Professor: Dr. Kim Melton
Office: 132 Newton Oakes Center (Dahlonega)  Phone: (706) 867-2724
Email: kmelton@ung.edu (This is the only email account that I check regularly.)

Office Hours 10:00 – 10:50 Monday/Wednesday/Friday
1:30 – 3:00 Monday/Wednesday
Other times by appointment (or by chance—just drop by)

Meeting Location: Monday and Friday class meetings are in the traditional classroom (NOC 017)
Most Wednesday class meetings are in the computer lab (NOC 109)

Prerequisites: Admission to Upper Division and MATH 2400 with a grade of at least C.

Course Description: A second course in statistical methods with special orientation to applications in business. Emphasis will be placed on application of statistical techniques, assessing their appropriateness, and communicating results to various audiences. Topics include data collection, sampling, data visualization, data analysis, model building using regression, and other statistical techniques. Statistical software is used extensively in the course. This course should be taken as soon as the prerequisites are satisfied.

Course Objectives: Upon completion of this course, students should be able to:
• select appropriate statistical methods to guide decision-making
• generate and use statistical output to analyze data
• identify the limitations of the statistical methods covered
• communicate how statistical studies were conducted and the results of those studies
• recognize ethical issues related to the collection and analysis of data and the communication of the results of the analysis

Time Commitment: You should expect to spend approximately 6 hours a week (in addition to the time in class) on assignments for this class.

Texts and Other Required Support Material
1 and 2) Textbook and MyStatLab: These come together in a custom package available from the Dahlonega or Gainesville Campus Bookstore. The package includes selected chapters from Business Statistics, 3rd Edition by Sharpe, De Veaux, and Velleman in loose-leaf format and access to MyStatLab. MyStatLab provides electronic access to the entire textbook. MyStatLab recommends using the Chrome browser. Directions for accessing MyStatLab for your specific course and alternative ways to obtain these required materials are posted at the following website: http://faculty.ung.edu/kmelton/bus3110.html.
3) Access to the web (for download of software and access to other resources)
4) Access to JMP Statistical Discovery Software (JMP Pro version 12). This software is available for you to install on your own computer (Windows or Mac) and is included in your fees. This software is available at software.ung.edu. [Login; click on JMP Statistical Software on the left; read the instructions for the operating system that you will be using; and follow all of the step-by-step instructions. This can take 1 to 2 hours if you have a slow internet connection.] If you do not want to download JMP to your personal machine, you can use the Virtual Lab (see item u?) or some computers on campus.
5) Access to Desire2Learn (D2L) e-Learning site for this course. D2L identifies Firefox and the preferred browser. After Drop/Add, all of my sections will use the D2L course set up for Section DA (regardless of the section listed in Banner). Note: I have not integrated MyStatLab into D2L (i.e., these will require separate logins).
6) Access to Microsoft Office. (For the link to install Office without additional cost to you, see the right side of: https://my.ung.edu/departments/informationtechnology/Pages/default.aspx).

7) (recommended for backup): Access to the Virtual Lab at: https://my.ung.edu/departments/information-technology/Pages/Remote-Access.aspx When you are having problems using JMP on your own machine or having browser issues with MyStatLab this allows you to remote in to a computer configured like the ones in the labs on campus.

8) A stand-alone calculator (i.e., not the one on your phone or connected to a device that has internet access). The calculator should be able to do basic arithmetic and statistics (mean and standard deviation for one variable).

Methods of Instruction

- Class will meet in a traditional classroom on Mondays and Fridays. These classes will use a combination of presentation of situations where the theory applies, interactive lectures to present theoretical material, small group exercises, and interpretation of output from previous labs sessions. Most Wednesdays class will meet in NOC 109 for hand-on instruction. Regardless of the location, you will be expected to actively engage in the class through asking and answering questions. Although correct answers are desired, sometimes we learn more when we explore wrong answers—and I learn where you are struggling when I “see” your thought processes.

- Computation is a key part of any statistical analysis; but in today’s environment, most of the calculations can be done by a calculator or computer. JMP Statistical Discovery Software will be used for most of the analysis in the course.

- Working out of class graded and ungraded assignments provide the experience necessary to think statistically and apply statistical techniques appropriately.

