The George Washington University
Department of Statistics
STAT 1051-Section 13: Introduction to Statistics for Business and Economics
Tentative Syllabus (Updated on Aug 21, 2026)

Course information

Semester: Fall 2026, from Aug 24 (Mon, first class) to Dec 8 (Tue, last class)
Class: TR **2:20 pm-3:35 am (DC Time, i.e., Eastern Time)**
Location: **FNGR 220**

Instructor

Name: Dr. Hua Liang
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Work Phone: (202) 994-7844
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Office hours: **4:00 pm-4:30 (TR)** or by appointment

Teaching assistant (TA)

Name: Yawen Wu
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Course description

This is an introductory course in statistics that covers the following fundamental elements: frequency distributions, descriptive statistics, probability, probability distributions, sampling, estimation, hypothesis testing, regression and correlation, and applications to business, economics, and the social sciences.

Note: STAT1051, 1053, 1111, and 1127 are related in their subject matter, and credit for only one may be applied toward a degree.

Course prerequisites

Arithmetic and algebra at the high school level may be needed.

Learning outcomes

Students will learn to analyze "small data" (of small size, low dimension, and simple structure) and interpret classical statistical results. As a result of completing this course, students will be able to

1. Distinguish different data types;
2. Perform exploratory analysis in terms of various summary statistics and visualization tools;
3. Calculate probabilities for important distributions;
4. Conduct univariate statistical analysis using confidence intervals and hypothesis testing procedures;
5. Describe and interpret bivariate relationships in terms of simple linear regression and correlation (if time permits);

6. Utilize software, i.e., R, to analyze real datasets.

Required textbooks and recommended references

1. **REQUIRED textbooks (either hard or electronic copy):**

- **Main textbook (MBS):** *Statistics for Business and Economics*, **14th Edition,** Pearson. Authors: McClave, Benson and Sincich
- **Supplementary textbook (FPP)**: *Statistics*, 4th Edition, W. W. Norton & Company. Authors: Freedman, Pisani and Purves

2. Recommended reference: Student solution manual for MBS.

Blackboard.

Blackboard is the only online management system for this course, and please get familiar with Blackboard and check it frequently. It will be used by the instructor and/or TA for posting announcements (**Announcements**), course materials (**Notes**), assignments (**Assignments**), tests (**Tests**), grades, etc.

The average amount of direct instruction or guided interaction with the instructor

2.5 hours per week.

Average minimum amount of independent (out-of-class) learning

5 hours per week.

Week-by-week schedule of topics to be presented and scheduling of final examinations

This is a tentative plan. The actual schedule may differ slightly.

Week	Suspended Classes	Topics
1	Ch1	Introduction; Describing Data
2	Ch2	Describing Data
3	Ch2	Describing Data
4	Ch3	Probability
5	Ch3	Probability
6	Ch4	Random Variables and Distributions
7	Ch4	Random Variables and Distributions
8	Ch5	Sampling Distributions
9	Fall break	
10	Ch5	Sampling Distributions
11	Ch6	One-Sample Inferences
12	Ch6&7	One-Sample Inferences
13	Ch7	One-Sample Inferences
14	Ch8	Two-Sample Inferences
15	Ch8	Two-Sample Inferences

??		Review
NOTE: In accordance with university policy, the final exam will be given during the final exam period and not the last week of the semester. For details and complete policy, see: https://provost.gwu.edu/administration-final-examinations-during-examination-period		

Grading

1. Composition: Total=100%
    a. Homework (30%)
        i. Homework will be assigned and posted on **Blackboard/Assignments**.
        ii. Each homework **MUST be submitted via Blackboard. The TA will set up submission windows and tell you how to submit.** Late homework will NOT be accepted either.
        iii. Homework answers may be either typed, or handwritten and then scanned, or both, but **ONLY ONE file (MS Word or PDF)** may be submitted. Multiple submissions are allowed, but **only the last submission by its due date/time will be graded**.
        iv. Grade will be based on completion of all problems with sufficient justification (50%) and correctness of the answers (50%). Solutions will be posted on Blackboard.
    b. Midterms (30% = 15% + 15%): Two midterms will be given. The dates are TBA and TBA**.** Detailed information will be given about one week before each midterm.
    c. Final exam (40%): As scheduled by the Office of the Registrar, the final exam will be given on **TBA**. Detailed information will be given by the last week of the semester.

2. Final Grade Curve: Below is a minimum guarantee:
90.00 or above=A, 89.99-87.00=A-, 86.99-84.00=B+, 83.99-81.00=B, 80.99-78.00=B-, 77.99-75.00=C+, 74.99-65.00=C, 64.99-60.00=D, < 60.00=F.

