

**Syllabus**  
**ECON 307 Section 2**  
**Principles/Methods of Statistics – 3 credits**  
**Spring 2020**  
**January 22<sup>nd</sup> to May 13<sup>th</sup>**

**Instructor:** Melissa A. Wright, Ph.D.  
461 Tyler Hall  
Email: [mawright02@wm.edu](mailto:mawright02@wm.edu)  
Office Hours: Tuesday and Wednesday 2:15-3:45 PM & by appointment  
through Calendly at [calendly.com/melissawright\\_econ](https://calendly.com/melissawright_econ)

**Classroom:** Morton 39

**Lecture:** Monday, Wednesday and Friday 10:00 AM-10:50 AM

**Required Materials and Resources:**

- Textbook: OpenIntro Statistics 4<sup>th</sup> Ed.
  - <http://www.openintro.org/stat/textbook.php>
  - Free PDF
  - Paperback version available for \$20
- Calculator:
  - Students ARE required to bring a calculator to every lecture (phones do not count).
  - Students will receive simple calculators for exams.
- Laptop:
  - Laptops are expected at every lecture.
  - Stata is accessible to students through W&M
  - If you do not have access to a laptop, the department has one you can borrow. Request through the instructor.
  - Students are also welcome to work with a neighbor on one laptop if necessary, though I strongly recommend working independently.
- Blackboard: <https://blackboard.wm.edu>
  - Students are responsible for studying the content available on Blackboard.
  - Grades post on Blackboard.
  - You can opt-in to class reminders or use this external link for Course Calendar:
    - <https://blackboard.wm.edu/webapps/calendar/calendarFeed/0d0baf801d714829aecf015ad7cc0383/learn.ics>
- Piazza: <https://piazza.com>
  - Find our class page at: <https://piazza.com/wm/spring2020/econ307/home>
  - Rather than emailing questions, I encourage you to post your questions on Piazza.
  - If you have any problems or feedback for the developers, email [team@piazza.com](mailto:team@piazza.com).

- Poll Everywhere: <https://www.polleverywhere.com/login>
  - MUST use William & Mary email to log in.
  - This will be used in the course to assess comprehension and for in-class activities.
- LaTeX: <http://www.overleaf.com>
  - You will use this for your research paper.
  - Formatting provided on Blackboard.
  - Any questions can be brought directly to the professor.

**Optional Materials and Resources:**

- Textbook: *Introductory Econometrics, A Modern Approach* by Jeffrey Wooldridge, 6th edition: pages 628-708.
  - This is the Appendix of the textbook you will likely use in ECON 308.

**Prerequisites:** ECON 101 and ECON 102

**Course Description:** In Principles/Methods of Statistics, you will learn how to collect, display, analyze, and interpret data. We will discuss how to use data and statistics to answer questions and make inferences about an uncertain world. Topics discussed will include descriptive statistics, probability, statistical inference, and regression analysis. At the end of the semester, you will be ready to complete a final project – using economics and statistics to answer a question of interest to you.

**Student Learning Outcomes:**

- Develop data and statistical literacy.
- Understand basic probability theory.
- Present statistical information in a technically complete way that is accessible to a non-technical audience.
- Estimate and interpret simple regression

This course is designed to meet the following Learning Goals:

LG1 – Information Literacy

LG2 – Quantitative Reasoning

LG3 – Critical and creative thinking

**Homework:** There will be nine homework assignments, but only eight will count toward your grade. Each assignment will be worth 25 points or 2.5% of your grade, for a total of 200 points or 20%. Homework will be posted to the Blackboard site. Students will submit their HW through Blackboard following the instructions for each specific assignment. Assignments turned in after the 9 AM will be eligible for a maximum of half credit. After 24 hours, quarter credit will be available. After 48 hours, partial credit will not be available. I encourage you to work on homework together (may use Piazza to do so), if you do not post answers.

Tentative due dates are listed in the Course Schedule on the last page of this Syllabus.

Homework assignments are graded on correctness. In most cases, grading is automated, and partial credit is unavailable. For open-ended exercises, partial credit is available at the discretion of the instructor.

\*Hard copies of HW are NOT accepted. Students who prefer to use paper are welcome to work through problems on paper and submit their answers through Blackboard.

**Research Paper:** Students will write an economics research paper using Simple Linear Regression as their main source of analysis. This project will give students a practical application for their applied Statistics and Stata knowledge. This project is broken down into three submissions: a proposal **2.5% or 25 points**, an Introduction & Data section turned in mid-semester **7.5% or 75 points**, and a final complete submission with all the elements of a research paper **15% or 150 points**. The total points based on this research project sums up to **250 points or 25%** of a student's grade. Students will work in groups of 2-3 — tentative due dates in Course Schedule. Issues over group contributions should be brought to the instructor as soon as they arise.

**Midterm Exams:** There will be two midterm exams, each worth **15% or 150 points** — Midterm Exam 1 is **February 19<sup>th</sup> at 10 AM** in Morton 39 and Midterm Exam 2 is **April 1<sup>st</sup> at 10 AM** in Morton 39. There will be a portion of the lecture devoted to reviewing student questions the class before the exam.

