Bias, Sampling Error
- Random Variables: Expected Values, Linear Combinations
- Discrete Random Variables: Bernoulli, Binomial
- Continuous Random Variables: Uniform, Normal, Standard Normal, Student's t
- Estimation: Point Estimates, Confidence Intervals
- Hypothesis Testing: Simple and Composite Tests, Type I and II Error
- Linear Regression Analysis: Ordinary Least Squares, R², Dummy Variables, Testing Significance of Variables.