

**M.Sc.**  
**IN TROPICAL ANIMAL SCIENCE AND PRODUCTION**  
***Programme Description and Student Information Booklet***  
**2005-2006**

**The Open Tropical Forage-Animal Production Laboratory**  
**[OTF-APL]**  
**Department of Food Production**  
**Faculty of Agriculture and Natural Sciences**  
**The University of the West Indies**  
**St Augustine**  
**Trinidad, Trinidad and Tobago,**  
**West Indies**

**Programme Coordinator:**  
**Gary Wayne Garcia,**  
**Senior Lecturer in Animal Production**  
**Phone: 1-868-645-3232 Ext. 2090/ 3328**  
**Fax: 1-868-663-9686**  
**e-mail: [garyvgw1@yahoo.com](mailto:garyvgw1@yahoo.com)**

**Web Site: [www12.brinkster.com/ostasp/index.aspx](http://www12.brinkster.com/ostasp/index.aspx)**

**Dr. Gregory Gouveia**  
**Head-Department of Food Production**

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## 1.0 INTRODUCTION

The Department of Livestock Science (DLS), Faculty of Agriculture, St. Augustine Campus of The University of the West Indies (UWI), was established in 1960. In 1996 this was merged with the Departments of Crop Production and Soil Science to form the Department of Food Production (DFP). Work in Tropical Livestock and Animal Science began at St. Augustine at the Imperial College of Tropical Agriculture (I.T.C.A.) in the late 1940s. The present dairy herd was established in 1950. Work in Animal Science and Production has included: Jamaica Hope Breed evaluation; Tropical Hair Sheep evaluation; Sugarcane as Livestock feed; Mineral evaluation of Tropical forages; the Nutritive Value of *Leucaena* (*Leucaena leucocephala*); Tick and Tick-borne diseases; Pasture Evaluation; Evaluation of By-Product Feeds. More recently work has focused on Dairy Cattle fertility, management and cost of production; the use of agro-industrial by-product feeds and waste from the processing of poultry and fish by monogastrics [ducks and pigs]; monitoring the effects of climate on the grazing and grazing behavior of cattle and hair sheep in the tropics. Pioneering work has also begun on the development of intensive production models for wildlife species with special reference to the Caribbean and Latin America. Work has begun on Agouti (*Dasyprocta leporina*), Cocrico (*Ortalis ruficauda*), Deer (*Mazama Americana*), Capybara (*Hydrochoerus hydrochoeris*), and Iguana (*Iguana iguana*); additionally work with other wildlife species, wildlife farmers is ongoing. Collaboration with zoos worldwide and the School of Veterinary Medicine (UWI) is also ongoing. Work is also being developed with Reproductive Physiology of Tropical Hair Sheep and non domestic species. The DFP offers postgraduate studies leading to M.Sc. Tropical Animal Science and Production (lectures and course-work directed), M.Phil. Tropical Livestock Science and Ph.D. Livestock Science (research-directed) degrees.

### 1.1 MISSION STATEMENT OF THE OPEN TROPICAL FORAGE-ANIMAL PRODUCTION LABORATORY [OTFAPL]

*To train people in the science of livestock and animal production; to encourage continued production; to assist in increasing the output of animal products and the profitability and sustainability of livestock and animal production in the Caribbean and the tropical world at large.*

OTFAPL

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Gary Wayne Garcia (2000)

## 2.0 GENERAL OBJECTIVES

The M.Sc. Degree in Tropical Animal Science and Production is designed to achieve the following objectives:

- (i) to provide the graduate with a deeper knowledge and sensitivity of the needs for the science of Livestock Production in Developing Tropical Environments;
- ii) to provide the graduate with a deeper knowledge of the needs of the science of Tropical Ruminant and Non-Ruminant Production;
- (iii) to afford the graduate the opportunity to deepen his/her knowledge in a discipline or area of his/her choice; and
- (iv) to ensure that the graduate:

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- (a) develops individual research and reporting skills and
- (b) is exposed to project proposal development and presentation.

### 3.0 LEARNING OBJECTIVES

The learning objectives of the programme are as follows:

- (i) to be able to explain the status of Animal Science in the Tropics;
- (ii) to be able to describe the factors affecting Tropical Commercial Livestock Development;
- (iii) to be able to explain the advances in Animal Science in the Tropics and to show how these could further enhance future production;
- (iv) to be able to formulate diets and develop feeding and production systems for Tropical Livestock using available tropical feed resources;
- (v) to be able to present seminars; to conceptualize, propose and conduct an independent piece of research on an aspect of Tropical Livestock Production or commodity use;
- (vi) to be able to analyse a livestock production system, and to make practical recommendations for its improvement.

### 4.0 ADMISSION REQUIREMENTS

Admission into the M.Sc. programme will normally be available to holders of Bachelor's Degrees of at least Lower Second Class Honors standing in Agriculture, or any other relevant discipline of the University of the West Indies or any other approved University.

Candidates who, in the opinion of the Department do not possess sufficient undergraduate training in Livestock Science courses will be required to make up these deficiencies as Department Courses from among the undergraduate courses offered by the Department of Food Production.

### 5.0 PROGRAMME OUTLINE

#### 5.1 *Duration of Study*

The programme will be offered to **full-time**, as well as **part-time** candidates. The programme will *normally* be completed within **12 months of full-time study** or **24 months of part-time study**, exclusive of the time required for taking required departmental courses. ***Candidates must, however complete all M.Sc. examinations and projects within two (2) years as full-time students and four (4) years as part-time students.***

#### 5.2 *Programme of Study*

The M.Sc. Degree in Tropical Animal Science and Production will be awarded on the successful completion of five [5] core courses, one (1) elective course and a Research Project for those students registered in 1999. For those students registering in 2000 and 2001, they will be required to successfully complete five (5) core courses, two (2) elective courses and a Research Project. The Research Project would normally be in the area of the Elective Courses.

