

**Course Syllabus**  
**MA 2611-DL01 Applied Statistics I**

**Faculty Information**

Instructor: Dr. Nadeesha Jayaweera  
Email: [njayaweera@wpi.edu](mailto:njayaweera@wpi.edu)  
Office: SH 002B  
Office Hours: MTRF 10:00 AM - 11:00 AM (Zoom/in-person) or by appointment

**Course Information (Lecture DL01 (Group 1))**

Time: MTRF 1:00 PM - 1:50 PM  
Place : In-person; Fuller Labs PHL Perreault Hall - Lower Section  
Website: <https://canvas.wpi.edu/courses/45405>

(The website is the main platform through which this course will be managed. It contains the syllabus (this document), lecture notes, videos (all student have access to recorded ECHO360 videos after each class), lab assignments, announcements, and other course materials. You are responsible for knowing the information in the materials/updates/changes that appear there)

**LAB Sessions**

Section	Place	Date	Time	TA/PLA/GLA	E-mail
DX01	Kaven Hall 202	T	12:00 PM - 12:50 PM	Huaming Sun	<a href="mailto:hsun2@wpi.edu">hsun2@wpi.edu</a>
DX02	Kaven Hall 202	T	11:00 AM - 11:50 AM	Jaime B. Varela	<a href="mailto:jbowenvarela@wpi.edu">jbowenvarela@wpi.edu</a>

**Office Hours (GLAs):**

- Jaime Bowen Varela: R 4:00 PM - 5:00 PM on Zoom  
<https://wpi.zoom.us/j/6675386783>
- Huaming Sun: R 11:00 AM - 12:00 PM on Zoom  
<https://wpi.zoom.us/j/6381668525?pwd=YVdCMXJhWTZwcW0xZVk3Q1hvdG51QT09>

**Textbooks**

The course will roughly cover Chapters 1-10 of the book.

- *Basic Business Statistics w/ MYSTATLAB*, 14th edition 2019, Berenson, Levine, Szabat, Stephan.
- *Applied Statistics for Engineers and Scientists*, by J. D. Petrucci, B. Nandram, and M. Chen. (Optional)

**Ways to contact instructor: via canvas or e-mail**

Please write "MA 2611" in the e-mail subject line. I will respond within 24 hours during the workweek (excluding holidays) and 48 hours during the weekend.

## Course Description

This course is designed to introduce the student to data analytics and applied statistical methods commonly used in industrial and scientific applications as well as in course and project work at WPI. Emphasis will be on the practical aspects of statistics with students analyzing real data sets on an interactive computer package. Topics covered include an analytic and graphical representation of data, exploratory data analysis, basic issues in the design and conduct of experimental and observational studies, the central limit theorem, one and two sample point and interval estimation and tests of hypotheses.

Basic statistical concepts and methods will be presented in a manner that emphasizes understanding the principles of data collection and analysis. The major components of this course are:

- Basic statistical methods for collecting representative samples and data from a target population.
- Graphical and numerical methods for summarizing data of a sample. Probability mass functions and moments (expectation and variance).
- Introduction to probability, random variable, and distribution.
- Sampling distribution of statistics.
- Point and interval estimate for population parameters.
- Hypothesis testing for population parameters.

## Learning Outcomes

Students will be able to:

- understand basic statistical methods in sampling, to become familiar with various graphical/numerical representations of data and learn to recognize misleading graphs.
- understand the meanings of various statistical measures, including the mean, median, mode, standard deviation, variance, and quartiles.
- classify basic principles of probability, identify random variable and distributions.
- understand the concept of a probability distribution and real-world problems involving various distributions, such as binomial, normal.
- understand and apply the Central Limit Theorem, compute and interpret confidence intervals, and conduct and interpret hypothesis tests.

