BUAD 5603 Advanced Applied Business Statistics  
Fall 2011  
Dillard College of Business Administration  
Midwestern State University

Class Hours: Thursday, 07:00 pm – 09:50 pm, DB 177

Contact Information

Instructor: Adam Y.C. Lei, Ph.D., CFA  
Office: DB 219  
940-397-4403 adam.lei@mwsu.edu

Office Hours: Thursday, 01:30 pm – 04:30 pm, and by appointment

Course Materials

Required: 1) Lecture Notes (available through WebCT),


Course Description

Computerized statistical analysis. Inferential statistics, estimation, and testing hypotheses with emphasis on ANOVA, multiple regression, and nonparametric statistics.

Course Objective

A. General Learning Goals:

Upon successful completion of this course, students should:

1) Demonstrate problem solving and decision making abilities through the critical analysis, evaluation, and interpretation of business information.  
2) Demonstrate a competency in speaking and writing for common business scenarios.  
3) Know how to use team building and collaboration to achieve group objectives.  
4) Be able to utilize available technology for common business applications.
B. Course Specific Learning Goals:

Upon successful completion of this course, students should have developed the understanding of:

1) The meanings and applications of descriptive statistics and sampling distributions.
2) Estimation and hypothesis testing.
3) Simple linear regression.
4) Multiple regression analysis.
5) Regressions in a time-series context.
6) Nonparametric tests.

Course Prerequisites

BUAD 3033 or equivalent and consent of the Graduate Coordinator.

Other Requirements

Each student should have a calculator capable of calculating standard deviations, and is expected to be familiar with the calculator’s functions.

Grading and Evaluation

<table>
<thead>
<tr>
<th>Course Grading:</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<tr>
<td>Midterm Project</td>
<td>30%</td>
</tr>
<tr>
<td>Semester Project</td>
<td>35%</td>
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<tr>
<td>Participation</td>
<td>10%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-90</td>
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<tr>
<td>C</td>
<td>70-80</td>
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<tr>
<td>D</td>
<td>60-70 (No credit)</td>
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<tr>
<td>F</td>
<td>Below 60 (No credit)</td>
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All grades are firm and non-negotiable. There is no rounding in grades. To maintain the fairness to the entire class, the same grading criteria will be applied to every student, and no personal reason will be considered for grading purposes. No grade will be disclosed by email, by phone, or online.

Midterm Exam:

There will be one in-class open-book exam during this semester. The exam will include questions on any covered material, e.g., lecture notes, classroom discussions, and reading assignments. Each student will need a calculator for the exam. The use of cell phones is not allowed during the exam.
Midterm Exam (continued):

The exam must be taken as scheduled. There is no make-up exam in this course and students missing the exam without a valid excuse will receive an exam grade of zero. A valid excuse is defined as an authorized absence (see Midwestern State University Student Handbook (2011-2012) for the definition) or an unforeseeable, proved, and documented event that requires the student’s presence in a place other than the classroom during the class period, and such event is deemed acceptable by the instructor. In the case of an excused absence, the document justifying the absence must be turned to the instructor within one week from the absence, and the weight assigned for the missed exam will be redistributed to the other components of the semester grade.

Midterm Project:

There will be one midterm individual project during this semester. The project topic and specific guidelines will be given in class, and students will have the specified time to complete the project.

Semester Project:

Student are required to form teams of 3 members and use the statistical techniques covered in this course, especially those on multiple regression analysis, to analyze a business problem and provide specific suggestions toward the resolution of the problem.

Team Formation

If the class size at the second class period (for the class size to stabilize) is not a multiple of 3, then at most N = Remainder of (class size/3) teams can have 4 members. The composition of a team cannot be changed once the term is formed, and each team is at its own risk that its members may later withdraw or be dropped from this class during the semester. The team formation is due on September 15 (Thursday) at the beginning of class. Each team should send the instructor an email on or before the due date with a list of team members for the official record. Students who are not in a team by the due date will form teams of 1 member, and those students will face a grade penalty on failing to meet the team formation deadline. Individual teams will be evaluated on the same basis regardless of team size, and students in the same team will receive the same grade on the semester project regardless of their responsibilities within the team. The formation of team is on a first come, first served basis.

Project Topic

The business problem can come from any aspect of a for-profit business, e.g., finance, management, marketing, and so on, but it should be important and well defined enough to justify the analysis. For this purpose, each team should seek and secure the instructor’s approval on the identified topic through emails before the beginning of class on September 29 (Thursday). Teams failing to meet the topic deadline will face a grade penalty on their semester projects, and these teams run the risk that the quality of their projects may be unacceptable when the projects are evaluated.
Project Topic (continued)

Each team proposing a topic should formulate and address at least the following items, and be prepared to answer the instructor’s questions:

1) What is the business problem and why is it important?
2) What is the statistical relation implied by the business problem?
3) How are the dependent variable and the independent variables defined?
4) The availability of data.

A topic proposal usually will take several rounds between the team and the instructor to address potential concerns on the specific topic before the proposal is finally accepted.

Presentation

Each team will present its preliminary and completed analyses, respectively, to the entire class during the designated class periods. For the preliminary presentation, the empirical results other than the regression analysis should be prepared.

Final Report

Each team should submit its analysis to the instructor in a final report on the last day of semester project final presentation.

