THE UNIVERSITY OF THE WEST INDIES, ST. AUGUSTINE CAMPUS
COURSE OUTLINE

COURSE TITLE: Statistical Methods

COURSE CODE: ECON2025

LEVEL: I

SEMESTER: II

CREDITS: 3

PREREQUISITES: ECON 1000; ECON 1002; ECON 1004 and ECON 1005

DEPARTMENT: ECONOMICS

INSTRUCTOR INFORMATION:

Lecturer: Dr. Ricardo Lalloo

Email Address: ricardo.lalloo@sta.uwi.edu

Room Number: FSS Room 222

LETTER TO THE STUDENT

Welcome to Statistical Methods.

This course will be delivered with the support of a Myelearning Website. The Website should be visited frequently by each student to access Tutorial Registration; The Diagnostic Exercise; Course Slides; Forum Messages from the Lecturers; Coursework Grades; Tutorial Assignments; Online Quizzes; Links to videocasts; Past Examination Papers and Course Notices.

You are reminded that quantitative courses such as Statistical Methods require a mix of learning approaches. You will be required to read the lecture materials from one of the course texts/materials prior to the lecture, complete the online quiz; participate in the in-class discussion of that material and supplement both these activities with a second reading and group discussion of the course texts and related materials provided via links on the course website. Such reading and discussion must be followed by the solving of problems on the tutorial assignments.

Remember to apply yourself consistently from the first week.

EXPECTATIONS

As a student enrolled in Statistical Methods, 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.

COURSE DESCRIPTION:

Modern economists, functioning in the emerging global environment (an environment in which information is a competitive resource) are expected to have a **varied toolkit of techniques** to provide relevant economic analysis and forecasts to both the private and public sectors. The development of this toolkit requires both a sound grasp of the theory and application of statistical methods. This course is intended to build on the knowledge of the theory of statistics gained at the first year level as well as furnish the student with the fundamentals to attempt more advanced work.

The course is divided into three (3) parts.

1. A diagnostic assessment to be done by each student within the first week of the semester.

2. Theoretical concepts of Probability, Random Variables and Probability Distributions with some emphasis on practical applications. These topics will normally be covered in an introductory course in Mathematical Statistics.

3. Inferential Statistics that every economist or economic statistician will encounter on a routine basis in research and in the world of work viz. Estimation, Tests of Hypotheses, Time Series Analysis, and Introductory Econometrics.

COURSE GOALS

The goals of this course are:

a. To familiarize Level II students with the interpretation and use of basic statistical data, symbols and terminology utilized in Statistical Methods

b. To enhance the student's knowledge and application of the concepts of Probability, Random Variables and Probability Distributions

c. To enhance the student's knowledge and application of Inferential Statistics

d. To build students' competence in the application of logic, the selection of appropriate statistical methods and the interpretation of results of statistical analysis in any given problem solving situation.

COURSE OBJECTIVES/COMPETENCIES

At the end of this course students will be expected to:

- Compute probabilities by applying the Laws of Probability, Chebyshev's Inequality, Bayes Rule and the Theory of either Discrete or Continuous Probability Distributions
- Perform Point and Interval Estimation for population means, population variances, and population proportions
- Test hypotheses involving population means, population variances, and population proportions based on sample data provided
- Decompose a Time Series and forecast the value of a variable based on the time series data provided
- Interrogate and interpret the output of statistical software packages such as MINITAB with a view to making decisions as to the fit of a range of models to a sample dataset
- Organise and analyse a dataset and present findings with support from Microsoft Office.

OUTLINE OF COURSE CONTENT

This course is organized into three (3) sections; these parts cover a total of eight (8) units. The first part is the Self Diagnostic; the second part focuses on theoretical concepts and

applications of Probability and Probability Distributions. The third part focuses on theoretical concepts and applications of Estimation, Tests of Hypotheses, Time Series Analysis, and Introductory Econometrics.

The course is organized into eight (8) units; the content of these units is defined below.

