

## Course Outline: Environmental Economics

<b>Course Title</b>	Environmental Economics	
<b>Course Code</b>	ECON 3034	
<b>Course Coordinator/Lecturer</b>	Mrs. Malini Maharaj ( <a href="mailto:malini.maharaj@sta.uwi.edu">malini.maharaj@sta.uwi.edu</a> )	
<b>Location and Office Hours</b>	Mondays 5-6pm Thursdays 6-7 pm Fridays 9-10 am	
<b>Tutor</b>	Mr. Gopiechand Boodhan ( <a href="mailto:gopiechand.boodhan@sta.uwi.edu">gopiechand.boodhan@sta.uwi.edu</a> )	
<b>Level</b>	Undergraduate Level III	
<b>Semester of Offering</b>	Semester I 2020/2021	
<b>Course Start Date</b>	September 14th 2020	
<b>Department and Faculty</b>	Department of Economics; Faculty of Social Sciences	
<b>Units of Credit</b>	Three (3)	
<b>Pre-requisite or Co-requisite</b>	ECON 1001 <b>AND</b> ECON 1002	
<b>Teaching Methods:</b>	1 (One) Lecture session per week (2 Hours); 1 (One) Tutorial session per week ( <b>1 Hour</b> )	
<b>Estimated study hours (weekly)</b>	Pre-reading (reading before lecture sessions) Post Reading Tutorial preparation Online Activities Independent Study	2 Hours 2 Hours 1 Hour ½ Hour 1 Hour
<b>Total Number of Assessments</b>	Online Assignment I (Quiz) 10% Individual Essay 5% Presentation 5% Online Assignment II (10%) Final Examination (70%)	

## Course Overview

### Course Description

This course equips students with an understanding of the key economic principles and policies for managing natural resources; environmental valuation techniques; policy instruments for achieving environmental objectives and also economic interventions to address both climate change and natural disasters. The course exposes students to the environmental perspective of Sustainable Development and relates this perspective to Economic and Social objectives, describing the relationship between the economy and the environment. The course is also founded on the rationale that SIDS such as the Caribbean are highly dependent on their environments for their economic survival but traditionally this reality has been under-recognized in economic research and teaching in the region.

The course is organized under four main sections which firstly outline the relationship between the economy and the environment, and then further dissects the relationship according to the source, sink and threat functions of the environment. Each section details the relevant literature and further discusses case studies that elaborate on how the literature has been or can be applied. The course is therefore a combination of theoretical principles and practical application underlying environmental economics.

Lecture sessions and tutorial sessions are intended to deliver the course material but also aim to facilitate discussion of key issues that are relevant to the course. Students are expected to be prepared with readings so as to provide feedback and highlight these issues for further discussion.

### Aims

The aim of this course is to develop an understanding of the importance of the environment to the economy with the goal to develop this awareness within students such that they become cognizant of how economic decision making impacts and is impacted by the environment, and further how then should the environment be efficiently managed to sustain the economy.

Students will be exposed to the role of the environment as a source of useful economic resources alongside its simultaneous role as a sink for the outcomes of consumption and production and also in terms of the economic threat it sometimes poses. This course will therefore allow students to be able to understand and describe the dynamics of the economy-environment interface while identifying appropriate mechanisms for incorporating the environment into economic decision making. This course is mandatory for students pursuing the Minor in Environmental Economics.

## Objective

The Objective of this course is to deliver the course material and execute tutorial sessions over the eleven (11) to (13) thirteen week teaching period to allow students to understand and apply the literature adequately enough to meet the learning outcomes as indicated.

## Learning Outcomes

1. Use Economic Theories and Concepts to explain the Economic Value of the Environment, and the implications of such;
2. To critically review the economic literature on the interface between the economy, society and the natural environment;
3. To critically apply the literature reviewed in (1) above, to the case of Small & Island Developing States (SIDS), particularly in the Caribbean.

## Learning Outcomes Guide

<b>Upon Successful Completion of ECON 3034: students will be able to:</b>	<b>Cognitive Domain</b>	<b>Psychomotor Domain</b>	<b>Affective Domain</b>
1. 1. Use Economic Theories and Concepts to explain the Economic Value of the Environment, and the implications of such;	Knowledge Comprehension	Perceptual Ability	Receiving Organization
2. To critically review the economic literature on the interface between the economy, society and the natural environment;	Knowledge Comprehension Application Analysis Synthesis	Manipulation Articulation	Responding Valuing
3. To critically apply the literature reviewed in (1) above, to the case of Small & Island Developing States (SIDS), particularly in the Caribbean.	Application Comprehension Application Analysis Synthesis Evaluation	Manipulation Articulation	Characterization

## Assessment and Assignments

This course is assessed as follows:

Assessment Item	Weighting	Opening date of assignment	Closing date for Assignment
Online Assignment I (Quiz)*	10%	9 <sup>th</sup> October 2020	11 <sup>th</sup> October 2020
Individual Essay	5%	To Be Announced	
Online Assignment II	10%	18 <sup>th</sup> November 2020	20 <sup>th</sup> November 2020
Presentation	5%	To Be Announced	
<b>Final Exam</b>	<b>70%</b>	<b>To be announced</b>	

Penalties will be applied for late submissions.

