**BIOCHEMISTRY: BIOC**

**LEVEL: II**
**SEMESTER: 1**
**COURSE CODE: BIOC 2061**
**COURSE TITLE: BIOENERGETICS**
**NUMBER OF CREDITS: 3**
**ANTI-REQUISITES:** BIOC 2361 BIOMOLECULES AND ENERGY METABOLISM OR BIOC 2360 BIOCHEMISTRY IIA
**PREREQUISITES:** BIOC 1362 OR BIOC 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
**COURSE DESCRIPTION:** pH and buffers; Bioenergetics, Membrane structure; Introduction to membrane transport; TCA cycle; Oxidative phosphorylation; Plant and fungal respiratory chains; Transporters of the mitochondrial inner membrane; Photosynthetic light reactions of plants and bacteria; Calvin cycle; C3, C4 and CAM metabolism; GS-GOGAT and photorespiration; Mitochondria-plastid interactions in higher plants; Chlororespiration; Mitochondrial dysfunction
**ASSESSMENT:**
Coursework 50%
Final Exam 50%

**LEVEL: II**
**SEMESTER: 1**
**COURSE CODE: BIOC 2069**
**COURSE TITLE: PRACTICAL SKILLS IN BIOCHEMISTRY I**
**NUMBER OF CREDITS: 1.5**
**ANTI-REQUISITE:** BIOL 3069 RESEARCH PROJECT
**PREREQUISITES:** BIOC 1362 OR BIOC 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
**COURSE DESCRIPTION:** This course is composed primarily of laboratory exercises which assist students to understand concepts taught in the classroom as well as introduce techniques necessary to function efficiently in a biochemistry lab. Topics covered include: Instrumentation and safety in the biochemistry laboratory; pH and buffers; proteins and amino acids; the Hill Reaction; measurement of arginase activity; assay of tissue glycogen.
**ASSESSMENT:**
Coursework 100%

**LEVEL: II**
**SEMESTER: 2**
**COURSE CODE: BIOC 2161**
**COURSE TITLE: PRIMARY METABOLISM**
**NUMBER OF CREDITS: 3**
**ANTI-REQUISITES:** BIOC 2363 METABOLISM
**PREREQUISITES:** BIOC 1362, CHEM 1066 AND CHEM 1067
**COURSE DESCRIPTION:** Regulation mechanisms of enzymes in biological systems; Enzyme mechanisms; Carbohydrate metabolism; Nitrogen metabolism; Amino Acids; Lipid metabolism; Integrated Metabolism; Regulation of Metabolism
**ASSESSMENT:**
Coursework 50%
Final Exam 50%

**LEVEL: II**
**SEMESTER: 2**
**COURSE CODE: BIOC 2162**
**COURSE TITLE: CIRCULATORY AND SECRETORY SYSTEMS**
**NUMBER OF CREDITS: 3**
**ANTI-REQUISITE:** BIOC 2364 ADVANCED GENERAL BIOCHEMISTRY
**PREREQUISITES:** BIOC 1362 OR BIOC 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
**COURSE DESCRIPTION:** Protein stability and folding; Protein trafficking (mitochondria, chloroplast, nucleus and E.R.); Intracellular vesicular traffic; Cytoskeleton; Hormones; Plant hormones; Biochemical effectors of the mammalian respiratory and circulatory systems
**ASSESSMENT:**
Coursework 50%
Final Exam 50%

**LEVEL: II**
**SEMESTER: 2**
**COURSE CODE: BIOC 2169**
**COURSE TITLE: PRACTICAL SKILLS IN BIOCHEMISTRY II**
**NUMBER OF CREDITS: 1.5**
**PREREQUISITES:** BIOC 1362 OR BIOC 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
**COURSE DESCRIPTION:** This course is composed primarily of laboratory exercises which assist students to understand concepts taught in the classroom as well as introduce techniques necessary to function efficiently in a biochemistry lab. As this course builds upon those techniques studied in Practical skills in Biochemistry I students must first have taken that course. Topics covered include are DNA and RNA isolation from animal tissues and a project where the students isolate and characterize invertase from yeast.
**ASSESSMENT:**
Coursework 100%

