Instructor Information

James Murray, Ph.D.
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Meeting Time / Location

Wednesdays 5:30pm - 9:15pm, Room 006 Wing Technology Center.
No class Wednesday, November 22 (Special day: Friday classes meet on this day)

Course Description (From Graduate Catalog)

This course introduces a variety of quantitative and qualitative methods that support business decision-making and research. These methods range from quantitative approaches like multivariate analysis, simulation and linear programming to qualitative approaches that use unstructured forms of data collection, both by interviewing and observation. Students will achieve conceptual understanding of the research methods covered in the course and acquire hands-on experience in applying these methods to practical business situations and business research while using computer-based tools. Prerequisite: successful completion of the foundation requirements.

Learning Objectives

For successful learning, it is important that you understand why we do the reading, lectures, assignments, etc, we do. Everything we do in this class is meant to achieve the learning objectives below. It would be useful for you to pay careful attention to what learning objectives the lectures and assignments are meant to achieve.

1. Construct and test hypotheses using a variety of bivariate statistical methods to compare characteristics between two populations.

2. Construct and use advanced multivariate models to identify complex relationships among multiple variables; including regression models, limited dependent variable models, and analysis of variance and covariance models.

3. Construct and solve linear programming models to answer business optimization problems.

4. Use stochastic operations research models to answer business questions that involve uncertainty.

5. Be able to use computer packages such as R and Excel to conduct the quantitative analyses described in the learning objectives above.

MBA Learning Outcomes

The above learning objectives contribute to the larger learning goals for the entire MBA program, which are the following,

1. Business Analysis*: Graduates will be able to integrate functional knowledge to analyze business problems and to propose plausible solutions.

2. Global Perspectives: Graduates will be able to apply a global perspective when analyzing business contexts.

3. Technology: Graduates will be able to explain the effects of technology on business contexts.

4. Social Responsibility: Graduates will be able to demonstrate understanding of how social responsibility affects business contexts.

5. Leadership: Graduates will be able to demonstrate how organizational behaviors, including leadership, influence business contexts.

6. Communication*: Graduates will be able to communicate effectively

* The learning activities in this class are especially designed to further these MBA learning outcomes.

Course Resources

Statistics textbook: (FMF) Field, A., Miles, J., and Field, Z. (2013). *Discovering Statistics Using R.*

Management science textbook: Taylor, B. W. (2016). *Introduction to Management Science.* 12th Edition.

Class websites: http://www.murraylax.org/bus735/fall2017/. All material handed out in class will be posted on the class website.

Desire2Learn (D2L): Grades will be posted on D2L, and some quizzes may be administered on D2L. Most of the class material will be posted on the class website.

Office Hours

I am available for office hours **by appointment with a minimum of only one hour notice.** You may schedule a 15 minute appointment by visiting https://murraylax.youcanbook.me. The blocks of time that I am available each week vary and are kept up to the minute on the YouCanBook.Me online scheduler. Additional walk-in office hours will be added as necessary, especially during exam weeks and weeks with significant homework deadlines. My typical weekly availability is given below.

8:30 AM - 11:00 AM	Monday through Thursday	Scan code or visit
1:00 PM - 2:30 PM	Monday and Wednesday	https://murraylax.youcanbook.me
10:00 AM - 11:30 AM	Friday	to make an office hours appointment.

Office hours are not a substitute for attending class. Except when missing class for very extreme circumstances that were promptly discussed with me, it is not acceptable to use office hours to ask questions about material you missed while not in attendance.

Assessment

Learning will be assessed with the following assignments:

1. Homework / Quizzes / In-class exercises

2. In-class Exam 1

3. Take-home Exam 1

4. In-class Exam 2

5. Take-home Exam 2

6. Final Project

The weights for each category will be different for each individual student and *chosen to maximize each individual student's grade in the class*, subject to the restriction that the each category cannot exceed 150% the weight of any other category.

Optimal Grade Weights:

Let x_j denote an individual's score on category j (one of the six categories above) and let w_j denote the weight towards the final grade for category j. The weights will be chosen to solve:

$$\max_{w_j} \sum_{j=1}^{6} w_j x_j \qquad \text{Subject to: } (1) \sum_{j=1}^{6} w_j = 1 \quad (2)\ w_j \leq 1.5 w_k\ \ \forall_{j \neq k}$$

Grade Breakdown

94-100	A	77-81	BC
89-93	AB	70-76	C
82-88	B	0-69	F

I reserve the right to scale every person's grade up by the same amount on any graded item in the event that much of the class falls short of the scale above. However, even if the grades are significantly low, there is no guarantee that I will ever do this.