PART A – THE SELF DIAGNOSTIC

I. INDIVIDUAL ASSESSMENT OF STRENGTHS AND WEAKNESSES FROM LEVEL I STATISTICS

PART B – PROBABILITY, RANDOM VARIABLES & PROBABILITY DISTRIBUTIONS

II. NATURE & SCOPE OF STATISTICS AND A REVIEW OF STATISTICAL CONCEPTS

Meaning of Statistics; Stages of Statistical Investigation: Statistical Definition of the Decision Problem: Populations, Elementary Units and Observations; Measurement of Elementary Units; Specifying Parameters; Sample Space; Axioms of Probability; Random Variables- Discrete and Continuous; Statistical Dependence and Independence; Marginal and Conditional Probability; Permutations and Combinations, Chebyshev's Inequality.

***References: Keller & Warrack or Mann for discussion of the concepts and Rothenberg for further discussion, illustrations and solved examples*.**

III. FUNDAMENTALS OF PROBABILITY THEORY AND PROBABILITY DISTRIBUTIONS

Discrete and Continuous Probability Distributions; Cumulative Distribution Functions; Moments of a Distribution; Mathematical Expectation; Marginal and Conditional Distributions; Density Functions of well known distributions: - Bernoulli, Binomial, Poisson, Uniform, and Normal.

References: Keller & Warrack or Mann for discussion of the concepts, Rothenberg for further discussion, illustrations and solved examples*. *Paulson/Bellhouse for some interesting applications to lotteries.

PART C – SURVEY SAMPLING, ESTIMATION, TESTS OF HYPOTHESIS, SIMPLE REGRESSION, INTRODUCTORY ECONOMETRICS CONCEPTS; TIME SERIES

IV. STATISTICAL INFERENCE

Random Samples and Sampling Distributions; Sample Moments; $\chi 2$, Student-t and F

distributions; Central Limit Theorem. Point and Interval Estimation; Confidence Intervals; Maximum likelihood Estimation; Properties of Estimators: - Unbiasedness, Efficiency, Consistency, Sufficiency. Principles of Estimation. The notion of a statistical test; Tests of Simple and Composite Hypotheses; Tests of Population Mean, Population Variance, Population Proportion, Difference of Population Means and Ratio of Population Variances.

References: Walpole Chaps 8, 9 and 10, Keller & Warrack or Mann for discussion of the concepts for statistical concepts and Tanis/Rothenberg for further discussion, illustrations and solved examples.

V. SURVEY METHODOLOGY AND ANALYSIS OF VARIANCE

The Process of Sampling; Survey Design and Implementation; Sampling Methods (i.e. Simple Random Sampling, Cluster Sampling, Stratified Random Sampling, Multi Stage Sampling); Contingency Table Analysis; Analysis of Variance (Completely Randomized One-way and Two-way Models); Link between Regression Analysis and ANOVA.

References: Kalton (1983), Stuart (1984), Bohrnstedt G. and Knoke D. (1988), Barnett (1991), Maxim (1999), Keller & Warrack (2005).

VI. INTRODUCTION TO ECONOMETRICS

Simple Regression Analysis; Multiple Regression Analysis and Introductory Econometric Concepts

References: Maddala, G. S. and K. Lahiri (2009), ***Wilson & Keating (2007), Wilson & Keating (2005); Makridakis, Wheelright & Hyndman (1998), Salvatore (1992)***.

VII. TIME SERIES AND FORECASTING METHODS

Simple Exponential Smoothing; Double Exponential Smoothing; Moving Averages; Seasonality and Seasonal Adjustment of Economic Time Series (Ratio to Moving Averages).

References: Wilson & Keating (2005); Makridakis, Wheelright & Hyndman (1998; Clarke and Francis (1996), Den Butter and Fase (1991), Farrell and Soo Ping Chow (1983).

COURSE CALENDAR

Session	Activity
1	Lecture on Unit 1; Self Diagnostic
2	Lecture on Unit 1; Completion & Submission of One-Page

	Report as part of the Self-Diagnostic;
3	Lecture on Unit 2; Tutorials Begin;
4	Lecture on Unit 2;
5	Lecture on Unit 3; [Online Quiz]
6	Lecture on Unit 3;
7	Lecture on Unit 4;
8	Lecture on Unit 5; [In Class Test 1]
9	Lecture on Unit 5; [Take-Home Assignment Released]
10	Lecture On Unit 5; Lecture on Unit 6;
11	Lecture on Unit 6; [In Class Test 2]
12	Review; [Take-Home Assignment Due]
Note: Any changes to the above will be at the discretion of the course coordinator.	

