

## Course Information

- **Course Number and Title:** STA 3032 Probability and Statistics
- **Credit Hours:** 3
- **Academic Term:** Spring 2024

## Instructor Information

- **Instructor:** Dr. NAME
- **Office Location:** IST 20XX
- **Office Hours:** XXXX
- **Email address:** EMAIL@floridapoly.edu

## Course Delivery and Course Description

- **Delivery Mode:** Face-to-face; MWF XXXX
- **Course Website:** Canvas course site
- **Official Catalog Course Description:** This course is a survey of the basic concepts in probability and statistics with applications in electrical, mechanical, and civil engineering. Topics include probability, common discrete and continuous probability distributions, estimation and hypothesis testing, and simple regression.
  - **Course Pre and/or Co-Requisites:** C or higher in MAC2312 Analytic Geometry and Calculus 2
  - **Communication/Computation Skills Requirement (6A-10.030):** N
- **Required Texts and Materials:**
  - Probability & Statistics for Engineers & Scientists, MyStatLab Update, 9th Edition - Ronald E. Walpole, Raymond H. Myers, Virginia Polytechnic Institute, Sharon L. Myers, Keying Ye, ©2017 | Pearson. ISBN 10: 0-13-411585-6, ISBN 13: 978-0-13-411585-6
  - Excel, Scientific or Graphing Calculator.

## Course Objectives and Outcomes

- **Course Objectives:** At the end of this course, you should have a basic understanding of:
  - Descriptive statistics
  - Visual understanding of statistical characteristics of probability distributions
  - Basic probability concepts, joint probability and marginal probability, conditional probability and independence
  - Named discrete and continuous random variables and their probability distributions and cumulative distributions
  - Interval estimation of parameters, tests of hypothesis for one-sample and two-sample problems
  - Analysis of variance using the F-distribution
  - Linear regression and correlation, least squares
- **Course Learning Outcomes:**
  - Calculate descriptive statistics for the most common types of probability distributions.
  - Calculate probabilities and expectations from a given distribution.
  - Carry out the most common types of statistical inference for means.
  - Construct models for relating variables using linear regression.
  - Identify the probability distribution for a given statistical experiment.

- **Alignment with Program Outcomes:**

Course Learning Outcome	Learning Level (Anderson/Krathwohl)	Program Learning Outcome (ABET/GenEd)
Calculate descriptive statistics for the most common types of probability distributions.	Applying	ABET: 7.an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. GenEd: Demonstrate fluency in mathematical concepts.
Calculate probabilities and expectations from a given distribution.	Analyzing	ABET: 7.an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. GenEd: Demonstrate fluency in mathematical concepts.
Carry out the most common types of statistical inference for means.	Analyzing	ABET: 7.an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. GenEd: Apply appropriate mathematical techniques and problem-solving strategies to produce valid results.
Construct models for relating variables using linear regression.	Applying	ABET: 7.an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. GenEd: Apply appropriate mathematical techniques and problem-solving strategies to produce valid results.
Identify the probability distribution for a given statistical experiment.	Understanding	ABET: 7.an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. GenEd: Demonstrate fluency in mathematical concepts.

## Course Policies

### Attendance

- Students are expected “to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor” (University Policy, FPU-5.0010AP).
- Attending class regularly is important for success in this course.  
Attendance will be taken daily. Absences will be considered “excused” due to illness or family emergency.  
Falsifying attendance for yourself or for another student is an act of academic dishonesty and subject to academic discipline.

### Participation

Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for authorized accommodations). Persistent problems with participation may result in a [code of conduct](#) referral.

### Late Work/Make-up work

Make-up exams will not be permitted except for sickness, family emergency, or University related activity. A written note from an appropriate person (doctor, family member, etc.) is required. If possible, notification SHOULD be made BEFORE the missed event.

Homework submitted up to 24 hours late will be accepted with a 20% penalty. No submissions will be accepted more than 24 hours late.

Extensions without penalty may be granted on a case-by-case basis. Please communicate with your instructor.

## Grading Scale

The following gives the lowest number required to guarantee the corresponding grade:

A	A-	B+	B	B-	C+	C	D	F
90%	87%	84%	80%	77%	74%	70%	60%	0%

## Assignment/Evaluation Methods

Homework: 20%

Quizzes: 10%

Midterm Exams (3 at 15% each): 45%

Final exam: 25%

**Homework:** Homework will be assigned through Canvas on a regular basis and will be covering some important topics to get well-prepared for exams. Scan your work and submit it in a pdf form through Canvas. At the end of the semester, your two lowest homework scores will be dropped. Homework submitted up to 24 hours late will be accepted with a 20% penalty. No submissions will be accepted more than 24 hours late. \*Failing in submitting by the deadline due to technical issues is still considered a late submission. It is your responsibility to ensure that you are sending the correct file. You will not be able to submit the correct file after the due date passes regardless of the reason why you submitted the incorrect one in the first place.

**Quizzes:** Quizzes are scheduled throughout the semester (see tentative schedule). Quizzes will be given during the last 15 minutes of the class period on the scheduled date. Topics will be announced through Canvas in a timely manner. Quizzes will cover basic evaluations to use as a checkpoint. At the end of the semester, your one lowest quiz score will be dropped.