**Prerequisite Courses:** MA 1022

## Computer Labs:

You are highly encouraged to attend on time (it will be more efficient to resolve **R** coding problems you might have). The lab exercise due time is the same for everyone. Lab Assignment will be assigned weekly for your benefit and practice. **All submissions (including results and potential codes) are due at 11.59 p.m. (on Fridays) online through Canvas.**

- Lab 1: F, Mar 17
- Lab 2: F, Mar 24
- Lab 3: F, Apr 07
- Lab 4: F, Apr 14
- Lab 5: F, Apr 21
- Lab 6: F, Apr 28

No late submissions will be accepted in principle. Students are welcome to group up in studying labs, but lab exercises are on individual effort. Copying from other students is considered cheating and facilitation.

## Homework

Homework Assignment will be assigned weekly for your benefit and practice. **All the HWK submissions are due at 11.59 p.m. (on Thursdays) online through Canvas.**

- HWK 1: R, Mar 23
- HWK 2: R, Mar 30
- HWK 3: R, Apr 06
- HWK 4: R, Apr 20
- HWK 5: R, Apr 27

It is every student's responsibility to be aware of homework deadlines and plan accordingly to complete the assignment by that deadline. Discussion with peers regarding material/concepts covered in the course is permitted, and is encouraged since it usually leads to greater comprehension. However, each person must write up his/her own solution to a particular problem, and not simply copy it from someone else. If you have any questions feel free to see me.

## Quizzes

Five in-class quizzes will be given on Mondays. **One single-sided hand written sheet** is allowed for each quiz. No electronics are allowed during the quizzes except a calculator (scientific/graphing). Content is based on the previous homework. **(Duration: 20 minutes)**

- Quiz 1: M, Mar 27

- Quiz 2: M, Apr 03
- Quiz 3: M, Apr 10
- Quiz 4: M, Apr 24
- Quiz 5: M, May 01

### Exam Dates & Policies

2 in-class closed book exams will be given on the following dates:

- Midterm Exam: R, Apr 13
- Final Exam: W, May 03 (Cumulative)

The dates of these exams **will not change**. Please be sure to plan accordingly. Practice questions will be posted before each exam. **One double-sided hand written sheet** is allowed for each exam. No electronics are allowed during the exams except for a simple calculator. Calculator apps on a smartphone, tablet, kindle, etc are **not** allowed. Sample exams will be posted online. No makeup exam will be given unless a student notify me with a legitimate excuse by writing prior to the exam.

### Grading Criteria & Grading Scale

There will be 2 exams, a homework score, a lab score, and a quiz score for the final grade calculation.

Source	Percentage
Labs	10%
Homework	20%
Quiz	10%
Midterm Exam	30%
Final Exam	30%

Your final grade in this course will consist of the above weighted components and be determined by the following scale.

$A : 90 - 100$      $B : 80 - 89$      $C : 70 - 79$      $NR : Below 70$

### Class Policies

If students miss a class, IT IS THEIR RESPONSIBILITY to find out what they missed (announcements, assignments, notes...). Also, it is their responsibility to frequently check the canvas page for announcements made by the instructor. Students are strongly encouraged to read each section of the text book in advance of the lecture. Classes start and end always **on time**. Students are not allowed to leave the class before the end of the hour without authorization. During the class time it is not allowed to text, chat and sleep. All electronic devices must be put in silent mode.

## **Students With Approved Academic Accommodations**

Students with approved academic accommodations should plan to submit their accommodation letters through the Office of Accessibility Services Student Portal. Should you have any questions about how accommodations can be implemented in this particular course, please contact me as soon as possible. Students who are not currently registered with the Office of Accessibility Services (OAS) but who would like to find out more information regarding requesting accommodations and what that entails should plan to contact them via email: [AccessibilityServices@wpi.edu](mailto:AccessibilityServices@wpi.edu) and/or via phone: (508) 831-4908. Please also contact me as early as possible in the term so I can address your specific needs.

## **Academic Honesty**

The academic honesty policy can be accessed at: <http://www.wpi.edu/Pubs/Policies/Honesty/Students/> Consequences for violating the Academic Honest Policy range from earning a zero on the assignment, failing the course, or being suspended or expulsion from WPI. The Dean of Students Office maintains judicial records for any act of academic dishonesty.

