FLORIDA POLYTECHNIC UNIVERSITY

Course Information

- **Course Number and Title: STA 2023 Statistics 1**
- **Credit Hours: 3**
- **Academic Term: SP 2025**

Instructor Information

- **Instructor:** Dr. Aaron Bardall
- **Office Location:** IS 2005
- **Office Hours:**
- **Email address:** abardall@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode**: Face-to-face MWF 12:00 – 12:50pm in IST 1002

- **Course Website**: See the Canvas course site.

- **Official Catalog Course Description**: In this course, students will utilize descriptive and inferential statistical methods in contextual situations, using technology as appropriate. The course is designed to increase problem solving abilities and data interpretation through practical applications of statistical concepts. This course is appropriate for students in a wide range of disciplines and programs.
    - **Course Pre and/or Co-Requisites**: None
    - **Communication/Computation Skills Requirement (6A-10.030)**: No

- **Required Texts and Materials:**
    - *OpenIntro Statistics* (4th Edition) by David Diez, Mine Cetinkaya-Rundel , and Christopher Barr, ISBN 9781943450077. A free PDF version is available for this book at https://www.openintro.org/book/os/
    - Online homework will be required through Edfinity. See Canvas for details.
    - GeoGebra.org, Desmos.com, and Microsoft Excel will be used for descriptive and inferential statistics. Office 365 with Excel is available through the MyApps Florida Poly portal at https://apps.floridapoly.edu/.
    - A scientific or graphing calculator is required. Many basic calculators are acceptable.

Course Objectives and Outcomes

- **Course Objectives**:

    - This introductory course assumes no prior knowledge and presents basic statistical concepts and real-world applications, with an emphasis on data collection and analysis. This course not only provides a conceptual foundation required for more advanced classes but also helps the student become an educated data user and consumer. The course covers survey design and experiments to collect data from samples that are representative of a population, graphical and numerical representation of data using descriptive measures, and inferential statistics where random samples are used to draw conclusions about populations of interest. The primary goal of this course is to help students understand the process of framing a research question, collecting and analyzing relevant data, and interpreting the results to find solutions to the posed research questions. Students will work either individually or as part of a team on a project where the statistical and data analytics tools learnt will be put into practice.

- **Course Learning Outcomes**:

    1. Students will visualize and summarize data using descriptive statistics.
    2. Students will apply basic probability concepts to draw reasonable conclusions.
    3. Students will employ concepts of random variables, sampling distributions, and Central Limit Theorem to analyze and interpret representations of data.
    4. Students will choose an appropriate method of inferential statistics, including confidence intervals and hypothesis testing, to make broader decisions bason on sample data.
    5. Students will model linear relationships between quantitative variables using correlation and linear regression.
    6. Solve a real-world data analysis problem using statistical tools on a final course project.

- **Alignment with General Education Program Outcomes**

	Course Learning Outcome and Learning Level*					
General Education Program Mathematics Outcomes	1	2	3	4	5	6
(1) Demonstrate fluency in mathematical concepts.	Evaluating	Applying	Evaluating	Applying	Evaluating	Creating
(2) Interpret quantitative data to derive logical conclusions.		Analyzing		Analyzing	Analyzing	Analyzing
(3) Determine appropriate mathematical and computation models and methods in problem-solving.		Evaluating	Evaluating	Evaluating	Evaluating	Evaluating
(4) Apply appropriate mathematical and computational models and methods in problem-solving to produce valid results.		Applying	Applying	Applying	Applying	Applying

*Learning level as described in Bloom's taxonomy and Anderson and Krathwohl's taxonomy

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).

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.