**Midterm Exams:** There will be three in-class midterm exams during the semester, tentatively on the dates specified in the schedule below.

**Final Exam:** The final exam will be comprehensive, taken by all students, and administered during the final exam period.

## Course Schedule (Subject to Change)

- Important Dates: <https://floridapoly.edu/academics/academic-calendar/index.php>

Week	Monday	Wednesday	Friday
Aug 19 – Aug 23		Introduction 2.1, 2.2 Sample Space, Events	2.2 Events 2.3 Counting Sample Points
Aug 26 – Aug 30	2.3 Counting Sample Points	2.4 Probability of an Event 2.5 Additive Rules	2.5 Additive Rules <b>Quiz 1</b>
Sep 2 – Sep 6	<b>Labor Day Holiday, No Class</b>	2.6 Conditional Probability, Independence, and the Product Rule	2.6 Conditional Probability... 2.7 Bayes' Rule
Sep 9 – Sep 13	2.7 Bayes' Rule	3.1, 3.2 Concept of a Random Variable, Discrete Probability Distributions	3.3 Continuous Probability Distributions <b>Quiz 2</b>
Sep 16 – Sep 20	3.4 Joint Probability Distributions	3.4 Joint Probability Distributions 4.1 Mean of a Random Variable	4.1 Mean of a Random Variable

<b>Sep 23 – Sep 27</b>	4.2 Variance and Covariance of Random Variables 4.3 Means and Variance of Linear Combinations of Random Variables	Catch-up/Review	<b>Midterm 1</b>
<b>Sep 30 – Oct 4</b>	4.3 Means and Variance of Linear... 5.2 Binomial and Multinomial Distributions	5.3 Hypergeometric Distribution 5.5 Poisson Distribution and the Poisson Process	5.5 Poisson Distribution and the Poisson Process <b>Quiz 3</b>
<b>Oct 7 – Oct 11</b>	6.1 Continuous Uniform Distribution 6.2 Normal Distribution	6.3 Areas under the Normal Curve	8.1 Random Sampling 8.2 Some Important Statistics
<b>Oct 14 – Oct 18</b>	8.3 Sampling Distributions 8.4 Sampling Distribution of Means and the Central Limit Theorem	8.4 Sampling Distribution of Means and the Central Limit Theorem 8.5 Sampling Distribution of $S^2$	8.6 t-Distribution <b>Quiz 4</b>
<b>Oct 21 – Oct 25</b>	8.6 t-Distribution 8.7 F-Distribution	Catch-up/Review	<b>Midterm 2</b>
<b>Oct 28 – Nov 1</b>	9.3, 9.4 Classical Methods of Estimation, Single Sample: Estimating the Mean	9.4 Single Sample: Estimating the Mean	9.12 Single Sample: Estimating the Variance <b>Quiz 5</b>
<b>Nov 4 – Nov 8</b>	10.1, 10.2 Statistical Hypotheses: General Concepts, Testing a Statistical Hypothesis	10.3, 10.4 The use of P-Values for Decision Making in Testing Hypotheses, Single Sample: Tests Concerning a Single Mean	10.4, 10.8 One Sample: Test on a Single Single Sample: Tests Concerning a Single Mean
<b>Nov 11 – Nov 15</b>	<b>Veteran's Day Holiday, No Class</b>	10.8, 10.9 One Sample: Test on a Single Proportion, Two Samples: Tests on Two Proportions	10.10 One-and Two-Sample Tests Concerning Variances <b>Quiz 6</b>
<b>Nov 18 – Nov 22</b>	11.1 Introduction to Linear Regression	Catch-up/Review	<b>Midterm 3</b>
<b>Nov 25 – Nov 29</b>	11.2 The Simple Linear Regression Model 11.3 Least Squares and the Fitted Model	<b>Thanksgiving Holiday Break</b>	<b>Thanksgiving Holiday Break</b>
<b>Dec 2 – Dec 6</b>	Review	Review	<b>Reading Day, No Class</b>

## Academic Support Resources

- **Library:** Students can access the Florida Polytechnic University Library through the University website and [Canvas](#), on and off campus. Students may direct questions to [library@floridapoly.edu](mailto:library@floridapoly.edu).
- **Peer Learning Strategists (PLS):** Are specially trained student leaders who help their peers strategize approaches to course content and work through solution methods. PLS work in collaboration with the courses they support so the content and methods are aligned with your instructors' expectations.

Students can meet with a PLS in The Learning Center, which is located on the first floor of the Innovation, Science and Technology (IST) building in room 1019.

- **Academic Success Coaches:** All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center:** Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit <https://floridapoly.edu/writingcenter>.

## Civility and Collegiality

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.

## University Policies

### Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through the Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations.

If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the [ODS student portal](#) and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive.

If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):  
DisabilityServices@floridapoly.edu  
(863) 874-8770  
The Access Point  
[ODS website: www.floridapoly.edu/disability](http://www.floridapoly.edu/disability)

### Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See [University Policy](#).)

## Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University [Ombuds Office](#), BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at [Peace River Center](#), 863-413-

2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The [Title IX Coordinator](#) is available for any questions to discussion [resources and options](#) available.

## Academic Integrity

The faculty and administration take academic integrity very seriously. Violations of [academic integrity regulation](#) include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.

## Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action).

*Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is **prohibited**.*