

COURSE TITLE Introduction to Statistics
COURSE CODE ECON1005
COURSE TYPE Core
LEVEL I
SEMESTER I
DEPARTMENT Economics
FACULTY Social Sciences
CREDITS 3
PREREQUISITES None

INSTRUCTOR INFORMATION

Name	Office Address	Email Address	Office Hours
Mr. Ricardo Laloo	FSS Room 222	ricardo.laloo@sta.uwi.edu	TBD
Mr. Benjamin Ramkissoon	FSS Room 206	benjamin.ramkissoon@sta.uwi.edu	TBD
Mr. Shane Musai	FSS Room 206	shane.musai@sta.uwi.edu	TBD

COURSE DESCRIPTION

This course will familiarize students with the rudiments of statistical theory and ready them for effective academic and professional practice in the process of statistical research. Primary topics include Summarizing and Graphing Data, Introduction to Probability, Estimation, Hypothesis Testing, Regression and Correlation.

These broad topics have been formed into four modules (units) upon which the course is organized. Each unit builds on the last, ushering students along a path from rudimentary exposure to high-level application and analysis, particularly in the area of economic research.

As a student enrolled in the course **Introduction to Statistics**, your lecturer and tutor expect that you will be fully engaged in the traditional classroom, the cooperative learning activities and all online activities.

Research has shown that students learn best through collaboration and interaction; accordingly, you are encouraged to participate in and complete all assignments and classroom activities.

Students must know how to work with the summation operator, and must know how to apply the order of operations in mathematical computations. For help with acquiring the requisite skills, see:

<http://yongyoon.net/econometrics/summation.pdf>

http://www.mathgoodies.com/lessons/vol7/order_operations.html

In its purpose and goals, this course aligns itself with the stated policy of the University of the West Indies and the Department of Economics to produce graduates who are well versed in the practice of their disciplines in the workforce.

COURSE RATIONALE

This course is the first in a series designed to provide prospective UWI Economics and Management Studies graduates with the skills necessary to generate robust economic reports, analyses and policies based on a study of relevant data. Today's successful economist and/or management practitioner require an excellent working knowledge of the process of collecting data and converting it into information that is useful for business management, market analysis and government policymaking at the local, national and world levels. Apart from guaranteeing an easy transition into all Level II Social Science courses, this course provides the set of skills that are most frequently used in the workplace to generate and critically analyze reports.

COURSE GOALS

The goals of this course are:

- To develop within the student an appreciation for the vital and pervasive role of data collection and analysis, in almost every facet of 21st century existence and decision-making. (Unit 1 Importance of Statistics)
- To give to the student a clear sense of how data should be sampled, tabulated and graphed in order to arrive at unbiased, scientifically robust summaries, AND how to spot unscientific use of such data. (Units 2 &3 – Descriptive Statistics)

- To foster the student’s theoretic and practical understanding of the process of estimation, whereby summarized sample data is used to make inferences about a given population. (Unit 4 – Inferential Statistics)

COURSE LEARNING OUTCOMES:

At the end of this course the successful student will be able to:

- 1) Explain the importance of Statistics as it affects activities in both personal and commercial activities;
- 2) Use appropriate methods of collecting, analyzing and presenting data;
- 3) Compute probabilities of events by applying the rules and axioms of probability;
- 4) Identify the different types of probability distributions and their characteristics;
- 5) Determine the probability distributions of random variables and compute their probabilities;
- 6) Perform Point and Interval Estimation for population means, population variances and population proportions;
- 7) Test hypotheses involving population means and population proportions based on sample data and
- 8) Conduct tests of significance and F - tests for linear regression models.

ASSESSMENT STRATEGY

In order to gauge students’ grasp of the computational, theoretic and applicative aspects of the course content, assessments will be applied and credited as follows:

Assessment	Learning Outcomes								Weighting %	Assessment Description	Duration
	1	2	3	4	5	6	7	8			
Internal Exams			✓	✓	✓				20%	In-course assessment	1.5 - 2 hours

Participation	✓	✓	✓	✓	✓	✓	✓	✓	10%	In-course assessment	NA
Online Quizzes	✓	✓				✓	✓		10%	In-course assessment	1 hour
Final Exam	✓	✓	✓	✓	✓	✓	✓	✓	60%	Final Examination	2 hours

Students will be continuously assessed by way of **Internal Exams and Online Quizzes** which will be administered during the semester (see course schedule for dates). The questions that comprise each test will be based on the topics covered in the lectures over the previous weeks and the corresponding tutorial assignments.

Students who are absent from the **Internal Exams** will only be afforded a Make-Up exam if that student has a valid medical reason/event for their absence. The excuse must be validated via a Medical Certificate or Police Report which the student must present to their relevant lecturer. A student who desires to write a Make-Up exam must inform their lecturer of their absence within 24 hours of missing the exam.