Grading Scale

Grade	A	B+	B	B-	C+	C	D	F
Percentage	90%	87%	83%	80%	77%	70%	60%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

Assignment/Evaluation Methods

Edfinity online homework	7%
Written homework	7%
Data analysis final project	8%
Midterm exams	60% (4 exams at 15% each)
Comprehensive final exam	18%
Total	100%

- **Edfinity online homework**: Online homework will be required through Edfinity. See Canvas for details.
- **Written homework**: Written homework will be required weekly to be submitted through Canvas. See the Guidelines for Written Homework Submission on Canvas for details.
- **Data analysis final project**: A final project will be required that involves applying statistical concepts to a data set. Specific guidelines will be posted to Canvas.
- **Midterm exams**: There will be four in-class midterm exams.
- **Comprehensive final exam**: There will be a comprehensive final exam given at the time scheduled by the University. Your comprehensive final exam score may be used to replace your one lowest midterm exam score, up to a maximum score of 80 out of 100, if that helps your grade, but the final exam score still counts for the final exam percentage of the course grade listed above regardless.

Late Work/Make-up work

- Due dates for assignments are posted on Canvas. Students are responsible for checking Canvas regularly to be aware of assignment deadlines and other class information.
- Edfinity online homework will not be accepted late. Your lowest Edfinity online homework score will be dropped to allow for occasional extenuating circumstances (student illness, family emergencies, technical difficulties, etc.)
- Written homework submitted up to 24 hours late will be accepted with a 20% penalty. Homework will not be accepted more than 24 hours late. Your one lowest written homework score will be dropped to allow for occasional extenuating circumstances (student illness, family emergencies, technical difficulties, etc.)
- A final project submitted up to 24 hours late will be accepted with a 20% penalty. Final projects will not be accepted more than 24 hours late.
- Make-up exams will be given only when requested *in advance* for an appropriate reason and approved by the instructor (e.g. participation in college-sponsored activity, illness requiring medical attention, family emergency, etc.) or in case of extreme circumstances with a documented excuse.
- Extensions without penalty may be granted on a case-by-case basis. Please communicate with your instructor.

Course Schedule (Subject to Change)

Week	Dates	Monday	Wednesday	Friday
1	Jan 12-16	1.2 – Data basics	2.1 – Examining numerical data	2.1 – Examining numerical data
2	Jan 19-23	Martin Luther King Jr Day – No Class	2.2 – Considering categorical data	3.1 – Defining probability
3	Jan 26-30	3.1 – Defining probability	3.2 – Conditional Probability	3.2 – Conditional Probability
4	Feb 2-6	3.2 – Conditional Probability	Review	Exam 1
5	Feb 9-13	3.4 – Random variables	3.5 – Continuous distributions	4.1 – Normal distribution
6	Feb 16-20	4.1 – Normal distribution	4.3 – Binomial distribution	4.3 – Binomial distribution
7	Feb 23-27	5.1 – Point estimates and sampling variability (CLT)	5.2 – Confidence intervals for a proportion	5.2 – Confidence intervals for a proportion
8	Mar 2-6	Review	Exam 2	Resampling for confidence intervals
9	Mar 9-13	5.3 – Hypothesis testing for a proportion	5.3 – Hypothesis testing for a proportion	6.1/6.2 – Inference for a single proportion / Difference of two proportions
10	Mar 16-20	Spring Break – No Classes		
11	Mar 23-27	7.1 – One-sample means with the t-distribution	7.1 – One-sample means with the t-distribution	7.3 – Difference of two means
12	Mar 30 – Apr 3	7.3 – Difference of two means	Review	Exam 3
13	Apr 6-10	7.2 – Paired data	8.1 – Fitting a line, residuals, and correlation	8.2 – Least squares regression
14	Apr 13-17	8.2/8.3 – Least squares regression / Outliers in regression	Peer project review	Review
15	Apr 20-24	Exam 4	1.3 – Sampling principles and strategies	1.4 – Experiments
16	Apr 27 – May 1	Review	Reading Day	Reading Day
17	May 4-8	Final Exams Week		

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 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: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edy/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. Any faculty or staff member you speak to is required 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 discuss resources and options available.

Academic Integrity:

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 sanctions up to and including expulsion from the university.

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 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.

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.

Tutoring and Learning Center: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).

Knack Tutoring: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.

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 floridapoly.edu/writing center.