TEACHING STRATEGIES

The course will be delivered by way of lecture discussion, in-class problem solving activities, weekly tutorials, graded pre-class online quizzes, in-class tests, other graded activities on Myelearning, and consultation during office hours.

Attendance at all Lectures and Tutorial Classes will be treated as **compulsory**.
University Regulation #19 allows for the Course Lecturer to debar from the Final Examination students who did not attend at least 75% of tutorials. The Course Lecturers will be enforcing this regulation.

Basic courtesy requires that students approach Lecturers and Tutorials in advance of missing a lecture or tutorial and indicate the nature of their situation so that appropriate adjustments can be negotiated. In the event, that advance notice of absence from lecture or tutorial is not possible, students are expected to do so before the class of the week immediately after the absence.

The practice of students waiting until the publication of the Debarred List to bring to the attention of the Tutor, Lecturer and Head of Department reasons for their absence from tutorials will be discouraged.

Students will be provided with a minimum of three (3) contact hours weekly; two (2) for lectures and one (1) for tutorials. Registration for tutorial classes will be **online in the second week of the semester.** Tutorials are expected to begin in Week 3.

In addition, the Course Lecturers will be available for consultations during specified **Office Hours** and at other times by appointment. Remember to check the times posted on the doors to their offices.

Participation in class discussion and problem solving activities is a critical input to the feedback process within a lecture or tutorial. The rules of engagement for these discussions will be defined by the Course Lecturer and/or Tutor at the first lecture and first tutorial respectively.

Pre-Class Reading Assignment will be administered by the Course Lecturer each week. These are aimed at assisting the student in the habit of reading and assimilating lecture material prior to the lecture; in this way, the time available at lectures will be better spent clarifying difficult concepts and applying the concepts to a selection of problems.

IN COURSE ASSIGNMENTS

Students will be required to register for a **tutorial** class/group by the first weekend of the semester.

Tutorial assignments are designed to help students flesh out concepts and practice the application of the logic and concepts to a range of problem situations. These are important in this course since they provide the basis for formal practice and assist in reinforcing the concepts introduced in lectures. It is expected that students will also use the texts and recommended references. Every effort should be made to complete each tutorial sheet within the time period indicated on the sheet.

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Students are advised to read through each tutorial assignment to identify the concepts required for its solution prior to revising the concepts so identified; it is only after such revision that you should proceed to attempt the solutions. Some questions in an assignment 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 tutorial sheet.

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 or Tutor for guidance and assistance.

Under no condition should a student come to a tutorial class unprepared to contribute to the class proceedings.

Overall students should invest a minimum of **seven (7) hours per week** apart from lectures, tutorial classes and office hours to this course.

ASSESSMENT STRATEGY

Assessment Objectives are linked to the Course Objectives. The approach to be adopted

for assessment in this course has three (3) objectives:

a. to effectively measure the students' proficiency in interpreting and using the statistical concepts, symbols and terminology in the three parts of the course

b. to effectively measure the students' proficiency in recognising from within the three parts of the course the appropriate mix of statistical concepts and methods required for addressing a range of economic problems

c. to effectively measure the students' ability to apply the appropriate mix of statistical methods from the three parts of the course in a logical manner.

Assessment will take the form of Coursework and a Final Examination.
The Coursework Component is comprised of a Self Diagnostic, Graded In-Class Tests, an Online Quiz and a Take-Home assignment.

Each student is required to complete a **Diagnostic Activity.** There are **two (2) deliverables** for this diagnostic activity:

1. The submission of the solutions to a previous ECON1005 Final Examination Paper (TBD).
2. Students will be provided with a soft copy of the Solutions to the Examination Paper via the course website. Students must download the solutions provided, undertake their own evaluation of their solutions, identify areas of weakness, develop their own plan for addressing those weaknesses, and write a concise one-page summary of the weaknesses identified and the corrective strategy.

NB. Marks will be **only** be awarded after submission of **both** deliverables.

Students will be continuously assessed by way of one **Online Quiz** and two **In-Class Tests**. The questions that comprise each test will be based on the topics covered in the lectures over the previous weeks and the tutorial assignments. Solutions to each in-class test will be posted on the course website.

