**THE UNIVERSITY OF THE WEST INDIES**
**ST. AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES**

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|---|---|
| **Course title:** | Econometrics I |
| **Course code** | ECON3049 |
| **Course proposer:** | Anthony Birchwood |
| **Course type (***Tick as appropriate***)** | ❒ Core<br>☑ Elective<br>❒ Co-curricular |
| **Level** | Undergraduate |
| **Semester in which course will be offered:** | Semester 1 |
| **Course Start Date** | September 15th, 2020 |
| **Course Provider/ Academic Unit** | Economics |
| **Credits** | 3 |
| **Pre/Co-requisites** | *Students should have the following knowledge/competence:<br>• ECON2025<br>• {OR IN PLACE OF ECON 2025: ECON 2006; ACCT 2015; OR MATH 2140 & 2150} |
| **Teaching Methods (list only):** | Lecture<br>Tutorials<br>Lab Session |
| **Estimated Study Hours** | Hours/week:<br>• Lectures – two (2) contact hours per week<br>• Tutorials – one (1) contact hours per week<br>• Lab Sessions two (2) contact hours per semester |
| **Total no. of assessments** | • Coursework accounting for 100% |
| **Instructor information** | Lecturer (Primary) : Anthony Birchwood<br>Email Address : soleil.frederick@sta.uwi.edu<br>Preferred method of contact : Email<br><br>Lecturer : Soleil Frederick<br>Email Address : soleil.frederick@sta.uwi.edu<br>Preferred method of contact : Email |

# 1 COURSE OVERVIEW

## 1.1 Course Description

This course an introductory course in the theory and practice of classical Econometric Methods. This course is designed to introduce students to the fundamentals of econometric analysis and reasoning. The main components of the course will deal with Classical Linear Regression Models and Single Equations Models. The course combines the use of econometric and economic theory, mathematical concepts and practical use of Eviews to ensure that students gain a working knowledge of the use of econometric tools. The course is assessed in two parts, the first part consists of a course project accounting for 25% percent of the final grade and the final examination accounts for 75% of the overall grade. The mission of the course focuses on key econometric concepts to ensure quality research and training in the field of econometrics.

## 1.2 Rationale

This course is important to students pursuing tertiary studies social sciences because it trains students to scientifically use research tools to analytically simulate and forecast relationships. Students who intend to pursue graduate studies and those who wish to enter the workforce immediately will benefit from this course. Graduate work in the area of economics usually calls for some prior econometric knowledge. The completion of this course will give you an added advantage in the workplace as employers often ask for econometric training.

## 1.3 Aims/Goals

The objective of the course is for the student to learn how to conduct – and how to critique – empirical studies in economics and related fields. Accordingly, the emphasis of the course is on empirical applications.

- Students are expected to have a proper knowledge of the content taught in ECON2025 {OR IN PLACE OF ECON 2025: ECON 2006; ACCT 2015; OR MATH 2140 & 2150}. Please revise accordingly if you do not.
- The mathematics of econometrics will be introduced only as needed and will not be a central focus, however, some knowledge of matrix algebra is expected and you would be referred accordingly during the class to material that will assist you in this area.

## 2.4 Learning Outcomes/Objectives

The main objective of this course is to provide students with a thorough understanding of core techniques of time series topics and learn how to apply them to test economic theories and design economic policies. The student will learn how to use data to test economic models, and how to quantify parameters of interest; these skills comprise an important part for the professional training of an economist. The main focus will be on econometric methods that are useful to analyze macro-level data, and on the empirical application of policy questions applicable to Small Island Developing States.

## 2.5 Learning Outcomes Guide

| Upon successful completion of ECON3049, the students will be able to: | Cognitive Domain | Psychomotor Domain | Affective Domain |
|---|---|---|---|
| 1. Define and explain the importance of econometrics to the Caribbean. | Knowledge | Articulation | |
| 2. Define and explain a Simple Linear Regression Model. | Knowledge | Articulation | |
| 3. Describe the use of Scatter Plots in econometrics. | Knowledge | Articulation | Manipulation |
| 4. Define and discuss Ordinary Least Squares and its application. | Comprehension | | |
| 5. List and explain the assumptions of Ordinary Least Squares. | Knowledge | | Valuing |
| 6. Discuss the difference between Simple Linear Regression Models and Multiple Regression Models. | Comprehension | Articulation | |
| 7. Define, derive and discuss various significance tests. | Comprehension | Manipulation | |
| 8. Discuss the failure of Least Squares and identify the problem | Comprehension | | Valuing |
| 9. Discuss the violations of the Assumptions of Classical Linear Regression Model. | Knowledge | | Valuing |
| 10. Apply Ordinary Least Squares analyse the relationship between two or more economic time series | Analysis | Articulation | |
| 11. Define and demonstrate tests for Homoscedasticity within an econometric model. | Analysis | Manipulation | |
| 12. Define and demonstrate tests for Autocorrelation within an econometric model. | Application | Articulation | |
| 13. Define and demonstrate tests for Multicollinearity within an econometric model. | Application | Articulation | |
| 14. Define and discuss Stochastic processes | Knowledge | Articulation | Valuing |
| 15. Define and discuss Stationarity and its application | Comprehension | Articulation | Valuing |
| 16. Demonstrate tests for Stationarity within an econometric model | Analysis | Manipulation | |
| 17. Critique the tests for Stationarity | Analysis | | |