Homework Assignments / Quizzes / In-class Exercises

There will be several graded homework assignments throughout the semester which are weighted equally to in-class exercises and quizzes. Points for the assignments are awarded primarily on effort. I will provide in-class assistance and feedback for any homework assignment problems that you bring up in class. I will begin every class with asking for any questions on the homework assignment, and I am happy to answer the questions before you submit your work. I will assume you understand the assigned problems after I have addressed all of your questions adequately and you have submitted your work.

In-class exercises will involve problems similar to your homework assignments, and will most often be your first exposure to using the techniques we learn in the class. They will often, but perhaps not always, be done in groups. In most circumstances, you will be allowed to use your textbooks and notes for the in-class exercises.

Exams

There will be two exams that will include quantitative analysis / problem solving questions questions similar to your homework assignments and in-class exercises. The exams will have two portions, an in-class portion which will be completed during 2 hours of class time; and a take-home portion, which will be distributed one week before the due date. Plan to spend between 5 to 10 hours working on the take-home exams (this should not be interpreted as a guaranteed time to completion). *All written answers for the take home exam must be word-processed. Handwritten answers or stand-alone R code, computer output, or Excel sheets will not be accepted.* Exams must be turned in electronically via the D2L dropbox for this class. The exams are due on the following dates:

- In-class Exam 1 is on **Wednesday, October 11**.

- Take-home Exam 1 is due at or before 5:30 PM on **Wednesday, October 18**.

- In-class Exam 2 is on **Wednesday, December 13**

- Take Home Exam 2 is due at or before 9:00 PM on **Friday, December 15**.

Project

Over the course of the semester you will work on an empirical project that will culminate in an in-class presentation and a short written report. The projects will involve identifying a business or research question to answer, finding or collecting data, and using the quantitative methods learned in this class to answer the question.

The written and oral presentations should include (1) an introduction which describes the research question, motivates it, and provides relevant background information; (2) a description of your methodology, including a description of the data and the statistical analysis; (3) a discussion of results; and (4) conclusions based on your results.

The oral presentations should include all group members, must be no more than 25 minutes, and include visual aids of some kind.

The written report can be in any length, style, and format you find convenient as long as you include the required components above. Keep in mind a style that would work effectively in a business environment, a style and format that your boss or clients would want to read. The following are some suggestions for style that you may want to consider:

- Keep it as short as possible, while still including the required components of the assignment.

- Single spaced

- Divide the report into sections and possibly subsections, so that it is easy for readers to skim the report and find the information they need.

- Bold, italics, or otherwise emphasize key sentences. Be careful not to over-use this strategy, though.

- Use visual aids in the report to describe motivational statistics (perhaps obtained from your literature review), your descriptive statistics, and your key statistical results.

- Ask yourself the following questions: (1) Is it easy to read? (2) Is it easy to skim? (3) Want do you want your reader remembering? Is that standing out? (4) At any point in the paper, will your reader be motivated to continue reading?

Project Deadlines

1. Wednesday, September 13: Choose groups / assigned to groups.

2. Wednesday, September 27: Select one idea for your project (provide a title and one-sentence purpose / thesis statement) and turn in a description for where you can obtain the data necessary to answer your research question.

3. Wednesday, October 11: Turn in your full dataset and a written description of your dataset. Your written description should include all the information about your dataset so that it would be unnecessary for the reader to actually open the dataset to know what you have. At a minimum, this should include the source of the dataset, a description of your population, names and descriptions of all variables, and the sample size.

4. Wednesday, November 1: Annotated bibliography including at least 10 sources.

5. Wednesday, November 15: *Short written description your methodology* and a *copy of some output from your statistical analysis.*

6. Wednesday, December 6: Oral presentations

7. Wednesday, December 20 by 9:00 PM: Written report

Graded Coursework Response Time

I will return all graded work to you within two weeks of the due date, or before the next exam date if the work is relevant practice for the exam. Work that is turned in late may not be accepted, but if so, I may not be able to grade the work within the two-week time frame. Grades will be posted on the D2L gradebook on or before the date I return the graded work to the class. I will return graded coursework in compliance with FERPA regulations, such as in class or during my office hours. I will bring your graded coursework to class only once. If you are not in attendance when coursework is returned, it is your responsibility to make arrangements to pick your work.