Students will be required to complete a **Take-Home Assignment** based on topics covered in Part A, B & C of the course. The Take-Home Assignment will be primarily concerned with the analysis, transformation and interpretation of data via statistical software packages.

Students will also be awarded a **Participation grade** for their attendance, punctuality and contribution to the class discussion in tutorials.

The **Final Examination** at the end of the Semester will be based on Parts B and C of the course. Students must be able to demonstrate the Learning Outcomes of the course during the examination. The examination will be of two-hour duration.

Students are strongly advised to familiarize themselves during Week 1 of the Semester with the **University Regulations on Examination Irregularities** particularly in so far as

these regulations relate to Cheating during coursework assessment activities and/or the final examination. The Lecturers will apply these regulations to students determined to have cheated during any of the coursework activities.

The **Overall Mark** in the course will therefore be a composite of the marks obtained in the coursework and final examination components; the relative weights being:

Coursework 40%

- Diagnostic Activity 3%
- Online Quiz 7%
- Internal Exams 18%
- Take-Home Assignment 7%
- Participation Grade 5%

Final Examination 60%

Final grades will be awarded as shown in the Table below.

From the Board for Undergraduate Studies (October 2013)

Grade	% Range	Grade Point	Grade Definition	Grade Descriptor
A+	90 -100	4.3	Exceptional	Demonstrates exceptional performance and achievement in all aspects of the course. Exceptional application of theoretical and technical knowledge that demonstrates achievement of the learning outcomes. Goes beyond the material in the course and displays exceptional aptitude in solving complex issues identified. Achieves the highest level of critical, compelling, coherent and concise argument or solutions within the course.
A	80 – 89	4.0	Outstanding	Demonstrates outstanding integration of a full range of appropriate principles, theories, evidence and techniques. Displays innovative and/or insightful responses. Goes beyond the material with outstanding conceptualization which is original, innovative and/or insightful. Applies outstanding critical thinking skills
A-	75 - 79	3.7	Excellent	Demonstrates excellent breadth of knowledge, skills and competencies and presents these in appropriate forms using a wide range of resources. Demonstrates excellent evidence of original thought, strong analytical and critical abilities; excellent organizational, rhetorical and presentational skills.
B+	70 - 74	3.3	Very Good	Demonstrates evidence of very good critical and analytical thinking in most aspects of the course. Very good knowledge that is comprehensive, accurate and relevant. Very good insight into the material and very good use of a range of appropriate resources. Consistently applies very good theoretical and technical knowledge to achieve the desired learning outcomes.
B	65 - 69	3.0	Good	Demonstrates good knowledge, rhetorical and organizational skills. Good insight into the material and a good use of a range of appropriate resources. Good integration of a range of principles, techniques, theories and evidence.
B-	60 - 64	2.7	Satisfactory	Displays satisfactory evidence of the application of theoretical and

Grade	% Range	Grade Point	Grade Definition	Grade Descriptor
				technical knowledge to achieve the desired learning outcomes. Demonstrates sound organisational and rhetorical skills.
C+	55 - 59	2.3	Fair	Demonstrates fair breadth and depth of knowledge of main components of the subject. Fair evidence of being able to assemble some of the appropriate principles, theories, evidence and techniques and to apply some critical thinking.
C	50 - 54	2.0	Acceptable	Demonstrates acceptable application of theoretical and technical knowledge to achieve the minimum learning outcomes required in the course. Displays acceptable evidence of critical thinking and the ability to link theory to application.
FB	35 - 49	1.3	Unsatisfactory	Demonstrates unsatisfactory application of theoretical and technical knowledge and understanding of the subject. Displays unsatisfactory ability to put theory into practice; weak theoretical and reflective insight. Unsatisfactory critical thinking, organizational and rhetorical skills.
F	0 - 34	0	Poor	Overall poor or minimal evidence of knowledge and understanding of the subject. Displays little ability to put theory into practice; lacks theoretical and reflective insights. Incomplete breadth and depth of knowledge on substantive elements of the subject. Little or no evidence of critical engagement with the material. Responses are affected by irrelevant sources of information, poor organizational and rhetorical skills.

COURSE EVALUATION

At the end of each unit and 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.

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.