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LEVEL: II
SEMESTER: 2
COURSE CODE: BIOC 2262
COURSE TITLE: GENE EXPRESSION
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2362 FURTHER METABOLISM & GENE EXPRESSION
PREREQUISITES: BIOL 1362, BIOL 1364 AND CHEM 1066
COURSE DESCRIPTION: Chemistry of nucleic acids, gene expression events and regulation, DNA surveillance and repair mechanisms; nucleotide biosynthesis, gene expression and developmental biology.
ASSESSMENT:
Coursework  50%
Final Exam      50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOC 3062
COURSE TITLE: CELLULAR AND MOLECULAR DEFENCE SYSTEMS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOC 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOC 2262 OR BIOL 2362 AND EITHER BIOC 2161 OR BIOL 2363
COURSE DESCRIPTION: Course Description: The course covers: introduction to virology, effect of viruses on host cells; immunology: natural and acquired immunity both humoral and cellular; antibody structure and function; B cells-generation of antibody diversity; function of T cells; complement-activation, control and biological effects. HLA-nomenclature, typing and its uses, autoimmunity; animal detoxification-absorption and distribution of xenobiotics, toxic effects and metabolism. The course will be delivered using a number of pedagogical tools and will be myelearning supported.
ASSESSMENT:
ASSESSMENT: Coursework:  50%
Final Examination:  50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOC 3162
COURSE TITLE: EXPERIMENTAL BIOCHEMISTRY AND MOLECULAR BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2164 PRINCIPLES OF MOLECULAR BIOLOGY, BIOC 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOC 2262 OR BIOL 2362 AND EITHER BIOC 2169 OR BIOL 2364 OR BIOC 2162
COURSE DESCRIPTION: Course Description: This course covers key advanced techniques in Biochemistry and Molecular Biology including mammalian cell culture, immunological techniques, analysis of lipids and carbohydrates, analysis of DNA, RNA and proteins, recombinant DNA technology and genetic engineering, protein expression, ethics of synthetic biology and computational methods in biochemistry and molecular biology.
The course materials will include class handouts e.g. illustrations and diagrams and the course will be fully myeLearning-supported. The course is primarily a theoretical course but computer-assisted approaches to experimental design and data analysis will be practiced by students.
ASSESSMENT:
Coursework:  50%
Final Examination:  50%
LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3262
COURSE TITLE: MEDICAL BIOCHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2162 OR BIOL 2364

ASSESSMENT:
Coursework: 50%
Final Examination: 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3364
COURSE TITLE: BIOCHEMICAL BASIS OF DISEASE
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2161 OR BIOL 2363 AND EITHER BIOC 2262 OR BIOL 2362
COURSE DESCRIPTION: Course Description: The course covers applied aspects of cancer metabolism, gene expression, diabetes and obesity, signal transduction/apoptosis, sensory systems and neurochemistry. The course will be delivered using a number of pedagogical tools and will be myeLearning supported

ASSESSMENT:
Coursework: 50%
Final Examination: 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3500
COURSE TITLE: MOLECULAR VIROLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: EITHER BIOC 2262, BIOC 3162 AND BIOC 3062 OR GRADE B- OR BETTER IN BIOL 2265, BIOL 2164 AND BIOL 2165
COURSE DESCRIPTION: Changing climates and environmental conditions, increased human traffic, altered human behavior and intensified agricultural practices are only a few factors that have led to the emergence of multiple viruses that occupy expanded ecologic niches, producing diseases in parts of the world where they had never before existed. Importantly, most emerging viral diseases in humans in the 21st century have been zoonotic and plant viruses continue to disrupt food supply. This course will detail the main mechanisms engaged by most viruses for successful reproduction within a host cell and for survival and spread within a host population. The molecular basis of alternative reproductive cycles and the genetic plasticity of viral genomes and the role in virus evolution are important aspects that will be covered. The course will address both sides of the dynamic interplay between pathogen and host including pathogenesis, oncogenic involvement, detection and control of viruses using vaccines and new antiviral strategies and finally, the potential and real applications of manipulating viruses for use in bioengineering and gene therapy. The course directly contributes to the thematic understanding of immunology and biochemical/molecular methods taught in Semester I as pre-requisite courses. The course will be fully myeLearning-supported and a combination of pedagogical approaches will be used; assessments will be based on in-course exams, group assignments and individual student reports.