Grade Change or Extra Credit Requests

I evaluate and assign grades for a lot of work from a lot of students in multiple courses, so it possible or even likely I may make mistakes. It is appropriate and helpful to me if you keep track of your grades that I post to D2L and notify me if I have made a mistake. **It is not appropriate to ask for grade changes or special extra credit opportunities after performing poorly on assignments or exams**, or not achieving a grade that you hoped to earn. These requests will not be granted. Know also that such requests to me and most any instructor reflect poorly on your professionalism, attitude, and priorities.

In the event that scores are low for an assignment or exam across most or all students I do reserve the right to increase every students' grade by the same amount or give an extra credit opportunity to all students. Please understand that such events are rare and will probably not happen in a typical semester. Please do not make requests for such grade changes or extra credit opportunities. I do see the full distribution of all the students' grades and I have over a decade of knowledge and experience of the historical performances of students on similar assignments and exams in my classes and with other instructors. I use this full range of information to determine when such changes are appropriate.

Double Counting Work with Other Courses

No assigned work from this course may be used to also satisfy a requirement for another course. Such practice is often allowed in college courses when instructors from both courses give explicit permission and communicate with each other of the joint expectations for the student. I will not follow this practice in this course. Understand that submitting the same work in multiple courses without obtaining permission from both instructors is considered self-plagiarism; it is academic misconduct and it will be treated as such.

Submitting Late Work

Attendance is required to receive credit for graded work completed in class, including quizzes, in-class exercises, and exams. Late work will not be accepted except for extraordinary circumstances. If possible, you should notify me before a missed class or assignment deadline that you will not be able to complete the assigned work at the given deadline and we may agree on an appropriate accommodation. In the event of missing class or an assignment deadline due to illness or emergency, you should notify me as soon as possible afterwards so that we can make arrangements for you to make up missed work. **Late work cannot be accepted under any circumstances after I have returned graded work to the class or after answer keys have been circulated.** It is for this reason that is important to notify me as soon as possible any circumstance that makes it appropriate to submit work late.

Attendance

Full physical and mental attendance is expected for every class period. That means **you attend and are attentive** in every class, and you take responsibility for knowing any announcement or concept I describe in class. If you need to miss a class day or exam day because of illness or emergency you may be excused and arrangements can be made for you to make up missed work if you notify me as soon as possible after the missed class.

Eagle Alert System

This class will be participating in the UWL Eagle Alert system through WINGS. The Early Alert system is designed to promote student success. If I notice that you are experiencing difficulties early in the semester (e.g., low assignment scores, poor attendance, minimal engagement in the classroom), I may enter feedback into the program and you will receive an email indicating that feedback has been left. I may also enter positive feedback encouraging you to think about additional opportunities. You will be able to access the feedback through your student center in WINGS. I encourage you to meet with me and use one or more of several helpful campus resources listed here http://www.uwlax.edu/studentsuccess/.

Online Student Evaluation of Instruction (SEI)

The university conducts student evaluations electronically. Approximately 2 weeks prior to the conclusion of a course, you will receive an email at your UWL email address directing you to complete an evaluation for each of your courses. In-class time will be provided for students to complete the evaluation in class. Electronic reminders will be sent if you do not complete the evaluation. The evaluation will include numerical ratings and, depending on the department, may provide options for comments. The university takes student feedback very seriously and the information gathered from student evaluations is more valuable when a larger percentage of students complete the evaluation. Please be especially mindful to complete the surveys.

Sexual Misconduct

As an employee of the University of Wisconsin-La Crosse, I am a mandated reporter of sexual harassment and sexual violence that takes place on campus or otherwise affects the campus community. This means that if I receive detailed or specific information about an incident such as the date, time, location, or identity of the people involved, I am obligated to share this with UWL's Title IX Coordinator (https://www.uwlax.edu/affirmative-action/) in order to enable the university to take appropriate action to ensure the safety and rights of all involved. For students not wishing to make an official report, there are confidential resources available to provide support and discuss the available options. The contact in Student Life is Ingrid Peterson, Violence Prevention Specialist, 608.785.8062, ipeterson@uwlax.edu. Please see http://www.uwlax.edu/sexual-misconduct for more resources or to file a report.