## 2 COURSE ASSESSMENT

### 3.1. LINKAGE OF ASSESSMENT METHODS TO LEARNING OUTCOMES

| Assessment Method | | | | | | | | | Learning Outcomes (Corresponds to list in section 2.5) | | | | | | | | | Weighting % | Assessment Description | Duration |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LO 1 | LO 2 | LO 3 | LO 4 | LO 5 | LO 6 | LO 7 | LO 8 | LO 9 | LO 10 | LO 11 | LO 12 | LO 13 | LO 14 | LO 15 | LO 16 | LO 17 | | | |
| Project | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | 100 % | In-course Assessment | |

## 3 TEACHING METHODS

| Method | Description |
|---|---|
| Lecture | Students will be required to attend lectures consisting of two (2) contact hours per week. |
| Project | The student will be required to utilize the techniques taught in this course to analyze the project. |
| Laboratory work (Practical) | Students are required to attend two lab sessions consisting of one (1) hour sessions for the semester. |
| Tutorials | Students are required to attend one tutorial session for one hour per week and complete all tutorial sheets. |

## 4 COURSE CALENDAR

| Week | Topics | Readings/Resources | Activities including Assessments |
|---|---|---|---|
| 1. | History of econometrics: International and Caribbean | Geweke et al. (2006). http://ftp.iza.org/dp2458.pdf Econometrics: A Bird's Eye View Wooldridge, Jeffrey (2013). Introductory Econometrics: A Modern Approach 5th edition | |
| 2. | Rudiments of an Econometric Model Normal Distribution Chisquare Distribution Measures of Central Tendency | Hill, Carter, William E. Griffiths and Quay C. Lim (2011). Chapter 2 | Tutorial Sheet #1 |
| 3. | Finding relationships through Scatter Plots. Deriving least squares. Error Term t test Properties of least squares | Hill, Carter, William E. Griffiths and Quay C. Lim (2011). Chapter 2 | Tutorial Sheet #2 |
| 4. | Gauss Markov Theorem. F test statistic, Correlation and Goodness of Fit | Hill, Carter, William E. Griffiths and Quay C. Lim (2011). Chapter 2 | Tutorial Sheet #2 |
| 5. | Heteroskedasticity and Multicollinearity. | South Western, Cengage Learning. | Tutorial Sheet #3 |
| 6. | Non stationary Distribution | Wooldridge, Jeffrey (2013). Introductory Econometrics: A Modern Approach 5th edition. | Tutorial Sheet #4 |
| 7. | Stationarity, Holding all thing been equal vs changing all factors simultaneously | Hill, Carter, William E. Griffiths and Quay C. Lim (2011). Wooldridge, Jeffrey (2013). Introductory Econometrics: A Modern Approach 5th edition. South Western, Cengage Learning. | Tutorial Sheet 5 |
| 8. | Expected values of OLS estimators<br>a. Wald Test | Hill, Carter, William E. Griffiths and Quay C. Lim (2011). | Tutorial Sheet #6 |
| 9. | Variance<br>a. Mis-specified models<br>b. Efficiency of OLS | South Western, Cengage Learning. | Tutorial Sheet #7 |

| Week | Topics | Readings/Resources | Activities including Assessments |
|---|---|---|---|
| | | | |
| 10. | Course Review; Clarification of Issues etc. (*no introduction of new subject matter*) | | |

## 5 READINGS/RESOURCES

### 5.1 Required/Essential (Online and print)

- Hill, Carter, William E. Griffiths and Quay C. Lim (2011). Principles of Econometrics. 4th Edition. USA John Wiley & Sons, Inc.

### 5.2 Recommended (Online and print)

- Woolridge, M. Jeffrey (2013). Introductory Econometrics: A Modern Approach. 5th Edition. USA Carnegie.
- Kennedy, Peter (2008). A Guide to Econometrics 6th Edition. Wiley-Blackwell.

### 5.3 Other: (Special Equipment/Tools)

- Myelearning site – course code ECON3049

## 6 POLICIES

**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. **In the Faculty of Social Sciences, students missing more than 75% of tutorials are liable to be debarred from Examinations.** Please review the handbook on *Examination Regulations for First Degrees, Associate Degrees, Diplomas, and Certificates* (Regulation 19).

**Examination Policy**

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

**Academic Conduct/Misconduct**

**Policy for Cheating/Plagiarism**

97. (i) Cheating shall constitute a major offence under these regulations.
(ii) Cheating is any attempt to benefit oneself or another by deceit or fraud.
(iii) Plagiarism is a form of cheating.
(iv) Plagiarism is the unauthorized and/or acknowledged 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 a candidate is suspected of cheating, or attempting to cheat, the circumstances shall be reported 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, for any period of time, and may impose a fine not exceeding Bds#300.00 or J$5,000.00 or TT$900.00 or US$150.00 (according to campus). If the candidate fails to attend and does not offer a satisfactory excuse prior to the hearing, the Committee may hear the case in the candidate's absence.

**Statement of Disability Procedures**

The University of the West Indies 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.

**2014/2015 Grading Policy for Undergraduate Students**

**Grade Descriptors**

| 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. |

| Grade | % Range | Grade Point | Grade Definition | Grade Descriptor |
|---|---|---|---|---|
| B- | 60 - 64 | 2.7 | Satisfactory | Displays satisfactory evidence of the application of theoretical and technical knowledge to achieve the desired learning outcomes. Demonstrates sound organizational 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. |
| F1 | 45 - 49 | 1.7 | 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. |
| F2 | 40 - 44 | 1.3 | Weak | Weak overall performance with very limited knowledge and understanding of the subject. Little evidence of theoretical and reflective insights. Weak organizational and rhetorical skills. |
| F3 | 0 - 39 | 0.0 | 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. |