Course Format

The course will be presented in six Modules. These Modules will be tied to recognizing that Statistic involves collecting data, transforming that data into information to describe situations, and using the information to develop knowledge (insight) so we can understand (explain) how and why outcomes vary. Throughout this process of going from data to information to knowledge and understanding, we will explore the wisdom required to use the tools ethically, to evaluate the effectiveness of various options, to understand assumptions made, and to communicate the analysis to various audiences. Page 7 of this syllabus shows the topics to be covered in each Module, the order of coverage, and support material that will be used.

Each Module will include a set of PowerPoint slides, assigned readings (from the text and/or outside sources), a Study Guide exercises including selected problems from the text or provided separately, graded homework problems, graded quizzes, graded Instructor Supplied Assignments, and additional short assignments that provide an indication of your preparation and engagement in the class.

<table>
<thead>
<tr>
<th>Module</th>
<th>Topic</th>
<th>Estimated Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data - What is it, Types of data, How can we use it (Chapters 24 and 1)</td>
<td>~ 2 weeks</td>
</tr>
<tr>
<td>2</td>
<td>Summarizing Data - Visually and Quantitatively (Chapters 2, 3, and 4)</td>
<td>~ 2 weeks</td>
</tr>
<tr>
<td>3</td>
<td>Collecting “Good” Data (Chapter 8)</td>
<td>~ 2 weeks</td>
</tr>
<tr>
<td>4</td>
<td>Inference for One Variable (Chapters 9-12) [support in Chapter 7 online]</td>
<td>~ 2.5 weeks</td>
</tr>
<tr>
<td>5</td>
<td>Simple Linear Regression (Chapters 4, 15, and 16)</td>
<td>~ 2 weeks</td>
</tr>
<tr>
<td>6</td>
<td>Multiple Regression and Model Building (Chapters 17 and 18)</td>
<td>~ 4.5 weeks</td>
</tr>
</tbody>
</table>

Study Guide

To learn statistics, you must practice. Practice comes from attempting to work problems (from start to end), identifying what you don’t understand, and dealing with the areas where you are struggling. The Study Guide identifies specific problems from the end of the chapters in the book along with some additional locally provided problems that will help you develop knowledge and skills related to the specific topic covered in class. You are encouraged to work together on these assignments and to seek detailed assistance via email or during office hours if you have questions. These problems are not graded during the semester, but provide a way to
prepare for graded assignments and examples of the types of problems that could be included on the final. The purpose of these problems is to help you learn the material so that you can apply the same concepts to new / similar problems. To use a sports analogy, you must practice before games (to improve the chances of winning)! The problems in the Study Guide are the practice and the graded assignments are the games.

Course Blog
A Course Blog will be available on D2L. The first entry in the Blog will be a link to the Study Guide. Additional “daily” entries will be added as we move through the semester—showing details for at least the next week. This is your “Go to place” for staying up-to-date on course expectations. The blog will include reading assignments and other activities required to be prepared for class, announcements (and reminders) of upcoming Instructor Provided Assignments, and announcements of availability and due dates for MyStatLab Homework and MyStatLab Quizzes. The entries for a state date describe the topics covered that day in class and the homework that should be completed following that class day. Unless otherwise stated, all homework assignments should be completed prior to the next class period. For example: An assignment posted for January 9 should be completed after class on January 9 and before the start of class on January 11.

Grading
Your grade will come from a combination of five different types of assignments—1) Required Homework in MyStatLab, 2) Chapter Quizzes in MyStatLab, 3) Instructor Provided Assignments (Computer Assignments for submission, In-Class Quizzes/Exercises, or Out-of-Class Quizzes), 4) Preparation and Engagement activities, and 5) a Final Exam. Weighting for assignments will be as follows (with a more complete description below):

- MyStatLab Homework: 14 points (based on the average)
- MyStatLab Quizzes: 14 points (based on the average)
- Instructor Supplied Assignments: 63 points (7 assignments at 9 points each)
- Preparation and Engagement: 15 points
- Final: Up to 18 points (two 9 point problems)

These can replace two of your instructor supplied assignments. MAX possible points = 106

You must earn at least 90 points to receive an A; 80 for a B; 70 for a C; and 60 for a D. Remember that all BBA students must earn a grade of C or higher in this course to graduate.