## Teaching Methods

One 2-hour weekly lecture (Tuesdays 10am -12 noon) supported by a one-hour weekly tutorial (Tuesdays 1- 2 PM). Both sessions would be facilitated via Blackboard Collaborate on the mylearning platform.

## Readings/Resources

Environmental Literacy Council. 2007. Environmental Economics: Volume 1, The Essentials.

Titienberg, T. Environmental and Natural Resource Economics, Harper Collins College Publishers, 9<sup>th</sup> edition, 2010.

Perman, R., Ma, Y., McGilvray J., and M Common (2003), Natural Resource and Environmental Economics, Pearson. Chapter 15

Dennis A. Pantin, Marlene Attzs, Justin Ram and Winston Rennie: The Economics of an Integrated Watershed Management Approach to Sustainable Development in Small Island developing States: From Ridge to Reef.

R. Kerry Turner, David Pearce and Ian Bateman: Environmental Economics. Harvester Wheatsheaf. 1994 (or later edition).

## Reading List

### 1. Introduction: The Triple Inter-Face between the Environment and the Socio-Economy: Source, Sink and Menace.

- i. Environmental Literacy Council. 2007. Environmental Economics: Volume 1, The Essentials.

### 2. The Economics of the Source Function of the Environment

#### (A) The Economics of Non-renewable Resources

##### i. Inter-generational Equity and optimal depletion;

\*\*Pantin, D.A (1980): Resource Depletion Theories and Planning in Mineral Exporting Economies with particular reference to Petroleum Exporters. OPEC Review. Vol. IV. No.

##### ii. National Income Accounting and Genuine Savings;

\*Kirk Hamilton and Michael Clemens (2003): Genuine Savings Rates in Developing Countries. World Bank Economic Review. Vol. 13. No.2. pp.333-56

##### iii. Control and Utilisation of Natural Resource Rents

Atkinson, G. (2000) Savings, Growth and the Resource Curse Hypothesis, (mimeo)

\*Pantin, D.A. Governance in Natural Resource based Rentier economies in the Caribbean, in Dennis Pantin(ed.). Reader in Caribbean Economy. 2005

#### (B) The Economics of Renewable Resources

##### i. An Introduction to Fisheries Economics and Tourism

- The Economics of Fishing and Fisheries Economics.

##### ii. The Economics of Biodiversity of Ecosystem Services

### 3. The Economics of the Sink Function of the Environment

#### (A) Pollution (definition, types); externalities and the micro (welfare) economics of pollution;

\*\*Pearce, David and Edward B. Barbier (2000): Blueprint for a Sustainable Economy. Earthscan. Chapter 6,9

\*\*Turner, Pearce and Bateman(1994), Chapters 5-6

\*\*Callan, Scott J and Janet M. Thomas (2000): Environmental Economics and Management. Harcourt, Inc.: Ch.3. Modeling Market Failure

Wallace E. Oates and Maureen L. Cropper: Environmental Economics: A survey (1992). Journal of Economic Literature. Vol. XXX. June. Pp.675-740

## **(B) Steps in, and Tools for, Internalisation of Externalities**

### **i. Measurement of Impacts**

Noise pollution, Solid Waste

#### **Class Note**

### **ii. Valuation of Environmental impacts**

Pantin et al(2008). Chapter 2.

Pantin, D.A. et al (2008): Chapters 2, 9

\*World Bank (1998): Economic Analysis and Environmental Assessment. Environment Dept. Update No.23, April.

Robert R. Hearne (1996): Economic Appraisal of Goods and Services. IIED. DP 96-03.

\*\*R. Costanza et al. (1997): The Value of the world's ecosystem services and natural capital. Nature, Vol. 387, May. pp.253-260.

\*\*D.W. Pearce, Review of Costanza et al (1997) and their reply in Environment, Vol. No.2, pp.23-27.

