

# OPIM 173 Business Statistics - Summer 2017

Georgetown University

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**Class Times:** Monday, Tuesday, Wednesday, and Thursday,  
10:45 a.m. – 12:45 PM

**Office Hours:** by appointment

## Course Objectives:

This course introduces the basic concepts and applications of statistics in managerial decision-making. In the first part of the course, we consider preliminary data analysis (numerical and graphical), probability and uncertainty, and statistical inference. In the second part of the course, we examine statistical model building for the purposes of understanding variability and making forecasts. The statistical analysis of large data sets is an integral part of modern business practice. Accordingly, statistical softwares will be used to supplement hand-calculations throughout the course. The course objective is to provide quantitative analysis skills for business data interpretation and to demonstrate the effectiveness of statistical modeling in managerial decision-making.

**Prerequisite:** Elementary Calculus, OPIM 170 Computational Business Modeling

## Course Materials:

- **Textbook:** “Business Statistics”, 2014 , (3<sup>rd</sup> edition), by Sharpe, De Veaux and Velleman.
- **Blackboard:** As a registered student in this course, you have access to Blackboard at <https://campus.georgetown.edu/webapps/portal/frameset.jsp>. Students are responsible for checking class emails and all course materials on Blackboard often and regularly, including
  - Announcements
  - Class files including lecture notes
  - Homework assignments and due dates
  - Your course grades on tests, homework, etc.

**These materials are made available only for personal use by students who are registered for Summer 2017 OPIM 173.**

- **Lecture Slides:** I will upload slides ahead of lectures, but **some important examples will be only given in class**. Therefore, attending lectures will be important. Please print out the slides and bring pencils and papers to class.
- **Software:** This course makes use of Minitab which is available through the MSB network. You may download the full version of the Minitab software from the S: drive onto your PC. You should be able to find instructions on how to install Minitab on your PCs from the course website (file “Minitab\_Installation.pdf” under the folder Resources). NOTE: I will occasionally

demonstrate the use of Minitab in class. **However, formal instruction on the use of the computer programs is not a part of the course.**

- **Nameplate and Calculator:** Please bring your nameplate and calculator to class.

**Grading:** The final grade will follow the grading guidelines set by the McDonough School of Business for undergraduate core courses: the average GPA for all students taught by a professor should not be above 3.3 and no more than 35% of the students will be awarded A-range grade<sup>1</sup>. Letter grade will be assigned based on your score relative to the scores of your fellow students. I reserve the right to pool all or some of the sections of OPIM 173 to set the curve.

Your final grade will be based on assignments, midterm, the final exam, and quiz/class participation as follows<sup>2</sup>:

Assignments		25%
Class Participation		10%
Midterm	<b>Date: middle of course</b>	30%
Comprehensive Final Exam	<b>Date: last class (July 7)</b>	35%

**Key Success Factors:**

- ✓ **Class Preparation:**
  - ✓ Complete required reading (textbook and/or lecture notes).
  - ✓ Make sure to bring copies of the lecture slides for use in class.
  - ✓ Please bring a calculator and your nameplate to every class.
- **Class Attendance and Participation:** Many researchers have shown that there is a strong positive correlation between attendance and the final grade. Attendance is important and critical for this class.
  - ✓ Participation will be evaluated by occasional “pop” attendance questions, by overall positive contributions to class discussions, and by status check submissions.
- **Homework Assignments:** There are 7 assignments in total. Each assignment is due at the beginning of class, unless otherwise stated. The due date of each assignment will be specified on the sheet. They must be neat, organized, stapled, and handed in on time.
  - ✓ Some problems will ask you to carry out statistical analysis using computer statistical software. You are free to use any software you are familiar with.
  - ✓ Keep in mind that you should not hand in raw computer outputs. Conclusions and interpretations of results are more important than good printouts.
  - ✓ You are allowed to discuss with other students the problems but your solution must be your own. If it appears to be copied, you will not receive any credit.
  - ✓ **Late assignments will not be accepted.**
  - ✓ Selected problems will be graded in detail.
- **Midterm and Final Exam:**
  - ✓ All exams are closed book, closed notes, individual efforts, in class, on the dates announced in the course schedule. Every student must have a calculator with charged

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<sup>1</sup> All letter grades are converted to a grade equivalent, based on the 4.0 system as follows: A=4.00, A<sup>-</sup>=3.67, B<sup>+</sup>=3.33, B=3.00, B<sup>-</sup>=2.67, C<sup>+</sup>=2.33, C=2.00, C<sup>-</sup>=1.67, D<sup>+</sup>=1.33, D=1.00, F=0.00.