MyStatLab Homework: [These assignments help you develop the basic skills to transform Data into Information.] During the semester, there will be approximately 15 graded homework assignments administered through MyStatLab. You may use your notes and textbook. These are designed to take approximately 20-30 minutes to complete. The problems are algorithmic versions of the identified problem printed in the textbook. These assignments will be released approximately one week before they are due, and you will have an unlimited number of attempts to complete the assignment. Attempting the assignment near the time it becomes available is recommended. This alerts you to the kind of material that will be covered, provides a grade in case “life happens” before the deadline, and lets you go back and change the answers closer to the deadline. Most deadlines will be 10:30pm on Sunday night. Each assignment will be graded on a 0-100 scale and will be provided in MyStatLab. The points for your course grade will come from dropping the lowest two grades, averaging the remaining grades, and taking this percent of the 14 available points. [Example: If your homework average is 75, then your points would be .75 x 14 = 10.5.]

MyStatLab Quizzes: [These assignments help you develop the ability to obtain Information from Data and gainthe Knowledge/Understanding to apply the results.] During the semester, there will be approximately 10 quizzes administered through MyStatLab. You may use your notes and textbook. These are designed to take approximately 15 - 25 minutes to complete. Typically, these assignments will be released approximately one week before they are due and will be due after the deadline for MyStatLab homework covering the same material. You will be allowed three attempts, and the highest grade will count. Grades on these will be provided after the deadline. Most deadlines for these assignments will be 11:30pm on Sunday night. Each quiz will be graded on a 0-100 scale and will be provided in MyStatLab. The points for your course grade will come from averaging all of the quiz grades and taking this percent of the 14 available points.
Instructor Supplied Assignments: [These assignments will cross multiple parts of the Data/Information/Knowledge/Wisdom continuum and will require you to pull together skills to address an issue from beginning to end.] You will have 9 graded Instructor Provided Assignments (7 prior to the final and 2 during the final). These assignments will include quizzes or mini-projects (in and out of class), in-class assignments (individual or group), and most will include obtaining and/or using computer output. All in-class assignments will be announced at least one week ahead of time on the Course Blog. Out-of-class assignments will be released approximately one week prior to the due date. All Instructor Supplied Assignments will include information about support materials and conversation allowed during the assignment. If these assignments are hand-graded, the grade will be provided on the returned assignment. If these assignments are graded in D2L, the grade will be posted in D2L. If you are struggling with an Instructor Supplied Assignment, identify similar problems from the Study Guide, examples from class, or make up a similar problem and stop by during office hours (or email). Then apply the concepts from the similar problem to the graded assignment. The graded assignment is confirming the level of understanding you have of the material. The points for your course grade will be the sum of the 7 highest individual grades.

Preparation and Engagement: [These assignments deal with readiness and effort to master the material. Correct answers are required to earn a “perfect” grade, most of the grade is tied to providing evidence that you have made a good-faith attempt to respond to the assignment/question.] There will be multiple small assignments that are intended to help you with upcoming material or to confirm that you have been preparing for class and paying attention in class. These will be evaluated as 1-3 points each. Examples: 1) when I give you an assignment to “Bring ____ to class next time”, that means that you need to have the identified material on paper, and I may check to see if you have brought the material to class (or I may collect the material); 2) during class, I may ask you to answer a quick question related to what we have just covered for 1 point to confirm that you have been “tuned in”; 3) there may be a small group in-class exercise where I ask each group to submit something; and 4) there will be times when we will create output in one class that we need for another class—so I may ask you to provide evidence that you have the necessary output available for the later class; or 5) other opportunities to verify that you have been attempting assignments in a timely manner. The points for your course grade will come from dividing the total number of points you earned by the total number of points available from these activities and multiplying the result by the 15 available points. [Example: If you earned 16 of 20 possible points, then 16/20 = .8, and your points toward your final course grade would be .8 x 15 = 12.]

Pre-final grade: To determine your course grade prior to the final, add your points from the MyStatLab Homework, the MyStatLab Quizzes, the Instructor Supplied Assignments, and the Preparation and Engagement assignments. That means that prior to the final you could potentially earn 14 + 14 + 63 + 15 =106 points. You must earn at least 90 points to receive an A; 80 for a B; 70 for a C; and 60 for a D.

Final: The Study Guide provides examples of the types of questions that could be included on the final. Your Final will be open book, open notes, and closed neighbor. For the Final, you will be provided 5 to 10 problems similar to ones from the Study Guide, and you may select 2 of these to work. Each of these problems will be graded out of 9 points and they will be considered as Instructor Provided Assignments 8 and 9. Your final course grade will use grades from the top 7 (of the 9) Instructor Provided Assignments—therefore, effectively these problems can be used to replace your lowest grades in the Instructor Supplied Assignments completed prior to the final.