Course policies

1. Attendance: Attendance is required for all students, but won't be checked. If you miss a class or recitation, the instructor or TA will NOT provide a makeup class or recitation; please go to Blackboard to find relevant course materials and announcements. Those who are not enrolled in this course are NOT allowed to attend any class or recitation.
2. Makeup exams: No makeup exams will be given except for emergencies with proper documentation. Requests for makeup exams must be made to the instructor by email for approval BEFORE the original exam time. If approved, students are responsible for both reminding the instructor to give makeup exams and taking them within one week of the original exam dates. Any missed exam will be counted as zero points.
3. Disputes on grades: Contact the instructor and TA within one week after the grades are posted on Blackboard.

4. Asking questions: Office hours are absolutely the best time to ask questions and receive prompt answers. It is not recommended to ask questions by email since it is very inefficient, and it is often unrealistic to receive immediate responses. If you have to ask questions by email, itemize all your questions in one email for clarity and convenience to reply (writing emails is NOT texting). The instructor typically checks emails ONLY on workdays.

Advice

1. Syllabus: **The syllabus serves as a reliable guideline for the course. Please keep the latest version of the syllabus and get familiar.** You can find the answers to a lot of your questions regarding this course in the syllabus.
2. Attitude: Sufficient in-class and out-of-class efforts are needed to receive a satisfactory grade (no pain, no gain).
3. In-class learning:
    a. **Due to the time limit, lectures by the instructor focus on motivations, concepts, important formulas and skills, and representative examples (not many)**.
    b. Recitations primarily focus on exercises and software use.
4. Recommended learning strategy:
    a. Attend lectures and recitations.
    b. After each lecture or recitation:
        i. Review lecture/recitation slides, your own notes, and corresponding chapters of the textbooks, independently or in groups, preferably within one day after each class.
        ii. Redo lecture/recitation examples independently or in groups.
        iii. Attend office hours with your remaining questions.
    c. After each homework is assigned:
        i. Start working on each homework as soon as it is assigned.
        ii. Scan through homework problems. If you find it difficult to work on a majority of them, review the notes and textbooks again, and/or discuss with classmates; otherwise, do the homework independently with minimal reference to the notes or textbooks.
        iii. After each homework is returned, compare your answers with the solutions and/or discuss with other classmates. If there are many errors, review the notes and textbooks again, and/or discuss with other classmates.
        iv. Attend office hours with your remaining questions; do more textbook exercises if necessary.
5. Calculators: **Get familiar with your calculator** (and your backup calculator). Use it when doing homework (for this course and others).
6. When you send me or the TAs emails, your email must have your full name, course number (**STAT 1051),** and a mention of the issue in the SUBJECT line of the email.

University Policies

Academic Integrity Code

Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. As the instructor of record for this course, my role is to provide clear expectations and uphold them in all assessments. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and otherwise violate the Code of Academic Integrity. If you have any questions about whether or not particular academic practices or resources are permitted, you should ask me for clarification. If you are reported for an academic integrity violation, you should contact the Office of Student Rights and Responsibilities (SRR) to learn more about your rights and options in the process. Consequences can range from failure of assignment to expulsion from the university and may include a transcript notation. For more information, please refer to the SRR website (https://studentconduct.gwu.edu/academic-integrity), email rights@gwu.edu, or call 202-994-6757.

University policy on observance of religious holidays

Students must notify faculty during the first week of the semester in which they are enrolled in the course, or as early as possible, but no later than three weeks prior to the absence, of their intention to be absent from class on their day(s) of religious observance. If the holiday falls within the first three weeks of class, the student must inform faculty in the first week of the semester. For details and policy, see "Religious Holidays" at provost.gwu.edu/policies-procedures-and-guidelines.

Use of Electronic Course Materials and Class Recordings

Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services at disabilitysupport.gwu.edu if you have questions or need assistance in accessing electronic course materials.

AI and ChatGPT

The Provost's Office has guidance regarding the use of Generative Artificial

Intelligence at GW at the following links: Guidelines for Generative Artificial Intelligence and Additional Guidelines for Generative Artificial Intelligence. Information on Generative AI and teaching can be found on the AI website https://library.gwu.edu/generative-ai

Academic support

Writing Center

GW's Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online at gwu.mywconline.

Academic Commons

Academic Commons provides tutoring and other academic support resources to students in many courses. Students can schedule virtual one-on-one appointments or attend virtual drop-in sessions. Students may schedule an appointment, review the tutoring schedule, access other academic support resources, or obtain assistance at academiccommons.gwu.edu.

Support for students outside the classroom

Disability Support Services (DSS) 202-994-8250

Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services at disabilitysupport.gwu.edu to establish eligibility and to coordinate reasonable accommodations.

Counseling and Psychological Services 202-994-5300

GW's Colonial Health Center offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success. healthcenter.gwu.edu/counseling-and-psychological-services.

