



**Bridgewater State University**  
**MATH 200: Statistical Methods I**  
**Summer 2023 Syllabus**

<b>Place/Time: Online</b>	<b>Instructor: Puyu San</b>
<b>Duration: 29 May - 23 June, 2023</b>	<b>Office Hours: TBA (Or by email or appointment)</b>
<b>Course Credits: 3</b>	<b>E-mail: psan@bridgew.edu</b>

**Course Description**

Permutations and combinations; types of events, conditional probability, elementary probability distributions, normal distributions, binomial distributions, descriptive statistics, inferential statistics including confidence intervals and hypothesis tests, correlation and regression. Additional statistics topics as time allows.

**Prerequisite**

MATH 142 or MATH 152 or MATH 162; MATH 162 may be taken concurrently; consent to instructor.

**Text**

Introduction to the Practice of Statistics (with **Launchpad**), 9<sup>th</sup> Edition, by Moore, McCabe, and Craig.

Students must purchase access to Launchpad, but a hard copy of the text is **optional**. Access to Launchpad includes access to an electronic version of the textbook.

**Topic Calendar**

No.	Sections Covered (Tentative)	Week
1	1.1 Data	Week 1
2	1.2 Displaying Distributions with Graphs	Week 1
3	1.3 Describing Distributions with Numbers	Week 1
4	1.4 Density Curves and Normal Distributions	Week 1



5	2.1 Relationships	Week 1
6	2.2 Scatterplots	Week 1
7	2.3 Correlation	Week 1
8	2.4 Least-Squares Regression	Week 1
9	2.5 Cautions about Correlation and Regression	Week 1
10	2.6 Data Analysis for Two-Way Tables	Week 2
11	2.7 The Question of Causation	Week 2
12	3.1 Sources of Data	Week 2
13	3.2 Design of Experiments	Week 2
14	3.3 Sampling Design	Week 2
15	3.4 Ethics & Midterm Exam 1	Week 2
16	4.1 Randomness	Week 2
17	4.2 Probability Models	Week 2
18	4.3 Random Variables	Week 2
19	4.4 Means and Variances of Random Variable	Week 3
20	4.5 General Probability Rules	Week 3
21	5.1 Toward Statistical Inference	Week 3
22	5.2 The Sampling Distribution of a Sample Mean	Week 3
23	5.3 Sampling Distribution for Counts and Proportions	Week 3
24	6.1 Estimating Confidence	Week 4
25	6.2 Tests of Significance	Week 4
26	6.3 Use and Abuse of Tests	Week 4
27	6.4 Power and Inference as a Decision & Final Exam Review	Week 4
28	7.1 Inference for the Mean of a Population	Week 4
29	7.2 Comparing Two Means	Week 4



30	7.3 Additional Topics on Inference	Week 4
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### Course Outcomes

Upon successful completion of this course, students will be conversant with

- basic statistical terminology
- various graphical representations of data
- common measures of centrality and spread
- the use of standard normal tables
- properties of the correlation coefficient
- simple linear regression
- fundamentals of data production via sampling and experimentation
- sampling distributions, large number laws, and the central limit theorem
- confidence intervals and hypothesis tests for population means

### Software: R

R is a free, open-source software for statistical analysis and programming. Download R through <http://cran.r-project.org>. The downloaded software is sufficient for use; yet R-Studio is recommended as a convenient editor for R, especially for beginners. Download R-Studio from <http://www.rstudio.com/products/rstudio/download/>. R-Studio does not run by itself. To use R-Studio you need to also install R.

### Homework

Homework problems are online, we will use the online resource [Launchpad](#) for weekly homework assignments and tutorial videos. Make sure to select the correct course, the url for this section [link](#).

Please refer to Launchpad Instruction on the blackboard for more details. Some written homework may also be collected.

NO LATE HOMEWORK WILL BE ACCEPTED.

### Blackboard

Grades and additional course content will be uploaded to [Blackboard](#). Make sure to check it regularly for updates.

### Attendance

Attendance for the course will be the **StatTutor** videos with questions on Launchpad. For each section, videos with questions are available on Launchpad. Please complete the **StatTutor** to receive the full attendance credits.



### **Important Notes about Submitted Work**

On all of your written assignments you must show all work for the problems to receive full credit, even if the final answer is correct. Do not submit just the final answer not supported by any work. Your handwriting must be legible, your name and class time must be clearly written at the top of the front page. Proper notation is mandated.

### **Midterm Exams**

You will take 1 mid-term exams during the semester. The exam is given online, time will be limited to class time. Each will involve a mix of mechanical skills and conceptual reasoning. The best possible preparation for them is regular attendance and completion of assigned homework. You may have 1 page 8x11 of hand written notes (two sides) on each exam, including a final exam. Make-up exams are only given in case of documented emergencies.

### **Final Exam**

The final exam will take place on online on Blackboard. The official BSU Final Exam Schedule is [here](#).

### **Grading**

Your final course grade will be determined by

Homework: 30%

Attendance: 30%

Midterm: 20%

Final Exam: 20%

### **Grading Scale:**

Letter grades will be assigned as follows:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	below 60

**The Academic Achievement Center (AAC)** provides students with academic services and resources that propel them toward successful and timely degree completion. With all the services available in the center, the AAC is the largest hub of student academic services



on campus. Ideally located on the ground floor of the Maxwell Library in the center of the BSU Campus, the AAC is comprised of four major support areas: Academic Advising (*first-semester freshmen*), the Disability Resources Office, Learning Assistance (*tutoring and academic coaching*), and Testing Services. Drop-in learning support areas (*Math Services, Accounting & Finance Lab, Writing Studio, Second Language Services*), open study space, study rooms available for reserve, and computers are all available for student use. Stop by or call 508-531-1214 for more information about any of the services offered by the Academic Achievement Center.

### **Disability Resources Office (DRO)**

Bridgewater State University is committed to providing equal access to students with documented disabilities. To ensure your access to this course and the BSU community, students with disabilities are encouraged to collaborate with the **Disability Resources Office (DRO)**. Through the DRO, you may initiate the confidential process of requesting reasonable accommodations. The DRO can be reached at [Disability\\_Resources@bridgew.edu](mailto:Disability_Resources@bridgew.edu) or 508.531.2194. If you are granted accommodations, please meet with me confidentially to review how they will be applied in this course.

The DRO also provides alternatively worded syllabus statements, as well as other faculty-specific information, [here](#).

### **Math Services**

Math Services provides free tutoring on a walk-in basis. It is located in the basement of Maxwell Library.

**\* This syllabus may be amended during the semester.**