Your Final exam will be held in NOC 109 based on the following University assigned schedule.

<table>
<thead>
<tr>
<th>Regular Class Time</th>
<th>Final Exam – Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 – 8:50 Monday / Wednesday / Friday</td>
<td>Monday, May 1, 2017 8:00 – 10:00</td>
</tr>
<tr>
<td>9:00 – 9:50 Monday / Wednesday / Friday</td>
<td>Friday, May 5, 2017 8:00 – 10:00</td>
</tr>
<tr>
<td>11:00 – 11:50 Monday / Wednesday / Friday</td>
<td>Friday, May 5, 2017 10:20 – 12:20</td>
</tr>
</tbody>
</table>
General Expectations

Attendance: Attendance refers to being present in class and attempting graded assignments that are done out of class. You are expected to attend class each day. Students who miss 5 regularly scheduled class sessions or who fail to attempt any combination of 5 or more Instructor Supplied Assignments or MyStatLab graded assignments will be considered to have violated the attendance policy. Meeting either of these criteria may result in a grade of WF.

Preparation: Students should arrive on time, stay for the entire class, and be prepared for class. “Prepared” means that each student should have read the assigned material, attempted all assigned problems, and printed out and brought a copy of any assignment listed as “bring to class”. Students who are unable to complete an assigned problem should come prepared to ask questions about the problem. Students who are unable to determine how to start a problem should seek help during office hours or via e-mail prior to class time.

Participation and Engagement: Statistics is like a foreign language; and, like learning a foreign language, learning statistics requires active involvement on your part. Part of the process of learning statistics involves new ways of thinking. You are expected to attempt to answer questions in class and to ask questions as they arise. Answers that appear to be “common sense” can be misleading when variation is taken into account. As a consequence, often you will be asked to explain the thought process that you used to reach an answer. Sometimes the greatest steps in learning come from understanding when/why a specific answer is not appropriate in a given setting.

Graded Assignments and Deadlines: MyStatLab assignments must be submitted prior to the posted deadline—late MyStatLab submissions will receive a grade of 0. Each 9 point Instructor Provided Assignment will include a due date and time. For Instructor Provided Assignments that are turned in (to D2L or “at the beginning of class on ___”), late assignments will be accepted and subject to a penalty of 10% per day (or fraction of a day—e.g., an assignment submitted 2 hours late will have a 10% penalty and one submitted 25 hours late will have a 20% penalty). Unless otherwise specified, electronic submission should be in a format readable by MS Office for Windows or JMP Pro 12. FAXed assignments are not accepted without prior approval. Some graded assignments may be copied for assessment purposes. Once grades (or answers to the questions) have been provided, late assignments will not be graded.

Make-ups: If a student will miss an In-class assignment due to an excused absence, arrangements for a make-up should be made prior to the time of the assignment. If the absence is unplanned, timely notification and documentation will be required to consider a make-up. No make-ups will be given for unexcused absences and a grade of 0 will be recorded. Also, no make-ups will be provided after graded assignments (or answers) have been released to students. As a general rule, make-ups for out of class assignments will not be provided.

Individual and Collaborative Work: Students may collaborate on Study Guide problems. This means that students may work together; this does not mean that students may divide an assignment so that each student does separate parts. Remember learning how to work the type of problem provided is more important than getting the answer to an individual problem.

All work on assignments that are submitted for grading is to be completed by the individuals named on the submitted assignment. If an assignment is listed as individual (or to be done independently), no conversation about the assignment may take place between individuals; for graded group assignments, the submitted work must be completed by the individuals in the group submitting the paper without conversation with individuals outside of that group. Inappropriate communication (virtual or otherwise) will be treated as Academic Dishonesty and a violation of the Academic Integrity Policy (as described in the Student Handbook-under Code of Conduct). Internet search engines or plagiarism detection software may be used to determine if students have plagiarized material and violated this policy.

Calculator: Each student is expected to have (and know how to use) a calculator with statistical mode. Calculators on cell phones may not be used for quizzes.
Extra Credit: The grading approach provides 106 points prior to the final and allows the final exam grades to replace two Instructor Supplied Assignments. Effectively, this provide extra credit. In addition, some graded assignments will include an extra credit question. The only other kind of extra credit will come when a student reports a significant mistake in support material provided on D2L or in other course material. The first student to report the error will be eligible for the extra credit.