POLICY REGARDING INCOMPLETE GRADES

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

OTHER RESOURCES

Probability and Statistical Inference

Mann, P.S. (2004): **Introductory Statistics: Fifth Edition**, John Wiley and Sons.*** IN LIBRARY

Keller, G and Warrack, B. (2005): **Statistics for Management and Economics: Sixth Edition**, Thomson Brooks/Cole

Walpole, R. and R. Meyers (1993): **Probability and Statistics for Engineers and Scientists**, (Fifth Edition), New York: Macmillan.*** *TA 540 P738 2002 (2 copies in reserve)*

Tanis E. (1987): **Statistics II: Estimation and Tests of Hypotheses**, Forth Worth: Harcourt Brace Jovanovich.*** IN LIBRARY

Hoel, P. (1991): **Introduction to Mathematical Statistics**, New York: Wiley and Sons.* *QA 276 H694 I6* 1984

Rothenberg R. (1991): **Probability and Statistics**, Forth Worth: Harcourt Brace Jovanovich.*** IN LIBRARY

Kreyszig, E.(1970): **Introduction to Mathematical Statistics**, New York: Wiley and Sons.*

Bellhouse D. (1991) "The Genoese Lottery" ***Statistical Science***, vol. 6. pp. 141-148.

Freund J. (1992): **Mathematical Statistics**, New Jersey: Prentice Hall.* *QA 276 F889 M4 1981*

Paulson R. (1992) "Using Lottery Games to Illustrate Statistical Concepts" ***American Statistician***, vol. 46, 3, pp. 202-204. *HA I A65*

Websites:

www.stattrek.com

www.mathworld.wolfram.com

www.zweigmedia.com

www.wyzant.com

www.math.uiac.edu/~hildebr/370/370jointdistributions.pdf

www.math.arizona.edu/~ghystad/chapter6math362.pdf

Survey Methodology

Joseph, S., Franklin, M. and Hosein, R. (2010) **Remittances and Economic Development - the developmental impact of remittances in the Caribbean - a comparative analysis: Evidence from St. Lucia and Trinidad and Tobago.** Global Development Studies Vol.6 Winter 2009 – Summer 2010. Nos. 1-2. pp. 183 - 233

McLean, R., Franklin, M., Theodore, K., Allen, C., and Laptiste, C. (2009) **From Risk to Vulnerability: Power, Culture, and Gender in the Spread of HIV and AIDS in the Caribbean.** Chapter 15 in the book Sexuality, Social Exclusion & Human Rights: Vulnerability in the Caribbean Context of HIV. Christine Barrow, Marjan De Bruin and Robert Carr (editors). Ian Randle Publishers, Jamaica. 19 pages.

Franklin, M. and Thurab-Nkosi, D. (2008) **Online Delivery of a Mathematics Course in a Distributed Environment: The Case of UWI Distance Education Centre**. Malaysian Journal of Distance Education Volume 10 No. 1 June 2008 pp. 61 - 79

Franklin, M. & Hosein, R. (2007) **Remittances and the Economic Development Process in Trinidad and Tobago Economy**. Journal of Global Development Studies Volume Four Winter 2006-Spring 2007 Nos. 3-4. 157 – 186.

Wilson J. and B. Keating (2007): **Business Forecasting**, Fifth Edition :Mc Graw-Hill/Irwin.***

Maxim P. (1999): **Quantitative Research Methods in the Social Sciences**, Oxford

University Press.

Barnett V. (1991): **Sample Survey Principles and Methods**, London: Edward Arnold.*

Norusis M. (1991) **The SPSS Guide to Data Analysis**, Michigan: SPSS Inc.***

Newbold P. and T. Bos (1990): **Introductory Business Forecasting**, Cincinnati: South Western Publishing Company.*

Nicholls, S. (1989) "Seasonal Adjustment of the Quarterly Real Gross Domestic Product (GDP) Index: Some Preliminary Findings" **Central Bank of Trinidad and Tobago Quarterly Economic Bulletin**, 14, 2, pp. 78-90.* *HG 2845 T8 C3 A1 C397 E1*

Bohrnstedt G. and D. Knoke (1988): **Statistics for Social Data Analysis**, Illinois: F.E. Peacock.***

Abdulah N.(1986): **Designing Social Surveys in the Caribbean**, St. Augustine ISER*** *HN 29T8 A136 D4*