ASSESSMENT:
Coursework 50%
Final Examination 50%
BIOLOGY: BIOL

LEVEL: 0 (PRELIMINARY)
SEMESTER: 1
COURSE CODE: BIOL 0061
COURSE TITLE: PRELIMINARY BIOLOGY I
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN BIOLOGY

COURSE DESCRIPTION: An introduction to Cell and Plant Biology including the ultra-structure of plant and animal cells; comparison between prokaryotic and eukaryotic cells; structure and function of micro- and macro-molecules; enzymes; respiration and photosynthesis. Introduction of the Plant Kingdom, plant anatomy, morphology and physiology to include water relations, ion uptake, mineral nutrition; regulation of growth and development by hormonal and environmental factors.

ASSESSMENT:
Coursework 50%
Theory 20%
Practical 30%
Final Examination 50%

LEVEL: 0 (PRELIMINARY)
SEMESTER: 2
COURSE CODE: BIOL 0062
COURSE TITLE: PRELIMINARY BIOLOGY II
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN BIOLOGY

COURSE DESCRIPTION: Introduction to the Animal Kingdom; relationships between structure and function of the mammalian body including the gross anatomy and tissue structure of the various organ systems. Basic principles of Mendelian and Molecular genetics including the physical and chemical basis of inheritance; DNA replication, recombinant DNA and DNA fingerprinting. Introduction to Ecology including ecosystems, energy flow and trophic levels, nutrient cycling and environmental issues.

ASSESSMENT:
Coursework 50%
Theory 20%
Practical 30%
Final Examination 50%

LEVEL: I
SEMESTER: 1
COURSE CODE: BIOL 1262
COURSE TITLE: LIVING ORGANISMS I
NUMBER OF CREDITS: 3
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY

COURSE DESCRIPTION: An introduction to the major groups of prokaryotes, autotrophic protists and plants, their evolutionary associations, and adaptive radiation. Explores ideas about the origin of the prokaryotes and the evolution and diversity of photosynthetic organisms. It is a prerequisite for advanced biology courses in the Department of Life Sciences.

ASSESSMENT:
Coursework 50%
Theory 30%
Practical 20%
Final Examination 50%

LEVEL: I
SEMESTER: 1
COURSE CODE: BIOL 1263
COURSE TITLE: LIVING ORGANISMS II
NUMBER OF CREDITS: 3
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY

COURSE DESCRIPTION: An introduction to the diversity of animals and fungi. Students are introduced to animals, their evolutionary associations, and adaptive radiation; and fungi as decomposers, symbionts, and pathogens. It is a prerequisite for advanced biology courses in the Department of Life Sciences.

ASSESSMENT:
Coursework 50%
Theory 30%
Practical 20%
Final Examination 50%

LEVEL: I
SEMESTER: 2
COURSE CODE: BIOL 1362
COURSE TITLE: BIOCHEMISTRY I
NUMBER OF CREDITS: 3
ANTI-REQUISITE: AGRI 1013 INTRODUCTION TO BIOCHEMISTRY
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY

COURSE DESCRIPTION: This course provides an introductory treatment of concepts in Biochemistry. In many regards, students will be learning a vast new language as well as new insight into the molecular logic of life - how the structure/form of molecules is related to their diverse functions.