## **Academic Resources Center (ARC) services**

“Peer tutoring and Math and Science Help (MASH) will be offered in person by the Academic Resources Center (ARC) tutors in D term on the 5th floor of Unity Hall in the ARC or the Exam Proctoring Center (EPC, UH 505). Individual tutoring will be available from 10am-9pm Mondays through Thursdays, 10am-5pm Fridays, and 12pm-9pm Sundays. Students should use [tutortrac.wpi.edu](http://tutortrac.wpi.edu) to sign up for individual tutoring appointments that fit their schedule. No appointments are needed for MASH group sessions. If a student has a time conflict or there is limited tutoring availability, they can complete and submit an ARC Inquiry Form to request an appointment that aligns with their schedule.”

D Term 2023 MASH and tutoring will begin on Wednesday March 15, 2023, and end on Monday May 1, 2023. There will be no tutoring or MASH on March 28, 2023; April 17, 2023; and April 21, 2023. Further information about MASH and tutoring offered by the ARC are located on the <https://www.wpi.edu/student-experience/resources/academic-resources-center>. (Academic Resources Center Canvas Page and on the Academic Advising and Academic Resources Center WPI Webpage)

**D Term tutor(s) in MA 2611: Jeffrey Chan, Andrew Hariyanto, Drema Uttecht**

## **Additional Help**

### **Math Department Tutoring Center (MTC)**

The Math Department Tutoring Center (MTC; Gordon Library, room 305): A variety of math TA and PLA tutors are available on M-R 10-5pm and F 10-2pm. You can also use help from the ARC, which includes one-on-one tutoring appointments.

Tentative Class Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 01	03/13 Syllabus, Introduction	03/14	03/15	03/16	03/17 Lab 01 Due
Week 02	03/20	03/21	03/22	03/23 HWK 1 Due	03/24 Lab 02 Due
Week 03	03/27 Quiz 01	03/28 No Classes (Wellness Day)	03/29	03/30 HWK 2 Due	03/31
Week 04	04/03 Quiz 02	04/04	04/05	04/06 HWK 3 Due	04/07 Lab 03 Due
Week 05	04/10 Quiz 03	04/11 Review 01	04/12	04/13 Midterm Exam	04/14 Lab 04 Due
Week 06	04/17 No Classes	04/18	04/19	04/20 HWK 4 Due	04/21 No Classes Lab 05 Due
Week 07	04/24 Quiz 04	04/25	04/26	04/27 HWK 5 Due	04/28 Lab 06 Due
Week 08	05/01 Quiz 05	05/02 Review 02	05/03 Final Exam		

## Tips For Success:

- Follow the pace of the class and KEEP ON TOP.
  - Seriously deal with homework assignments, ask questions if you have, and complete them on time.
  - Work on labs and submit required lab reports on time.
  - Tune your studying pace to the pace of class progression.
  - Frequently check and follow emails/announcements.
- Ask questions and discuss with the professor/TA
  - Don't be shy to ask questions.
  - Try to discuss it with someone even if you think you got it. Describing what you understand makes you understand better!
- Following the principles of the cognitive process.
  - General principle: Try to understand (not just memorize) relevant problems and solutions by asking “why”.
  - Remind yourself after lectures: Review the slides, digest all points again, and make sense of them. Make sure no questions are left unsolved. Seek help whenever needed.
- Preparing Exams.
  - Prepare carefully for exams by going over class notes, lecture slides, homework, and sample questions. Pay special attention to understanding concepts and ideas behind calculation formulas.
  - Test yourself on sample exams, and really understand the solutions to all the problems. The real exam questions will be of a similar type. Slides and homework are important resources for reviewing. Feel free to ask the TA and professor for any help in reviewing the materials.
- Ask for help whenever needed.
  - If you are having trouble with the class, talk to the professor early on to get help. Never wait and accumulate troubles.
  - Take advantage of all sources available to help your study.
- Motivate it and have fun.
  - Understanding statistics is important and totally can be fun!
  - Be respectful to the professor, the TA, and classmates. Make friends in the class and enjoy learning and life.