Students may use one double-sided 8.5" X 11" cheat sheet, typed or hand-written.

**Final Exam:** The final exam will be cumulative. Instead of the scheduled 3 hours, students will have **2 hours** to complete their exams. It is worth **25% or 250 points**. The final exam for this class is **Wednesday, May 6<sup>th</sup>, 2-4 PM**. The room is not yet confirmed but will most likely be Morton 39. I will confirm this in an updated Syllabus as information becomes available.

Students may use **one** double-sided 8.5" X 11" cheat sheet, typed or hand-written.

Please review your final exam times to avoid scheduling conflicts:  
<https://www.wm.edu/offices/registrar/calendarsandexams/examschedules/index.php>

\*To encourage academic progress and give students a chance to improve their midterm scores, students who score higher on their final exam will be able to replace one of their midterm scores. For example, if a student scores 80% on midterm 1, 75% on midterm 2, and 85% on their final, they will receive an 85% for both their final and their midterm 2 exams. This change will automatically be calculated by the instructor to maximize student grades. Students who score lower on final exams will not be subject to a grade change for midterms.

**Attendance, Lateness, Technology & Disruptions:**

- Be **respectful** of your classmates and instructor.

- **Attendance** is your choice, but You are responsible for making sure you understand the missed content.
- **Lateness** can be distracting. Avoid arriving late and enter quietly.
- Students are welcome to use **laptops, tablets, and phones** through class to the extent that it doesn't distract the instructor or other students. Cell phones (on silent) may be used to take photos but are not a replacement for a calculator. I reserve the right to suspend technology privileges from any student causing disruption or violating this technology policy.
- **Technology** can distract other students. To minimize potential distractions, the default layout of the class will be laptops on the right (facing the board), and those who prefer no laptops in their line of sight can sit on the left. This policy does not apply to Stata demos and sessions.
- Side conversations that **disrupt** the class, my ability to teach, or students' ability to learn are disrespectful to all those around you. If necessary, I will report disruptive behavior to the Office of Student Conduct.

**Extensions/Makeups:** Work cannot be submitted or accepted after the cutoff date for each assignment unless otherwise agreed upon with the instructor BEFORE the due date. I offer makeup exams at my discretion. Students are never required to submit health notes directly to instructors. For long-term health concerns, please work with the Dean of Students, though students are never discouraged from reaching out to me directly.

**Office Hours Policy:** Office hours are a valuable resource in my course. Students are encouraged to take advantage of drop-in office hours or make appointments. Calendly is set in 15-minute increments, but students can schedule 2 sessions for a total of 30 minutes. Students are also welcome to make group appointments and add classmates to the event. As a rule of thumb, try Piazza first, if my reply does not address your question to your satisfaction, then schedule through Calendly. On the off chance that there is no availability during your free study time, please email me directly.

\*For homework-specific questions, please try Piazza and the Stata Lab first.

**Stata Lab:** The Stata lab is in Tyler 224 from 6-9 PM Sunday through Wednesday, starting around the second week of classes. I will provide the precise start date as the information becomes available to me.

**Academic Integrity:** We all are responsible for upholding the ideals of honor and integrity. The student-led honor system is responsible for resolving any suspected violations of the Honor Code. I must report all suspected instances of academic dishonesty to the honor system. The *Student Handbook* ([www.wm.edu/studenthandbook](http://www.wm.edu/studenthandbook)) includes your responsibilities as a student and the full Code. To read the Honor Code, see [www.wm.edu/honor](http://www.wm.edu/honor)

**Student Accommodations:** Students with accommodations are encouraged (not required) to speak (or email) with me directly to ensure access to every resource needed.

William & Mary accommodates students with disabilities under federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact **Student Accessibility Services** staff at [757-221-2509](tel:757-221-2509) or [sas@wm.edu](mailto:sas@wm.edu) to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please see [www.wm.edu/sas](http://www.wm.edu/sas).

I expect students who qualify for accommodations to go through this process whether they believe they need the accommodation or not. It is possible to accommodate a student mid-semester or during a final exam if eligibility has already been verified. Students who qualify for extra time and elect to take an exam during the regularly scheduled time-period without accommodation must live with that decision.

\*Students who are struggling to navigate the accommodation process are welcome to seek my support through email or office hours. I have ASD, ADHD, and chronic illness. I am a member of the W&M Neurodiversity Working Group. My help is not limited to this course.