The Online Quizzes will be administered via MyElearning, please see the course calendar for details.

Student will also be awarded a **Participation grade** based on their attendance and participation in their registered tutorial session.

TEACHING METHODS

To effectively fulfill its stated goals, this course will make use of the following teaching strategies:

- **Interactive Lectures**
- **Guided Tutorials** – Students complete pre-set worksheets

Tutorial sheets – these sheets will be posted online weekly and are due for discussion in your chosen tutorial session. The sheets are designed to provide students with the practice needed to successfully navigate the computational aspect of the course.

Students will be required to visit the course website on MyElearning to select an available lecture schedule.

RECOMMENDED TEXTS

P.S. Mann, *Introductory Statistics*, John Wiley & Sons, 7th edition (5th or 6th edition is also allowed)

OTHER REFERENCE TEXTS

The following are possible alternatives to the main text:

Anderson, D., D. Sweeney and T. Williams, *Essentials of Statistics for Business and Economics*, South Western College Publishing, 2000.

Blaisdell, E., *Statistics in Practice*, Saunders College Publishers, 2001

Keller, G. *Managerial Statistics*, International Student Edition, Southwestern, 2009.

COURSE CONTENT

The course will cover the following:

UNIT 1 – IMPORTANCE OF STATISTICS

- Key Statistical Concepts
- Statistical Applications in Business and Economics
- Statistical Applications in Finance and Marketing

UNIT 2 – DESCRIPTIVE STATISTICS I

- Data Types
- Graphical Techniques
- Frequency Distributions
- Summary Measures (Central Tendency, Dispersion, Skewness, Location)

UNIT 3 - DESCRIPTIVE STATISTICS II

- Probability Theory and Rules
- Random Variables; Expectation and Variance of Random Variables
- Discrete and Continuous Probability Distributions

UNIT 4 – INFERENCE STATISTICS

- Estimation; Sample Estimators and Sample Estimates
- Sampling Distributions
- Confidence Intervals
- Hypothesis Testing
- Simple Linear Regression and Correlation
- Introduction to Multiple Regression

COURSE CALENDAR

Session–Date	Topic	Reading (assigned after each class)
Session 1	Orientation Introduction to Statistics, Methods of Sampling	Read PS Mann- Chapter 1 and Read PS Mann- Appendix A, as a minimum requirement
Session 2	Data Types; Graphical Descriptive Techniques [Tutorials Start]	Read PS Mann-Chapter 2 as a minimum requirement.
Session 3	Numerical Descriptive Techniques & Measures	Read PS Mann Chapter 3 as a minimum requirement.
Session 4	Probability Theory & Rules	Read PS Mann - Chapter 4 as a minimum requirement.
Session 5	Random Variables, Expectation, Variance. Probability Distributions [Online Quiz 1]	Read PS Mann- Chapter 5 as a minimum requirement.
Session 6	Discrete Probability Distributions	Read PS Mann- Chapter 5 as a minimum requirement.
Session 7	Continuous Probability Distributions	Read PS Mann - Chapter 6 as a minimum requirement.
Session 8	Estimation, Estimators, Estimates, Sampling Distributions, Confidence Intervals	Read PS Mann - Chapter 7, 8 as a minimum requirement.

	[Internal Exam 1]	
Session 9	Hypothesis Testing I - Means - Proportions	Read PS Mann- Chapter 9 as a minimum requirement.
Session 10	Hypothesis Testing I - Chi Square Test of Independence [Internal Exam 2]	Read PS Mann - Chapter 10, 11 as a minimum requirement.
Session 11	Hypothesis Testing II - Simple Linear Regression and Correlation - Introduction to Multiple Regression	Read PS Mann - Chapter 13 as a minimum requirement.
Session 12	Review [Online Quiz 2]	

POLICIES AND ADVICE TO THE STUDENTS

This course will be delivered with the support of a Myelearning Website. The Website should be visited initially for Course and Tutorial Registration and then frequently, (at least once per week), by each student to access Course Notices; Course Slides; Forum Messages from the Lecturers; Tutorial Assignments and Links to videocasts; then for the Online Quizzes; Coursework Grades; and Past Examination Papers towards the end of the semester.

You are reminded that Statistics is a quantitative course, and as such requires a mix of learning approaches. You will be required to read the lecture material from the recommended course texts and view the course slides on the website prior to the lecture. This would equip you to participate in the interactive class discussions of that material in the lecture session for that week. Such reading and discussion will fortify you in the solving of problems in the weekly tutorial assignments.

Some questions on a work sheet will be solved in one attempt; others will require more than one attempt. Students are encouraged to adopt co-operative learning approaches (i.e. working with another student or students) to solve the more challenging questions in the work sheet.

In seeking help, do not ask anyone to solve a problem for you. Ask them to show you **how to solve the problem**.