ASSESSMENT:
Coursework 40%
Final Examination 60%
LEVEL: I
SEMESTER: 2
COURSE CODE: BIOL 1364
COURSE TITLE: GENETICS I
NUMBER OF CREDITS: 3
ANTI-REQUISITE: AGRI 1011 INTRODUCTION TO GENERAL GENETICS
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY
COURSE DESCRIPTION: This course aims to present an introduction to the basic principles of genetics and will equip students with the necessary foundation for advanced level courses in biology and biochemistry.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2061
COURSE TITLE: CELL & DEVELOPMENTAL BIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 1362 AND BIOL 1364 OR BIOL 1061
COURSE DESCRIPTION: The course covers the basic principles of developmental biology with a review of the structure and function of cellular organelles and the role of the cytoskeleton in cell shape and motility. The principles of development, including an understanding of developmental terminology will be examined and its application to organismal, cellular and molecular levels demonstrated for a complete understanding of developmental processes. Students will be introduced to important experiments that have led to an understanding of the basic principles of development. The application of stem cells in research and associated ethical considerations will form the basis of class discussions and online debates.
ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2164
COURSE TITLE: PRINCIPLES OF MOLECULAR BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOL 1362 AND BIOL 1364 OR BIOL 1061
COURSE DESCRIPTION: This course provides an introduction to recombinant DNA technology, R-DNA cloning, and applications of R-DNA technology. It examines the importance of restriction endonucleases in gene cloning, methods of construction of vectors and their applications in developing gene libraries. The methods of screening and enrichment of libraries are also examined. The principles of the Polymerase Chain Reaction (PCR) and its applications including paternity testing and fingerprinting, are also discussed. The principles of sequencing and the expansion of next-generation sequencing techniques are examined. Approaches to locating genes, including map-based gene isolation, and methods of gene silencing including RNAi and co-suppression are discussed using detailed examples. All techniques are further examined under general and holistic approaches to studying the genome, through forward and reverse genetics approaches, functional genomics, transcriptomics, proteomics and metabolomics. The theoretical principles discussed during the lectures are reinforced by practical exercises and assessment involving quizzes, in-lab assessments and discussions.

ASSESSMENT:
Coursework 50%
Final Exam 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2165
COURSE TITLE: GENETICS II
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2162 ADVANCED GENETICS
PREREQUISITES: BIOL 1364 OR BIOL 1061 AND 6 CREDITS FROM AMONG THE FOLLOWING COURSES: BIOL 1262, BIOL 1263, BIOL 1362 OR BIOL 1261.
COURSE DESCRIPTION: The major topics of the course are cytogenetics (including epigenetics and developmental genetics), prokaryotic/ viral genetics, and molecular genetics (including genomics). Cytogenetics explores chromosomal macromutations (chromosomal deletions, duplications, inversions and translocations) and their associated cytogenetic effects on plants and animals. Epigenetics and developmental genetics is a new area of study that explains the environmental influence on chromatin dynamics, DNA methylation, development and ultimately on inheritance. An introductory treatment of developmental genetics is also given to understand master control genes (homeotic genes) that regulate a cascade of genes that control development. Prokaryotic/ viral genetics provides insights into prokaryotic/ viral reproduction, recombination; genetic complementation, mapping; and genetic regulation. Molecular genetics provides the fundamental basis for the understanding of Molecular Biology and as such deals with DNA replication, transcription, translation and controls. Genomics provides an insight into where genetics is evolving (including an introduction to applications).

ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2262
COURSE TITLE: EVOLUTIONARY BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3662 EVOLUTION AND BIOSYSTEMATICS
PREREQUISITES: BIOL 1364 OR BIOL 1061 AND 6 CREDITS FROM AMONG THE FOLLOWING COURSES: BIOL 1262, BIOL 1263, BIOL 1362 OR BIOL 1261.
COURSE DESCRIPTION: After a historical introduction, about one-quarter of the course is devoted to population genetics and the workings of natural selection as the basis for understanding evolutionary mechanisms and patterns. This leads to treatment of the nature of species, the roles of fossils in understanding past evolutionary patterns, special forms of evolution and phylogenetic analysis.

ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2265
COURSE TITLE: FUNDAMENTALS OF MICROBIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2263 GENERAL MICROBIOLOGY
PREREQUISITES: ESST 1001 OR EITHER (BIOL 1262 AND
BIOL 1263) OR BIOL1261 OR (BIOL 1065 AND AGRI 1012)
AND EITHER (BIOL1362 AND BIOL 1364) OR BIOL 1061
COURSE DESCRIPTION: An overview of the biology,
taxonomy and phylogeny of bacteria, fungi and viruses.
Topics covered include bacterial carbon and energy
metabolism, as well as genetic recombination, growth and
nutrition. The course covers the principles of classical and
molecular-based methods used in the identification and
enumeration of microorganisms.
ASSESSMENT:
Coursework 50%
Final Exam 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2360
COURSE TITLE: BIOCHEMISTRY IIA
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2361 BIOMOLECULES & ENERGY
METABOLISM; BIOL 2365 COMPARATIVE
BIOCHEMISTRY; BIOC 2061 BIOENERGETICS
PREREQUISITES: EITHER BIOL 1362 OR BIOL 1061 AND
EITHER CHEM 1062 OR CAPE CHEMISTRY OR CHEM 0060
AND CHEM 0061 AND EITHER BIOL 1262 OR BIOL 1263
OR BIOL 1261
COURSE DESCRIPTION: This course builds on the material
covered in BIOL1362 Biochemistry I. The course is intended
for those students who are majoring in biology or perusing
the B.Sc. Biology programme and who are not reading a
major or minor in biochemistry. The course covers core
areas of biochemistry including bioenergetics; membranes
and membrane transport; enzyme action and regulation;
carbohydrate, nitrogen and lipid metabolism; and the
integration of metabolism via hormonal control.
ASSESSMENT:
Coursework 50%
Final Exam 50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2462
COURSE TITLE: CARIBBEAN ISLAND ECOLOGY
NUMBER OF CREDITS: 4
PREREQUISITES: BIOL 1462 (AT LEAST A GRADE B) OR
EQUIVALENT
COURSE DESCRIPTION: This advanced course treats the
islands of the Caribbean within a global perspective. Its
subject matter is the special nature of island environments
and their biotas, and its aim is an understanding of the
distributions and ecological relationships of island plants
and animals through an analysis of their origins,
evolutionary past population biology and community
structure. The course is expected to integrate much of the
knowledge that advanced undergraduates have amassed.
ASSESSMENT:
Coursework 40%
Final Examination 60%
LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2764
COURSE TITLE: PHYSIOLOGY OF PLANTS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2761 PLANT PHYSIOLOGY
PREREQUISITES: BIOL 1262 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 1364 AND BIOL 1362 OR BIOL 1061
COURSE DESCRIPTION: This course deals with how plants gather the resources they need to grow and survive. The first part provides the essential concepts of plant physiology with comprehensive coverage of water relations, mineral uptake, and photosynthesis. The second part explores how these resources are translated into plant growth and provides an introduction to how plants respond to environmental signals at the whole plant level. Each topic is covered by lectures and supported by online material and by recommended reading. The Practicals complement the lecture topics and provide an opportunity gain valuable practical skills in the life sciences.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2867
COURSE TITLE: PHYSIOLOGY OF ANIMALS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2862 ANIMAL PHYSIOLOGY