### **Important Dates and other Resources**

- Add/drop deadline is January 31<sup>st</sup>
- Withdraw deadline is March 23<sup>rd</sup>
- Hidden Rules For Office Hours  
<https://www.wm.edu/sites/neurodiversity/documents/hidden-rules-for-office%20hours.pdf>
- Tribe TutorZone  
<https://www.wm.edu/offices/deanofstudents/services/academicenrichment/tutors/index.php>

### **Grading:**

#### **Midterm Grade Breakdown:**

Homework (1-3)-----	23%, 75 points
Paper Proposal-----	8%, 25 points
Paper Intro & Data Sections-----	23%, 75 points
Midterm Exam 1-----	46%, 150 points
<b>Total -----</b>	<b>100%, 325 points</b>

Three classifications are given: AC for acceptable performance (A-C level grades), an MR for marginal or D level grades, or a UN for unsatisfactory performance (F level). The Midterm grading period is March 2<sup>nd</sup>-22<sup>nd</sup>. Midterm grades for this course will post by the first day of the advising period March 16<sup>th</sup>.

**Final Grade Breakdown:**

Homework -----	20%, 200 points
Paper Proposal-----	2.5%, 25 points
Paper Intro & Data Sections-----	7.5%, 75 points
Final Paper -----	15%, 150 points
Midterm Exam 1-----	15%, 150 points
Midterm Exam 2-----	15%, 150 points
Cumulative Final Exam -----	25%, 250 points
<b>Total -----</b>	<b>100%, 1000 points</b>

**Grade Determination:**

A letter grade will be assigned at the end of the semester based on points accumulated in class. The grading schedule is subject to change during the semester but will not become more difficult. I do not round grades. In this course, 929 points out of 1000 is an A-.

A tentative grading schedule is as follows:

- A 93-100%
- A- 90-92.99%
- B+ 87-89.99%
- B 83-86.99%
- B- 80-82.99%
- C+ 77-79.99%
- C 73-76.99%
- C- 70-72.99%
- D+ 67-69.99%
- D 60-66.99%
- F less than 60.00%

\*The syllabus and course schedule are subject to change to facilitate instructional and student needs.

## Course Schedule:

Week	Day	Topic	Reading	Assignment Due/ Important Dates
1	Wednesday, January 22, 2020	Introduction	1.2	
	Friday, January 24, 2020	NO CLASS - Navigate & Download Software		
2	Monday, January 27, 2020	Data Basics	1.3	
	Wednesday, January 29, 2020	Sampling & Experiments	1.4	
	Friday, January 31, 2020	Numerical Data	2.1	<b>Add/Drop Ends Jan 31st</b>
3	Monday, February 3, 2020	Categorical Data	2.2	HW1 9 AM
	Wednesday, February 5, 2020	Defining Probability	3.1	
	Friday, February 7, 2020			
4	Monday, February 10, 2020	Conditional Probability	3.2	HW2 9 AM; Paper Proposal 5 PM
	Wednesday, February 12, 2020	Probability Cont'd; Sampling from Small Pop.	3.3	
	Friday, February 14, 2020			
5	Monday, February 17, 2020	Review Session		HW3 9 AM
	Wednesday, February 19, 2020	Midterm Exam 1		
	Friday, February 21, 2020	NO CLASS - Group Stata Exercise		
6	Monday, February 24, 2020	Library Instruction – Kyle Classroom SWEM		
	Wednesday, February 26, 2020	GIS Guest Lecturer – Morton 39		
	Friday, February 28, 2020	GIS Guest Lecturer – Morton 39		
7	Monday, March 2, 2020	Random Variables, Expectations	3.4	
	Wednesday, March 4, 2020	Expectations;		Introduction & Data Section Due 5 PM
	Friday, March 6, 2020	Continuous Distributions	3.5	
8	March 7th to March 15th	Spring Break		
9	Monday, March 16, 2020	Continuous Distributions, Covariance		HW4 9 AM
	Wednesday, March 18, 2020	Binomial Distributions	4.3	
	Friday, March 20, 2020			
10	Monday, March 23, 2020	Normal Distributions	4.1	HW5 9 AM; <b>Last Day to Withdraw March 23rd</b>
	Wednesday, March 25, 2020			
	Friday, March 27, 2020	Normal & Binomial Distributions		
11	Monday, March 30, 2020	Review Session		HW6 9 AM
	Wednesday, April 1, 2020	Midterm Exam 2		
	Friday, April 3, 2020	Confidence Intervals	5.1-5.2	
12	Monday, April 6, 2020			
	Wednesday, April 8, 2020	Hypothesis Testing	5.3	
	Friday, April 10, 2020	Inference for a single proportion	6.1	
13	Monday, April 13, 2020	One sample means	7.1	HW7 9 AM
	Wednesday, April 15, 2020	Paired Data	7.2	
	Friday, April 17, 2020	Difference of Two Means; ANOVA	7.3;7.5	
14	Monday, April 20, 2020	Fitting a line; residuals	8.1	HW8 9 AM
	Wednesday, April 22, 2020	Ordinary Least Squares; outliers	8.2;8.3	
	Friday, April 24, 2020	Inference for linear regression	8.4	
15	Monday, April 27, 2020	SLR cont'd		HW9 9 AM
	Wednesday, April 29, 2020	SLR cont'd		
	Friday, May 1, 2020	Review Session		Final Paper 5 PM
Final	Wednesday, May 6, 2020	2-4 PM		