Course Syllabus
STAT 1051: Statistics for Business and Economics
Fall Semester – 2021
Tuesday and Thursday, 6:10pm to 7:25pm
The George Washington University Main Campus

Course Title: Statistics for Business and Economics

Course Number: STAT 1051

Meets: Tuesday and Thursday: 6:10pm – 7:25pm.

Instructor: Justin Nguyen. E-mail: nguyenj@gwu.edu   **Teaching Assistant**: TBA

Office Hours: Tuesday and Thursday, 5:30pm – 6:00pm. Other times will be arranged as needed. I will also respond quickly to questions sent by e-mail. If you sent an e-mail after 5:00pm on Friday through Sunday, I will provide my response on the upcoming Monday.

Required Materials:
   o Textbook: McClave, Benson, and Sincich, Statistics for Business and Economics, 13th Edition
   o Calculator: Texas Instruments (TI) 83 or 84 series calculator recommended
   o Software: Excel, SPSS, or SAS. Excel and SPSS are available in all computer labs at GWU.

Blackboard: I will be posting all course materials on Blackboard. This includes lecture notes, recorded lecture notes, homework assignments, project, announcements, updates, etc. Students are strongly encouraged to check Blackboard on daily basis.

Course Prerequisites: This course does not require any background in calculus. However, students who enrolled in this course are required basic knowledge in Algebra and Arithmetic.

Course Description: This course covers frequency distributions, descriptive measures, probability, probability distributions, sampling, estimation, tests of hypotheses, regression and correlation, with applications to business.

Learning Outcomes: As a result of completing this course, students will be able to:

- o   Apply laws of probability
- o   Construct and interpret confidence intervals
- o   Evaluate evidence for and against hypotheses using statistical tests
- o   Find the least-squares equation for simple liner regression and assess the utility of the model.

Discussion/Lab: In addition to two lectures per week (Tuesday and Thursday), the class is divided into 2 sessions of around 25 students each for discussion/lab session. The TA will administer these discussion/lab sessions. The TA will also have office hours, which will be informed soon. **The course curriculum is extensive and discussion/lab time is not available to repeat lecture material for students who missed class.** If you missed a class, please do not ask your TA to re-lecture the material for which I have already covered in class. Instead, your TA will identify critical information from lectures and elaborates on it to help students understand the material. Your TA will also guide students' thinking and leads discussion sections, case studies, etc.

Homework Assignments: Daily assignments will be made from the textbook. It is your responsibility to complete your homework assignments prior to coming to class. I will not collect these assignments for grading. However, students are strongly encouraged to complete all these assignments for practice purposes.

Quizzes: There will be 8 quizzes during the semester. There are no makeup quizzes. I will drop two of your lowest quizzes.

Examinations: There will be a midterm and a final during the semester. There are no make-up exams. *See Make-up Work for details*. Midterm and final are opened-book and opened-notes exams. Please do not ask your instructor to change the manner in which the midterm and final are administered.

- o   **Midterm: Thursday, October 21.**
- o   **Final: Tuesday, December 14.**

Project: A project will be posted on Blackboard on Thursday, November 11th. This project is indented to give the student firsthand experience in using the ideas of basic statistics to perform a preliminary analysis of data. You must use statistical computer software for all computations. The final report is required outlines of your approach, methodology analysis, test statistic, formulas performed, etc. The final report should contain sections, paragraphs, graphs, and no misspelled word. For more details, see Blackboard.

Make-up Work: Possible consideration for student who is absent and provided a sufficient and documented reason for the absence. Documented absences may require written third party evidence and notification to the instructor by e-mail.

Attendance and Class Participation:

Students are required to attend every class. Students are responsible for all material covered in class whether they are present during the lecture or not. Students who missed class should contact the instructor to find out what material was covered. All students are expected to take notes during class. Taking detailed, comprehensive notes is necessary. As a minimum, you should take down everything written on the board. The course curriculum is extensive and class time is not available to repeat lecture material for students who missed class. If you missed a class, it is your responsibility to learn the material and for making up all course work missed during an absence. In most cases, regular classroom attendance and regular participation is essential.

Average Minimum Amount of Independent, Out-of-Class, Learning Expected per Week:

The George Washington University has established average minimum amount of direct in class instruction, and independent, out-of-class, learning expected per week. For example, a 15-week semester, including exam week, students taking a 3-credit course are expected to spend a minimum of 7.5 hours per week, including 2.5 hours of classroom instruction and a minimum of 5 hours of out-of-class work.

Grading rationale:

Element	Percent of Total Grade
Quizzes	20%
Project	10%
Midterm	30%
Final	30%

Final grades will be assigned based on the following scale:

A	= 94% to 100%	C = 74% to 76%	
A-	= 90% to 93%	C- = 70% to 73%	
B+	= 87% to 89%	D+ = 67% to 69%	
B	= 84% to 86%	D = 64% to 66%	
B-	= 80% to 83%	D- = 60% to 63%	
C+	= 77% to 79%	F < 60%	

Academic Integrity: Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For details and complete code, see: studentconduct.gwu.edu/code-academic-integrity.