Stuart A. (1984): **Basic Ideas of Scientific Sampling**, London: Charles Griffin and Company Ltd.***

Kalton G. (1983) **Introduction to Survey Sampling**, Beverly Hills: Sage.***

Watson P. and S. Nicholls (1992): "ARIMA Modelling in Short Data Sets: Some Monte Carlo Results" **Social and Economic Studies**, 41, 4, pp. 53-75.* *H1. S6 LOAN/WEST INDIANA/ RESERVE*

Farrell, T. W. (1987) "Issues in the Collection and Reporting of Statistical Data" in Seminar on Current Economic Reporting, ***Quarterly Economic Bulletin, Central Bank of Trinidad and Tobago***, vol. 12, n0. 4, pp. 14-25. *HG 2845 T8 C3 A1 C397 E1*

Griliches Z. (1986): "Economic Data Issues" in Z. Griliches and M. Intriligator (eds.) **Handbook of Econometrics**, Vol. III, Amsterdam: North-Holland.* *to be ordered*

Bailar B. (1985): "Quality Issues in Measurement" **International Statistical Review**, 53, 2, 123-139.*** *HA11 I505*

Introduction to Econometrics

Joseph, S., A. Miller, R. Mahabir, and T. Harewood. (2010) **The Sensitivity of Remittance Inflows to the Global Financial Crisis: Evidence from Trinidad and Tobago and Jamaica.** Research Papers Vol. 1 No. 1 September 2010. Central Bank of Trinidad and Tobago.

Maddala, G. S. and K. Lahiri (2009) **Introduction to Econometrics**. 4th Edition. John

Wiley & Sons Ltd., Chichester, West Sussex, England.

Wilson J. and B. Keating (2007): **Business Forecasting**, Fifth Edition :Mc Graw-Hill/ Irwin.***

Watson, P.K. and Teelucksingh., S.S. (2002). **A Practical Introduction to Econometric Methods – Classical and Modern**, University of the West Indies Press. ***

Shelton Nicholls, Hyginus Leon and Patrick Watson (eds) **Problems and Challenges in Modelling and Forecasting Caribbean Economies**, St. Augustine: Caribbean Centre for Monetary Studies (CCMS).***

Watson P. (1987): "On the Abuse of Statistical Criteria in the Evaluation of Econometric Models" **Social and Economic Studies**, 36, pp. 119-148.* *H1. S6 LOAN/WEST INDIANA/ RESERVE*

Watson P. (1984): Economic Statistics and Econometric Modelling in Trinidad and Tobago", **Asset**, 3, pp. 56-68.*** HC 10 A8 46

Makridakis, S., S. Wheelwright and V. McGee (1983): **Forecasting: Methods and Applications**, New York: John Wiley and Sons.***

Salvatore D. (1982): **Statistics and Econometrics**, New York: McGraw Hill (Schaum Series)

Time Series and Forecasting Methods

Wilson J. and B. Keating (2007): **Business Forecasting**, Fifth Edition :Mc Graw-Hill/ Irwin.***

Clarke C. and M. Francis (1996) "Seasonal Adjustment Systems for Practitioners in the Caribbean: Lessons from the Trinidad and Tobago Experience" in Shelton Nicholls, Hyginus Leon and Patrick Watson (eds) **Problems and Challenges in Modelling and Forecasting Caribbean Economies**, St. Augustine: Caribbean Centre for Monetary Studies (CCMS).*** *HC 151 P758 1996 WEST INDIANA LOAN SECTION*

Den Butter F. and M. Fase (1991) **Seasonal Adjustment as a Practical Problem**, Amsterdam: North Holland.*

Bell, W. and S. Hillmer (1984): "Issues Involved with the Seasonal Adjustment of Economic Time Series" **Journal of Business and Economic Statistics**, 2, pp. 291-320.***

Farrell T. and C. Soo Ping Chow (1983) "Seasonality in Selected Economic Time Series in Trinidad and Tobago" **Central Statistical Office Research Papers**, Number 12, pp.

123-127.* *HA 867 R42*

Makridakis, S., S. Wheelwright and V. McGee (1983): **Forecasting: Methods and Applications**, New York: John Wiley and Sons.*** *HD 30 27 M345 1983*

Key:
*** Highly Recommended
** Important
* Reference