PREREQUISITES: BIOL 1263 AND BIOL 1362 AND EITHER BIOL 1364 OR ESST 1001
COURSE DESCRIPTION: Physiology of Animals is the study of how animals’ function. The course provides an introduction to molecular and cellular physiology and the principal physiological systems in animals, and how these systems function to maintain homeostasis in various environments. It covers fundamental concepts in osmoregulation and excretion, neurophysiology, muscle physiology, respiration, thermo-physiology, circulation and gas transport, endocrinology, and cardiovascular physiology. It also looks at some of the major stressors on physiological processes and how animals have been able to deal them. Typical stressors that are covered include osmotic pressures, water limitation, hypoxia, altitude, depth, temperature extremes and exercise. While animal physiology examines systems and processes common to all animal species, this course will focus on vertebrates, with a special emphasis on mammalian systems.
ASSESSMENT:
Coursework 50%
Final Exam 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3063
COURSE TITLE: MARINE ECOLOGY AND OCEANOGRAPHY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2063 MARINE ECOLOGY
PREREQUISITES: EITHER BIOL 1262 AND BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 2464 OR BIOL 1462
COURSE DESCRIPTION: After having completed the Fundamentals of Ecology this course focuses now on marine ecology and related aspects of oceanography and marine biology. Ecological processes and adaptations that act to structure marine associations are emphasised. Lectures provide an overview of characteristics, biodiversity and ecology of these marine ecosystems. They will also highlight concepts, ideas and hypotheses of how marine ecosystems function. These principles are examined on a global oceanographic scale and include relevant examples from both tropical (including local to Trinidad and Tobago and the Caribbean) and temperate systems.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 3 (SUMMER)
COURSE CODE: BIOL 3068
COURSE TITLE: FIELD COURSE IN NEOTROPICAL ECOLOGY
NUMBER OF CREDITS: 4
PREREQUISITES: BIOL 1462 OR BIOL 2464 AND 8 CREDITS OF ADVANCED LEVEL LIFE SCIENCES COURSES, OR PERMISSION OF THE HEAD OF DEPARTMENT
COURSE DESCRIPTION: Introduction to focal group, ecological principles illustrated by focal group, specialised features of focal group, field research projects (aquatic or terrestrial). Students must consult with the course coordinator before registering for this course.
ASSESSMENT:
Coursework 100%
- Oral Report 10%
- Written Work 90%
LEVEL: III  
SEMMESTERS: 1 & 2  
COURSE CODE: BIOL 3069  
COURSE TITLE: RESEARCH PROJECT  
NUMBER OF CREDITS: 4  
PREREQUISITES: AT LEAST A “B” AVERAGE IN LEVEL II LIFE SCIENCES COURSES OR PERMISSION OF THE HEAD OF DEPARTMENT. STUDENTS WISHING TO DO THIS COURSE ARE STRONGLY ENCOURAGED TO READ AN ELEMENTARY STATISTICS COURSE  
COURSE DESCRIPTION: Short lecture course (6-8 hours): Aims and means of assessing project feasibility; Methods of investigation; Experimental design; Project reporting and presentation. An approved investigation of a problem in biology and a written report thereon. Students must consult with the course coordinator before registering for this course  
ASSESSMENT:  
In-course assessment 40%  
Project Proposal 10%  
Literature Review 10%  
Oral Presentation 20%  
Project Report 60%  