Telephones: North Georgia uses Blackboard Connect Emergency Notification System to communicate emergency messages to the university community. If you have not already gone to your Banner account and registered your number(s), please consider doing so. During class, please set your phone to vibrate, put your phone away, and refrain from answering calls or checking text messages if your phone is the only one “ringing.” Telephones must be put away during class.

Supplemental University Information:
Please see http://ung.edu/academic-affairs/policies-and-guidelines/supplemental-syllabus.php for university policies related to:

- Disability Services
- Academic Integrity
- Disruptive Behavior
- Class Evaluations
- Academic Exchange
- Inclement Weather*
- Course Grades
- Withdrawal Process

*Inclement Weather (or other unscheduled school closure) clarification: For this class, I will consider the class cancelled if the University has announced closure for any part of the class period. For example, if the University delays opening until 9:30 on a class day, the 8:00 and the 9:00 classes will not meet—but the 11:00 will. When the weather is bad (but the university has not closed), watch your email and D2L to see if I have provided any course specific updates.

Also, see http://ung.edu/academics/academic-calendar.php for important dates for the semester (drop/add, withdrawal, breaks, etc.).
### Data, Information, Knowledge, Wisdom Continuum (based on the work of Russell Ackoff)

- **Data**: The raw values - as in numbers, responses, etc.
- **Information**: Describes (Answers questions like who, what, when, and where)
- **Knowledge/Understanding**: Explains (Provides instructions and answers to how-to and why questions)
- **Wisdom**: Deals with value - as in effectiveness/goodness/appropriateness (Evaluates knowledge and understanding - requires judgment and contextual understanding—under what conditions, and how does this relate to a larger system)

*Data, Information, and Knowledge/Understanding* are focused on **efficiency**. [Doing things right]

*Wisdom* is focused on **effectiveness**. [Doing the right things]

<table>
<thead>
<tr>
<th>Segment</th>
<th>Topics</th>
<th>Support Materials</th>
</tr>
</thead>
</table>
| Introduction/Overview (Module 0) | Course Organization (Data/Information/Knowledge & Understanding/Wisdom)  
The changing role of Statistics in today’s world | Syllabus  
Outside sources (videos and article) |
| Data (Modules 1 and 3)          | What is Statistics (as a discipline)?  
Sources of data (primary/secondary, internal/external)  
Measurement scale (qualitative/quantitative) (nominal/ordinal/interval/ratio)  
Data Cleansing  
Data Collection (census/sample, direct/indirect measurement, structured/unstructured) | Chapters 1 and 24  
JMP  
Outside sources  
Chapters 1 and 8 |
| Wisdom and Data                 | Characteristics of good data (choice of variables, operational definitions, measurement variation, psychological impact)  
Assumptions behind data collection  
Communication and Ethics | Integrated and supplemented with current examples |
| Information (Modules 2, 4, and 5) | Data visualization  
Descriptive and Inferential Statistics (parameters/statistics; measures of location, spread, and shape)  
Simple Linear Regression | Chapter 2-3 and JMP  
Chapters 9-12 and JMP  
Chapters 4, 15 and JMP |
| Wisdom and Information          | Choice of visual display (population/sample/process)  
Choice of quantitative summary measure (population/sample/process)  
Assumptions for statistical inference  
Communication and Ethics | Integrated and supplemented with current examples |
| Knowledge (Modules 5 and 6)     | Theory Development  
Multiple Regression (using quantitative and qualitative independent variables and considering interaction)  
Predictive and Prescriptive Analysis | Chapters 16-18 and JMP |
| Wisdom and Knowledge            | Model Assumptions  
Model Building  
Communication and Ethics | Integrated and supplemented with current examples |
Name: ____________________________  BUSA 3110 Spring 2017  Grading Sheet

<table>
<thead>
<tr>
<th>MyStatLab Homework</th>
<th>MyStatLab Quizzes</th>
<th>Preparation/Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW #</td>
<td>Date Due</td>
<td>Grade (100)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average: Pts = (Avg*14)/100: __________

Totals: Earn/Avail: __________

Pts = 15%(Earn/Avail): __________

<table>
<thead>
<tr>
<th>Instructor Provided Assignment</th>
<th>Total Assign #</th>
<th>Date Due</th>
<th>Points (9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Final Total: ____________________________

Course Grade: Add the values in the bold boxes

To obtain an estimate of your current standing during the semester, provide an estimate for the Instructor Provided Assignments grades that have yet to be assigned/graded.

Pts = Total of the top 7 of 9 grades: __________  Course Grade