Beginning in the 2000 –2001 academic year the programme would consist of five (5) core courses, two (2) elective courses and a research project.

##### 5.2.1 Core Courses (4 credits each)

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AL60B Advanced Tropical Forage Utilization  
 AL60A Tropical Animal Science  
 AL60C Tropical Livestock Development  
 AL60D Advanced Ruminant Production  
 AL60E Advanced Non-Ruminant Production

### 5.2.2 Elective Courses (5 credits each)

AG66A Product Development  
 AG68D Tropical Commodity Utilization (Livestock)  
 AL63B Animal Breeding  
 AL62A Advanced Animal Nutrition I  
 AL62B Advanced Animal Nutrition II  
 AL62C Advanced Animal Nutrition III  
 AL64B Environmental Physiology  
 AL64A Reproductive Physiology  
 AL65B Zoo and Wildlife Production and Management

Other Approved Courses from the Faculties of Natural Sciences, Engineering and Medical Sciences. Elected courses are offered subject to student numbers and lecturer availability.

### 5.2.3 AL60F: Research Project (12 Credits)

Candidates are required to submit a project proposal to the programme coordinator for approval within the first six (6) months of registration. The Project must be in the discipline of the chosen elective course. Each candidate will be required to present a seminar on the proposed research project before the start of the project. The research project must be presented in the form of a report of not more than 100 pages. This report must conform to the style approved by the University of the West Indies for theses.

### 5.2.4 Mode of Delivery

COURSE CODE	Full Time Sem. I	Full Time Sem. II	Part Time Year 1 Sem. I	Part Time Year 1 Sem. II	Part Time Year 2 Sem. I	Part Time Year 2 Sem. II
AL60A	>>>>E		>>>>E			
AL60B	>>>>E				>>>>E	
AL60E	>>>>E				>>>>E	
AL60F Project	>>>>	>>>E	>>>>	>>>>	>>>>	>>>>E
AL60D	>>>>	>>>E	>>>>	>>>>E		
AL60C	>>>>	>>>E	>>>>	>>>>E		
Electives						
AL64A		>>>E		>>>>E &/o		>>>>E &/
AL65B		>>>E		>>>>E &/		>>>>E &/
AG68B						
Others	#	#	#	#	#	#

||> ... Denotes the Semester in which the course begins

||>E .... Denotes the Semester in which the course is examined

#.....Other electives are offered subject to student numbers and Staff availability.

## **6.0 EXAMINATION AND AWARD OF THE DEGREE**

Passing grades are required in both coursework and final examinations of each course. Candidates will also be required to submit a written report on the project for examination by their supervisor/s, an internal examiner and an external examiner.

### **6.1 Coursework Examination**

The coursework component of each course will be 40%. Coursework assessment may consist of review papers in selected areas and/or in-course tests and reports on case studies, group projects &/or practical sessions.

### **6.2 Final Examinations**

Candidates will be required to sit final written examinations in each course except for the research project. The final examination of each course will be held at the end of the semester.

Re-examination of unsuccessful candidates, who fail no more than 2 courses, may be permitted by the Board of Graduate Studies on the recommendation of the examiners. Such examinations will be held in the time of Supplemental Examinations.

Candidates who fail more than 2 courses or who fail any course more than once will be required to withdraw from the programme.

### **6.3 Award of the Degree**

- (a) To qualify for the award of the degree, candidates must successfully complete all required courses.
- (b) The degree shall be awarded in 2 categories: Distinction and Pass.
- (c) For the award of the M.Sc. with Distinction, candidates must have obtained an average of 70% or more in ALL written courses and at least 70% for the Research Project.



## **7.0 COURSE DESCRIPTION - CORE COURSES**

### **7.1 *AL60B - Advanced Tropical Forage Utilization***

#### **7.1.1 Course Description**

The nutrition of ruminants with particular reference to forage utilization. Factors affecting forage utilization and methods of forage utilization, including hay and silage production and feeding. Pasture management including the use of electric fencing as a tool to improve utilization. Forage tree crop and multipurpose tree crop production and utilization. Production and utilization schedules of selected forages. Fodder budgeting.

#### **7.1.2 Course Objectives**

- \* to highlight the factors affecting Tropical Forage Utilization;
- \* to outline utilization methods; and
- \* to discuss limitations to forage utilization, with directions towards a practical solution.

#### **7.1.3 Learning Objectives**

- \* to understand the factors affecting the nutritive value of forages;
- \* to understand the different methods of forage utilization, and to know the means by which utilization can be evaluated;
- \* to understand methods of forage conservation and to know how conservation can be practically used on the farm to improve production;
- \* to understand the role and use of multi-purpose trees as forage sources and their efficient inclusion and utilization in ruminant production systems;
- \* to understand what is Fodder Budgeting, and how it can be used to improve forage utilization; and
- \* to be able to describe and conduct pasture evaluation exercises.

#### **7.1.4 Course Lectures**

Dr. Francis Davis  
Dr. Gary W. Garcia

#### **7.1.5 Course Evaluation**

Coursework	-	40%
Final Exam (3 hours)	-	<u>60%</u>
		<u>100%</u>

#### **7.1.6 Semester Offering**

Course Begins	Semester I
Course Examination	Semester I