<sup>2</sup> Lowest homework assignment and/or quiz score(s) may be dropped from the final grade calculation.

batteries. You may bring a one-page (one-side) handwritten sheet with formulas to each exam and two such sheets to the final exam.

- ✓ **No make-up exams!** If you miss an exam, you will automatically receive a grade of zero for the missed exam. Exceptions will only be made for those with an approved university excuse with written documentation.
- ✓ Final exam is comprehensive and will cover materials from the entire course.

### Course policy:

- **Classroom Etiquette:** Please be courteous, professional, and respectful to your instructor and classmates.
  - ✓ I am excited to get to know each of you. Please try to sit in the same seat with your nameplate at each class session (this will take some time due to drops and adds).
  - ✓ Make sure to bring copies of the lecture slides and a calculator to every class.
  - ✓ **Strictly, no use of electronic devices** (e.g., laptops, cell phones)! Please silence cell phones and put away laptops and other electronic devices before class begins. For some class sessions, you will be asked to bring and use your computer for class activities (e.g., regression analysis). It will be clearly announced in advance.
  - ✓ Please no food inside the classrooms. Drinks must be in capped bottles or spill-proof containers.
  - ✓ I strongly discourage sitting in another section since the pace of each section typically differs. Also, you may not seat in another section if there are no remaining seats.
- **Class Absence:** If you miss any class for any reason, it is your responsibility to cover the missed class materials on your own. Please make sure you borrow classmates' note. Office hours will not be used to help you with materials that you missed because of an absence.
- **Email Communications:** I will try to respond to your emails within a 48-hour-period during weekdays (excluding 7pm-7am).
- **Honor Code: Zero tolerance** for Honor Code violations

**My Commitment to You:** I genuinely care about your success as both a student and an individual. I sincerely hope to provide the best learning experience for you. In addition, I'm a strong believer of engaged learning, and in that sense, interaction and feedback are critical. Therefore, I've created and included the several academic plans to better address the goals and your needs.

- **Support:** The course is cumulative and moves rapidly. Do not fall behind! Please see me immediately for any concerns or difficulties you have.

### Special Accommodations

- ✓ If you believe that you have a disability, please contact the Academic Resource Center for further information. (Leavey Center, Suite 335, [arc@georgetown.edu](mailto:arc@georgetown.edu)). The Academic Resource Center is the campus office responsible for reviewing documentation provided by students with disabilities and for determining reasonable accommodations in accordance with the Americans with Disabilities Act (ADA) and University policies.

**The Honor System:** All students are expected to be familiar with the Georgetown University Honor System and the Honor code (<http://gervaseprograms.georgetown.edu/honor/system/>) and are bound by requirements. As a faculty member, I am **OBLIGATED** to report any SUSPICION related to violations of the Georgetown Honor System. For more details, please see the web page on the Honor System.

- **Working together:** The discussion of homework problems is usually permitted and encouraged. Note that even if discussions are allowed, each student must **prepare and submit solutions, including computer work, INDEPENDENTLY**. Duplication of homework solutions and computer output prepared in whole or in part by someone else is not acceptable and is considered plagiarism. Any kind of collaboration is strictly prohibited in the midterm and final exam.
- **Penalties for Honor Code Violations:** If the student is found to be in violation of the Honor System after the case has been heard by the Honor Council and decided by the Dean, the instructor may at her own discretion choose the method of penalty with respect to the course grade. In my class, you should expect that the **minimum penalty** for honor code violations will be a 0 score for that requirement coupled with a reduction on the final grade. Violations related to exams will typically result into a **grade of F** for the course.

**Course Outline:** The outline may be revised depending on the pace of the class. Material may be added or subtracted from the syllabus. However, the dates for the exams are fixed.

Topics	Textbook Section
Syllabus and Class Logistics Introduction to Business Statistics	Chapter 1
Displaying data, Descriptive Statistics	Chapters 2+3
Correlation	Chapter 4 (only 4.1, 4.2 and 4.3)
Randomness and Probability	Chapter 5
Random Variables and Probability Models	Chapter 6 (without 6.5)
Normal Distribution	Chapter 7 (without 7.5 and 7.6)
Populations and Samples	Chapter 8 (only 8.1, 8.2 and 8.3)
Sampling Distribution and Confidence Intervals for proportions	Chapter 9
Testing Hypotheses about Proportions	Chapter 10
Confidence intervals	Chapter 11
Hypothesis Test for Means	Continue chapter 11
More about Test and Intervals	Chapter 12
Linear Regression	Chapter 4
Inference for Regression	Chapter 15
Understanding residuals	Chapter 16
Multiple Regression	Chapter 17 (without 17.6)