If after the individual effort and the co-operative learning effort, the student feels challenged by a question(s), he/she owes it to himself/herself to seek out the Course Lecturer/Tutor for guidance and assistance.

Under no condition should a student come to a tutorial class unprepared to contribute to the class proceedings. The student's contribution must be the result of his/her efforts at the assignment sheet.

A NOTE ON TUTORIAL ATTENDANCE

Please note that **UWI Examination Regulation No. 19** states that —*Any candidate who has been absent . . . or whose attendance at prescribed lectures, classes, ... **tutorials**, ... has been unsatisfactory . . . or who has failed to submit essays or other exercises . . . **may be debarred** by the relevant Academic Board, on the recommendation of the relevant Faculty Board, . . . **from taking any University examinations*** “

Please note that in accordance with this regulation, the Department of Economics//Faculty of Social Sciences **requires students to attend and participate in at least 75% of tutorials for a course so as to avoid being debarred from taking the final exam.**

Students are required to **provide explanations for each absence from tutorials to their Tutors within one (1) week of the absence.** Under no circumstances must students wait until the end of the semester to provide explanations for absence.

Remember to apply yourself consistently from the first week.

Students who are repeating this course but passed the coursework component at the previous sitting can apply to the Dean of the Faculty of Social Sciences for a transfer of coursework mark provided that the mark is not more than one (1) year old and has not been previously transferred. **Such students will however be required to attend and participate in all tutorials and will be liable for debarment from the final examination.**

POLICY REGARDING INCOMPLETE GRADES

Incomplete grades will only be designated in accordance with the University's Incomplete Grade Policy.

COURSE EVALUATION

At the mid-point of the course, the lecturer will solicit feedback on how the information is being processed and the course in general. The feedback will be used to make improvements, correct errors, and try to address the students' needs. Additionally, at the end of the course, the CETL will evaluate the course, so it is important that you are in attendance during that time.

CLASS ATTENDANCE POLICY

Regular class attendance is essential. A student who misses a class will be held responsible for the class content and for securing material distributed. Attendance is the responsibility of the student and consequently nonattendance will be recorded. Students would be reminded of the implications of non-responsible attendance.

EXAMINATION POLICY

Students are required to submit coursework by the prescribed date. Coursework will only be accepted after the deadline, in extenuating circumstances, with the specific written authority of the course lecturer and in any event, not later than the day before the start of the relevant end of semester examinations of the semester in which the particular course is being offered.

Please review the handbook on *Examination Regulations for First Degrees, Associate Degrees, Diplomas, and Certificates* available via the Intranet.

POLICY REGARDING CHEATING

Academic dishonesty including cheating is not permitted. For more information, read Section V (b) Cheating in the *Examination Regulations for First Degrees, Associate Degrees, Diplomas, and Certificates* online via the Intranet.

A note on Cheating and Plagiarism

Please note the following University Regulation on Plagiarism:

“97. (i) *Cheating shall constitute a major offence under these regulations.*

(ii) *Cheating is any attempt to benefit one’s self or another by deceit or fraud.*

(iii) *Plagiarism is a form of cheating.*

(iv) *Plagiarism is the unauthorized and/ or unacknowledged use of another person’s intellectual effort and creations howsoever recorded, including whether formally published or in manuscript or in typescript or other printed or electronically presented form and includes taking passages, ideas or structures from another work or author without proper and unequivocal attribution of such source(s), using the conventions for attributions or citing used in this University.*

103. (i) *If any candidate is suspected of cheating, or attempting to cheat, the circumstances shall be reported in writing to the Campus Registrar. The Campus Registrar shall refer the matter to the Chairman of the Campus Committee on Examinations. If the Chairman so decides, the Committee shall invite the candidate for an interview and shall conduct an investigation. **If the candidate is found guilty of cheating or attempting to cheat, the Committee shall disqualify the candidate from the examination in the course concerned, and may also disqualify him/her from all***

examinations taken in that examination session; and may also disqualify him/her from all further examinations of the University.....”

Any cheating detected in the **Online Quizzes and Coursework Project** will be subject to the penalties mentioned above.

A Plagiarism Declaration must be completed, signed and submitted with each Group Project.

STATEMENT ON DISABILITY PROCEDURE

The University of the West Indies at St. Augustine is committed to providing an educational environment that is accessible to all students, while maintaining academic standards. In accordance with this policy, students in need of accommodations due to a disability should contact the Academic Advising/Disabilities Liaison Unit (AADLU) for verification and determination as soon as possible after admission to the University, or at the beginning of each semester.

GRADING SYSTEM

2014/2015 Grading Policy		
Grade	Quality Points	Mark%
A+	4.3	90-100
A	4.0	80-89
A-	3.7	75-79
B+	3.3	70-74
B	3.0	65-69
B-	2.7	60-64
C+	2.3	55-59
C	2.0	50-54
F1	1.7	45-49
F2	1.3	40-44
F3	0.0	0-39