University Policy:

- o Religious Observance: Students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance.
- o Incomplete Grades: At the option of the instructor, the symbol "I" may be recorded if a student is unable to complete the work, and if the instructor is informed of and approves the reasons before the date when the grade must be reported. The course work must be completed within a designated time period agreed upon by the instructor and the student.

Safety and Security: In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation

Support for students outside the classroom

- o **Disability Support Services (DSS):** Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information see: disabilitysupport.gwu.edu/

- o **Mental Health Services 202-994-5300:** The University's Mental Health Services offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include crisis and emergency mental health consultations confidential assessment, counseling services (individual and small group), and referrals. For additional information see: counselingcenter.gwu.edu/

Student/Instructor Communication Mode: Students are **strongly encouraged** to communicate with the instructor in regarding to any questions or concerns that you may have. Successfully learning requires good communication between students and the instructor. For any reasons that you did not ask question(s) in class, feel free to see me during my office hours or send me an e-mail at nguyenj@gwu.edu

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Tentative Schedule for Stat 1051- Fall 2021

* The instructor reserves the right to modify as needed.

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Date	Sections	Topics
Tuesday 8/31	Introduction: Class Syllabus Chapter 1: 1.1-1.3	❖ Terminologies ❖ Types of data
Thursday 9/2	Chapter 1 continued: 1.4-1.7	❖ Sampling and related problems
Tuesday 9/7	Chapter 2: 2.1 – 2.2 **Quiz #1**	❖ Methods for describing sets of data
Thursday 9/9	Chapter 2 continued: 2.3 – 2.5	❖ Using the mean and standard deviation to describe the data
Tuesday 9/14	Chapter 2 continued: 2.6 – 2.7	❖ Detecting outliers using Box plots and z-Score
Thursday 9/16	Chapter 3: 3.1 – 3.4 **Quiz #2**	❖ Introduction to probability
Tuesday 9/21	Chapter 3 continued: 3.5 – 3.7	❖ Conditional probability, Independence events, Bayes's Rule
Thursday 9/23	Chapter 4: 4.1 – 4.3	❖ Discrete random variables ❖ Binomial distribution

Tuesday 9/28	Chapter 4 continued: 4.4 – 4.5 **Quiz #3**	❖ Poison and Hypergeometric distributions
Thursday 9/30	Chapter 4 continued: 4.7 – 4.8	❖ Uniform and Exponential distributions
Tuesday 10/5	Chapter 4 continued: 4.5	❖ Hypergeometric distribution
Thursday 10/7	Chapter 4 continued: 4.6 **Quiz #4**	❖ Normal distribution
Tuesday 10/12	Chapter 5: 5.1 – 5.4	❖ Sampling distributions
Thursday 10/14	Chapter 6: 6.1 – 6.2	❖ Confidence interval for large and small sample sizes
Tuesday 10/19	Chapter 6 continued: 6.3 – 6.5 **Review for Midterm**	❖ More of confidence intervals
Thursday 10/21	**MIDTERM**	
Tuesday 10/26	Chapter 7 continued: 7.1 – 7.4	❖ Hypothesis testing

Thursday 10/28	Chapter 7 continued: 7.5 – 7.7	❖ More of hypothesis testing
Tuesday 11/2	Chapter 8: 8.1 – 8.2 **Quiz #5**	❖ Confidence interval on two samples

Thursday 11/4	Chapter 8 continued: 8.3 – 8.4	❖ More of confidence interval on two samples
Tuesday 11/9	Chapter 8 continued: 8.5 **Quiz #6**	❖ More of confidence interval on two samples
Thursday 11/11	Chapter 8 continued: 8.6 **Hand Out Project**	❖ Determine a sample size
Tuesday 11/16	Chapter 10: 10.1 – 10.2	❖ Categorical data analysis
Thursday 11/18	Chapter 10 continued: 10.3 – 10.4 **Quiz #7**	❖ More of categorical data analysis: Chi-square test
Tuesday 11/23	Chapter 11: 11.1 – 11.2	Simple linear regression
Thursday 11/25	**Thanksgiving**	❖ **No Class**
Tuesday 11/30	Chapter 11 continued: 11.3 – 11.4 **Project Due**	❖ More of simple linear regression
Thursday 12/2	Chapter 11 continued: 11.5 – 11.7 **Quiz #8**	❖ More of simple linear regression
Tuesday 12/7	Chapter 11 continued: 11.6 – 11.7	❖ More of simple linear regression
Thursday 12/9	**Review for final exam**	

Tuesday 12/14	**FINAL**	

A tentative schedule for final exam is on Tuesday, December 14, 2021.