Religious Accommodations

Per the UWL Undergraduate and Graduate Catalogs (http://catalog.uwlax.edu/undergraduate/aboutuwlax/), "any student with a conflict between an academic requirement and any religious observance must be given an alternative means of meeting the academic requirement. The student must notify the instructor within the first three weeks of class (within the first week of summer session and short courses) of specific days/dates for which the student will request an accommodation. Instructors may schedule a make-up examination or other academic requirement before or after the regularly scheduled examination or other academic requirement."

Students with Disabilities

Any student with a documented disability (e.g. ADHD, Autism Spectrum Disorder, Acquired Brain Injury, PTSD, Physical, Sensory, Psychological, or Learning Disability) who needs to arrange academic accommodations should contact The ACCESS Center (165 Murphy Library, 608-785-6900, ACCESSCenter@uwlax.edu) and meet with an adviser to register and develop an accommodation plan. In addition to registering with The ACCESS Center, it is the student's responsibility to discuss their academic needs with their instructors. You can find out more about services available to students with disabilities at The ACCESS Center website: http://www.uwlax.edu/access-center.

Veterans and Active Military Personnel

Veterans and active military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to me. For additional information and assistance, contact the Veterans Services Office (http://www.uwlax.edu/veteran-services/). Students who need to withdraw from class or from the university due to military orders should be aware of the military duty withdrawal policy (http://catalog.uwlax.edu/undergraduate/academicpolicies/withdrawal/#military-duty-withdrawal-university).

E-mail Guidelines

I insist on the following e-mail etiquette rules (many of these are also recommended by the College of Business Administration). Failure to adhere to these guidelines will result in a reply with a friendly reminder to follow these e-mail guidelines.

- Allow one business day to elapse before expecting a reply.

- Questions sent by e-mail should be able to be answered with only a few words, such as 'yes' or 'no' questions. Questions whose answers involve explaining class material are not appropriate over e-mail. For answers to these questions you should make an office hours appointment.

- Always include a subject that is brief but still has sufficient detail that includes this course number.

- Look at your class notes and syllabus before sending an e-mail. Do not ask a question whose answer is on the syllabus or announced in class (unless you missed class for a legitimate reason).

- Always spell check, grammar check, and re-read your e-mail before sending it.

Academic Misconduct

Academic misconduct is a violation of the UWL Student Honor Code and is unacceptable. I expect you to submit your own original work and participate in the course with integrity and high standards of academic honesty. The UWL Student Honor Code can be found online at http://catalog.uwlax.edu/undergraduate/academicpolicies/studentconduct/. In the event a student is caught committing academic misconduct, I will pursue the harshest penalties allowed according to the UWS 14 Student Academic Disciplinary Procedures, which can be found here http://www.uwlax.edu/Student-Life/Student-handbook/#14.

UWL Legal Obligations to Students

Many of the above legal obligations of instructors and the university are afforded to all UWL students in all their courses. You can see these at https://www.uwlax.edu/info/syllabus/.

Topics Schedule

Below is a list of topics and readings for this class. This is a preliminary schedule; depending on time constraints and the topics the class finds most interesting, we may choose to not cover some of the items below, cover items that are not shown below, or re-arrange the schedule.

Module 1: Statistical Analysis using R / Elementary Statistical Methods

1. Introduction to R **Reading:** FMF, Chapter 3
2. Bivariate statistics **Reading:** FMF, Chapter 2 and 9
3. Correlation **Reading:** FMF, Chapters 6

Module 2: Multivariate Analysis

1. Multiple Regression **Reading:** FMF, Chapters 7
2. Logistic Regression **Reading:** FMF, Chapter 8
3. One-Way Analysis of Variance (ANOVA) **Reading:** FMF, Chapter 10
4. Analysis of Covariance **Reading:** FMF, Chapter 11
5. Factorial ANOVA **Reading:** FMF, Chapter 12
6. Repeated Measures ANOVA **Reading:** FMF, Chapters 13-14

Module 3: Optimization Problems

1. Linear Programming **Reading:** Taylor, Chapters 2-3.
2. Linear Programming Applications, Transportation / Assignment models. **Reading:** Taylor Chapter 6
3. Queuing Models **Reading:** Taylor, Chapter 13
4. Simulation **Reading:** Taylor, Chapter 14

Module 3: Decision Making with Uncertainty

1. Decision Analysis **Reading:** Taylor, Chapter 12
2. Forecasting **Reading:** Taylor, Chapter 15