Safety and Security

- In an emergency: call GWPD 202-994-6111 or 911
- For situation-specific actions: review the Emergency Response Handbook at: safety.gwu.edu/emergency-response-handbook
- In an active violence situation: Get Out, Hide Out, or Take Out. See go.gwu.edu/shooterpret
- Stay informed: safety.gwu.edu/stay-informed
- The Office of Advocacy and Support (OAS) is the university's sole dedicated **confidential** support resource for student survivors of sexual assault, domestic violence, and stalking. OAS provides trauma-informed and healing-centered emotional support, safety planning, academic and logistical support, and assistance with on and off-campus resource navigation and referrals. Connecting with OAS does not result in reporting to the institution. OAS can be reached at oas@gwu.edu or (202) 994-0443

Statistical Software

Copy and paste each link in a web browser to find each webpage.

Step 1: Download and install **R**.

(1) Go to https://www.r-project.org.

(2) Click **download R**.

(3) Among the list of CRAN mirrors, click any link in the USA.

(4) Download R for Linux, Mac OS X, or Windows (depending on your computer).

(5a) For Windows, download base.

(5b) For Mac OS X, download the latest version (a .pkg file) that is compatible with your laptop's OS version. To check the OS version of your laptop, you can click the small Apple icon in the top-left corner of your laptop screen and choose "About This Mac". Then you can find the version number under "**macOS**".

(6) Install R after the download is complete.

Step 2: AFTER R is installed, download and install **RStudio**.

(1) Go to https://www.rstudio.com/products/rstudio/download/

(2) Click DOWNLOAD under RStudio Desktop (Open Source License, FREE).

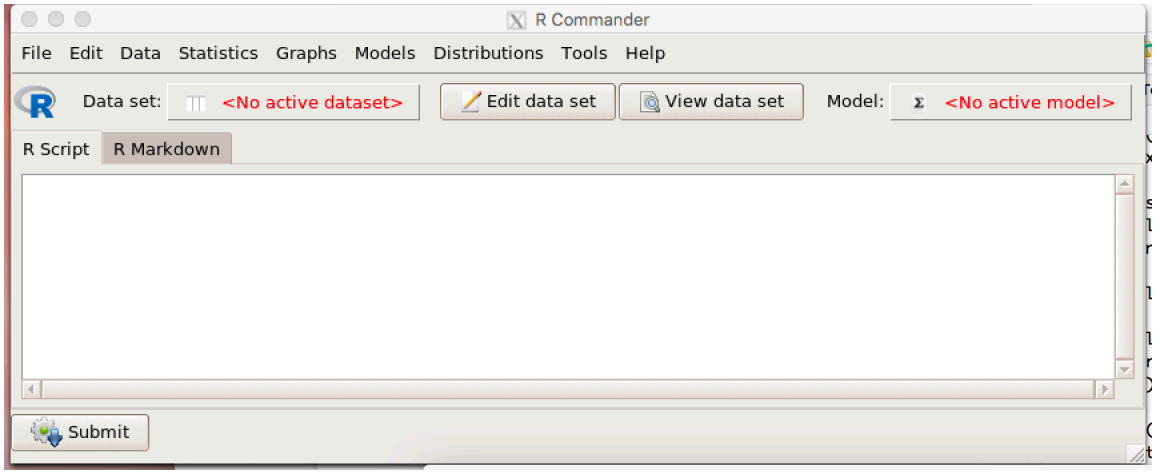
(3) Download the installer that is compatible with your laptop and install RStudio.

Step 3: Install the R package **R Commander** in RStudio.

(1) Open RStudio.
(2) Click "Packages" in the bottom-right window; click "Install"; type and select **Rcmdr** under "Packages"; click "Install". You may see a lot of code running in the Console, which is normal, so don't worry.
(3) For Mac OS X users, download and install XQuartz (https://www.xquartz.org), and **restart your laptop**. For Windows users, skip this step.
(4) Type the command *library(Rcmdr)* in the RStudio Console, and install all missing packages if any.
(5) To use R Commander in the future, open RStudio, and type the command *library(Rcmdr)* in the Console.
(6) When a window like below pops up, congratulations-the installation is complete and successful!

Example: Import data to R Commander in RStudio.

(1) Download the MBS data zip folder from Blackboard and unzip it in your local computer.
(2) Open RStudio.
(3) Type the command *library(Rcmdr)* in the RStudio Console.
(4) In the window below, click "Data"-> "Import Data"-> "From Excel File"-> "OK" -> Select an Excel data file within a specific chapter subfolder of the MBS data folder and click "OK". If you are asked to select one table of the Excel file, always select "Sheet 1".



More installation notes for trouble shooting can be found here:
https://socialsciences.mcmaster.ca/jfox/Misc/Rcmdr/installation-notes.html

Disclaimer

The instructor retains the right to revise the syllabus. Whenever the syllabus is changed, announcements will be made in class and/or on Blackboard.