### **iii. Policy Instruments (P.I.) to Internalize Externalities**

\*\*Survey and Assessment of Environmental Taxes in the Caribbean

\*\* Pantin, et al. (2008) Chapter 3- 8)

\*\*Theodore Panayotou (1998): Instruments of Change: Motivating and Financing Sustainable Development. Earthscan. Chs. 1-4, 7-8,

\*\*Pearce, David and Edward B. Barbier (2000).ibid. Chapters 8, pp. 196-209

\*\*R. Kerry Turner et al.(1994).ibid., Chs. 10-14, pp.141-202

T.H. Tietenberg in Daly and Townsend (eds).ibid. (1993).Ch. 8, pp.315-324.

### **iv. The Special Role of Environmental Cost Benefit Analysis**

\*\*Nick Hemley and Clive L. Spash (1993): Cost-Benefit Analysis and the Environment. Edward Elgar. Part 1: Theories and Methods, Chs. 3-7, pp.53-126

Boardman A, D Greenberg, A Vining, D Weimer, 1996. *Cost-Benefit Analysis: Concepts and Practice*, Prentice Hall, Upper Saddle River, USA.

#### v. **Ecological Footprints**

- Venetoulis, J., & Talberth, a. J. (2006). Refining the Ecological Footprint. *Journal of Environment, Development and Sustainability (2008) - Vol. 10*, 441-469.
- Wackernagel et al, M. (2005). *National Footprint and Biocapacity Accounts 2005: Then Underlying Calculation Method*. Oakland: Global Footprint Network.
- Wiedmann, T., & Minx, J. (2008). *A Definition of 'Carbon Footprint'*. New York: Nova Science Publishers.
- Schaefer et al, F. (2006). *Ecological Footprint and Biocapacity: The world's ability to regenerate resources and absorb waste in a limited time period*. Luxembourg: The European Commission.

#### 4. **The Economics of The Threat Function<sup>1</sup>**

- ECLAC 2010. The Impact of Climate Change on the Macroeconomy in the Caribbean
- Pantin, D.A., M. Attzs: Economics of natural disasters in the Caribbean. Draft ECLAC study. 2009
- Attzs, Marlene (2008). Natural Disasters, Climate Change and the Caribbean Tourism Industry. In D.A. Pantin et al. The Economics of an Integrated (Watershed) approach to Environmental Management in SIDS: From Ridge to Reef..
- .....(2009) Climate Change and Sustainable Tourism in Caribbean Small Island Developing States. In Clayton and Hayle (eds) Climate change and Tourism in the Caribbean.

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<sup>1</sup>Additional readings to be provided.

## Course Calendar

Teaching Week (beginning September 14 <sup>th</sup> 2020)	Unit Number /Title	Unit Description	Unit Content
1	1. Introduction to Environmental Economics and Economic Theory	Economic Theory and the Environment.	Capturing the Environment in Economic Theory; Markets and Market Failure.
2	<b>2.The Economics of the Source Function of the Environment</b>	(A) The Economics of Non-renewable Resources	i. Inter-generational Equity and optimal depletion;
2			ii.National Income Accounting and Genuine Savings;
2			iii.Control and Utilisation of Natural Resource Rents
3		Presentations	
4		(B) The Economics of Renewable Resources	i. An Introduction to Fisheries Economics and Tourism
4			ii.The Economics of Biodiversity of Ecosystem Services
5		<b>3.The Economics of the Sink Function of the Environment</b>	(A)Pollution (definition, types); externalities and the micro (welfare) economics of pollution
6	(B)Steps in, and Tools for, Internalisation of Externalities		i.Measurement of Impacts
7			ii.Valuation of Environmental impacts
8			iii.Policy Instruments (P.I.) to Internalize Externalities
8			iv.The Special Role of Environmental Cost Benefit Analysis
9			v.Ecological Footprints
10	<b>4.The Economics of The Threat Function</b>		
11	<b>Review Session</b>		



## Policies to Note

### Regulation 11 on Coursework:

*b. Only a coursework mark of 40% will be transferred within the period outlined i.e. one (1) year limit. A student who meets this requirement must not attempt coursework for the said period, as this approval will become null and void.*

78. (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 unauthorised and/or unacknowledged use of another person's intellectual efforts 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.*

In this connection, any collaborations during the completion of individual assignments (online coursework and final examinations) will constitute as cheating also.

## Marking Scheme for Examinations in the Faculty of Social Sciences

*21. (i) In the determination of GPA, the grades with corresponding quality points shall be as defined in the University Regulations governing the GPA.*

The authorized marking scheme as of Academic Year 2014/2015 is as follows:

<b>Grade</b>	<b>% Range</b>	<b>Quality Points</b>
A+	90-100	4.3
A	80-89	4
A-	75-79	3.7
B+	70-74	3.3
B	65-69	3.0
B-	60-64	2.7
C+	55-59	2.3
C	50-54	2.0
F1	40-49	1.7

F2	30-40	1.3
F3	0-29	0.0

**Department of Economics**  
**September 2020**