The submitted report is subject to the following format requirements:

1) Margin: 1 inch
2) Font size: 12
3) Font: Times New Roman
4) Line spacing: Double
5) Page limits: Minimum 15 pages and maximum 25 pages (excluding cover page, references, appendix, and table/figures)

The report should have at least, but is not limited to, the following components/sections in the designated order:

1) Cover page
2) Executive summary
3) Introduction
4) Statistical analysis
5) Conclusion
6) References
7) Appendix (if any)
8) Tables
9) Figures (if any)
For the semester project, students can use any resource they have, but the analysis needs to be original. A team meeting all the deadlines with a final report meeting all the requirements above will have at least 20 points on the semester project. The exact semester project grade, however, depends on the quality of the presentations and the final report.

**Participation:**

A student’s grade on class participation depends on three factors: 1) Attendance, 2) Performance on raising and answering questions in class, and 3) Grades on random assignments. There is no guarantee that a student attending every class will automatically receive the full credit on class participation.

For the record keeping purpose, each class period a roll sheet will be passed through the class and students need to make sure that they sign on the roll sheet. Signing any other student’s name on the roll sheet is considered as a disruptive conduct in this course.

**Instructor Drop, Midwestern State University Graduate Catalog (2010-2012), p. 27**

An instructor may drop a student any time during the semester for excessive absences, for consistently failing to meet class assignments, for an indifferent attitude, or for disruptive conduct. The instructor must give the student a verbal or written warning prior to being dropped from the class. An instructor’s drop of a student takes precedence over the student-initiated course drop of a later date. The instructor will assign a grade of either WF or F through the first 8 weeks of a long semester, first 6 weeks of a 10 week summer term, or the 11th class day of a 4 or 5 week summer term consisting of 20 days. After these periods the grade will be an F. The date the instructor drop form is received in the Office of the Registrar is the official drop date.

Students who miss more than one third of the class periods without valid excuses will be dropped from this course. A valid excuse is defined as an authorized absence (see Midwestern State University Student Handbook (2011-2012) for the definition) or an unforeseeable, proved, and documented event that requires the student’s presence in a place other than the classroom during the class period, and such event is deemed acceptable by the instructor. In the case of an excused absence, the document justifying the absence must be turned to the instructor within one week from the absence.

Students who fail to meet class assignments, show indifferent attitudes, or reveal disruptive conducts will be given warnings each time such instance occurs. Students with more than two warnings will be dropped from this course.
The “Three C” Rule, Midwestern State University Graduate Catalog (2010-2012), p. 60

Graduate students who earn a grade of “C” or below in no more than two different graduate courses will be allowed to remain in the MBA program as long as their cumulative GPA remains 3.00 or higher. However, after earning the second “C” or below grade, a graduate student must meet with the Graduate Coordinator to create a plan for improving performance. If a graduate student earns a grade of “C” or below in more than two different graduate courses, the student will be dismissed from the MBA program.

Other Course Policies

1) Please bring a calculator to class.
2) It is obviously in a student’s best interests to attend class regularly.
3) Students are expected to read the class material before and after the scheduled classes.
4) Announcements not made in class will be posted online through WebCT. Students have the responsibility to check the postings and class material regularly.
5) Video, audio, and image recording other than taking hand-written or typed notes in the classroom is not allowed without the prior consent of the instructor. Redistribution of course material prepared by the instructor in any form outside this class is not allowed.

Academic Integrity

Students shall follow the “Student Honor Creed” on p. 51 of the Midwestern State University Graduate Catalog (2010-2012). A student who commits academic dishonesty is subject to conduct sanctions (Please refer to the Midwestern State University Student Handbook (2011-2012) for the definition of Academic Dishonesty, Conduct Sanctions, and Academic Misconduct Procedures).

Americans with Disabilities Act

This course follows the university policies and guidelines suggested by the Disability Support Services Office for qualified students. Students are referred to p. 53 of the Midwestern State University Graduate Catalog (2010-2012) for details.

Syllabus Change Policy

This syllabus is a guide for this course and is subject to change with advanced notice.

References

Midwestern State University Student Handbook (2011-2012), http://students.mwsu.edu/dean/
Midwestern State University Graduate Catalog (2010-2012), http://registrar.mwsu.edu/catalog/
**Course Content and Outline**

Topic 1: Descriptive statistics and sampling distributions  
Topic 2: Estimation and hypothesis testing  
Topic 3: Simple linear regression  
Topic 4: Multiple regression analysis  
Topic 5: Advanced issues in regressions  
Topic 6: Regressions in a time-series context  
Topic 7: Hypothesis testing with nonparametric statistics

**Course Schedule**

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<tr>
<th>Month</th>
<th>Date</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>8</td>
<td>25</td>
<td>Introduction</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Topic 1 &amp; 2</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Topic 2 &amp; 3</td>
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<tr>
<td>15</td>
<td></td>
<td>Topic 3 (Team formation due)</td>
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<tr>
<td>22</td>
<td></td>
<td>Topic 3 &amp; 4</td>
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<tr>
<td>29</td>
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<td>Midterm Exam (Semester project topic due)</td>
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<tr>
<td>10</td>
<td>6</td>
<td>Topic 5</td>
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<tr>
<td>13</td>
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<td>Lab Time (DB306)</td>
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<tr>
<td>20</td>
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<td>Topic 6</td>
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<tr>
<td>27</td>
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<td>Semester Project Preliminary Presentation (Midterm project due)</td>
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<tr>
<td>11</td>
<td>3</td>
<td>Topic 7</td>
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<tr>
<td>10</td>
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<td>Special Topic</td>
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<tr>
<td>17</td>
<td></td>
<td>Harvard Business School (HBS) Case</td>
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<td>24</td>
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<td>Thanksgiving</td>
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<tr>
<td>12</td>
<td>1</td>
<td>Semester Project Final Presentation</td>
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