LEVEL: III  
SEMESTER: 2  
COURSE CODE: BIOL 3162  
COURSE TITLE: PRINCIPLES OF MICROBIAL BIOTECHNOLOGY  
NUMBER OF CREDITS: 3  
ANTI-REQUISITE: BIOL 3264 FUNCTIONAL DESIGN IN BIOLOGY  
PREREQUISITES: BIOL 2265 AND BIOL 2164 (minimum grade “B-”) AND BIOL 3369 (co-requisite) OR BIOL 2165 AND BIOL 2164 OR BIOC 2262 AND BIOC 3162 (co-requisite)  
COURSE DESCRIPTION: This course focuses on the applications of microorganisms in a range of processes that are beneficial for humans and the environment. The topics covered include isolation, screening, genetic manipulation and culturing of microorganisms for selected biotechnological applications related to industries, health, agriculture and the environment. The course is organized into face-to-face lectures, tutorials and practical exercises. General and specific concepts would be covered in lectures while tutorials would be interactive, with students expected to prepare and fully participate in discussions and other class activities. Students will be continuously assessed via in-course tests, activities during lectures and tutorials, and attendance and participation in tutorials. Students’ practical exercises will be assessed and there is also a final end-of-semester theory examination.  
ASSESSMENT:  
Coursework 50%  
Final Examination 50%
LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3263
COURSE TITLE: INTRODUCTION TO BIOINFORMATICS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2165 AND BIOL 2164 (minimum grade "B-") AND BIOL 3369 (co-requisite)
COURSE DESCRIPTION: This course introduces students to bioinformatics tools and methods. It provides the conceptual background for using bioinformatics tools and application methods and offers skills and training on computational molecular biology and related fields. It gives an understanding about major advances in the analysis of genomes, sequences and their structures and also critically discusses the strength and limitations of the methods. The lecture component of this course provides the necessary conceptual backing and the practical component provides assignments for utilizing bioinformatics tools. Problem-based learning methods would be employed to teach the utility of bioinformatics tools. Teaching approaches include lectures, tutorials and lab sessions. Topics include (but not limited to) bioinformatics databases, sequence and structure alignment, protein structure prediction, protein folding, protein-protein interaction, simulation, and molecular dynamics.
ASSESSMENT: Coursework 50%, Final Examination 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3366
COURSE TITLE: PLANT BIOTECHNOLOGY AND GENETIC ENGINEERING
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3762 PLANT BIOTECHNOLOGY
PREREQUISITES: BIOL 2165 AND BIOL 2164 (minimum grade "B-") AND BIOL 3369 (co-requisite)
COURSE DESCRIPTION: This course introduces students to plant transformation technologies and genetic engineering methodologies for the introduction of beneficial traits into economically important plants. It also introduces students to plant tissue culture techniques and the impact of this technology on preservation of plant species and plant tissue based production of proteins and secondary metabolites. Topics include, Tissue culture applications in plant biotechnology; Advanced study of Gene sources and Gene expression; Promoters, selectable markers and reporter genes; Plant Transformation systems; Biology of Agrobacterium - mediated transformation; Agrobacterium – mediated gene transformation – methodology; Direct gene-transfer methods, Particle bombardment; Transgene Integration; Evaluation of Transgenics; Management of Gene silencing; Genetic engineering of plants for novel traits; herbicide tolerance, enhancing pest resistance, disease resistance; resistance to plant viruses, enhanced product qualities; Marker aided selection and gene pyramiding; Biofarming and plant expression systems; Phytoremediation, Genetic engineering of biofuel crops; Genetically modified crops - ethical, social biosafety and environmental issues. The teaching and learning methods include lectures/tutorials, group discussion, journal paper discussion and lab sessions. The teaching and learning methods include lectures/tutorials, and lab sessions.
ASSESSMENT: Coursework 50%, Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE COURSE CODE: BIOL 3363
COURSE TITLE: MEDICAL BIOTECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2165 AND BIOL 2164 OR BIOC 2262 AND BIOC 3162 (co-requisite)
COURSE DESCRIPTION: Biotechnology as a field has very high relevance and application to human and animal medicine. With the advent of research we are at a stage to unravel the molecular mechanisms of several diseases and disorders. These studies have opened up a new era for the management of several problems facing human health and longevity. Biotechnology innovation is in a large part driven by the requirement for improvements in medical diagnosis and therapy for a range of diseases including autoimmune diseases, diseases of inflammation and cancer. This course gives students a detailed insight into the principles and techniques of biotechnology applied to human medicine. Topics include (but not limited to) biopharmaceuticals, stem cell technologies, tissue engineering and regenerative medicine, proteomics, antibody technologies, nanomedicine and molecular diagnostics. The teaching and learning methods include lectures/tutorials, and field trips to medical facilities (within Trinidad).
ASSESSMENT: Coursework 50%, Final Examination 50%
LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: BIOL 3369
COURSE TITLE: LABORATORY SKILLS IN BIOTECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2262 (minimum grade “B-”) AND BIOC 3162 (co-requisite)
COURSE DESCRIPTION: This course provides necessary practical skills on recombinant DNA technology and molecular biology and biotechnology techniques. This course will be taught through lab sessions, lab discussions/lectures. Course will be assessed for 100% course work. Lab experiments and lectures will comprehensively cover the experiments and methods involved in gene cloning, necessary instrumentation and Preparation of reagents; Extraction of DNA and RNA; Restriction digestion of plasmid and genomic DNA and fragment analysis; Extraction of plant proteins and SDS-PAGE analysis; DNA-PCR, RT-PCR, qPCR; Preparation of tissue culture media; Tissue culture of tobacco leaf explants; Cell culture techniques; DNA-sequencing and DNA finger printing
ASSESSMENT:
Coursework 100%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3462
COURSE TITLE: THE ECOLOGY OF FRESHWATERS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2062 FRESHWATER BIOLOGY
PREREQUISITES: EITHER (BIOL 1262 AND BIOL 1263) OR BIOL1261 OR (BIOL 1065 AND AGRI 1012) AND (BIOL 2464 OR BIOL 1462)
COURSE DESCRIPTION: This course provides an overview of characteristics, biodiversity and ecology of freshwater systems, e.g. rivers, lakes, wetlands, and other low salinity inland aquatic environments. The course will cover the characteristics and variety of freshwater systems; the diversity, biology and ecology of living organisms found associated with these systems; the structure and function of freshwater communities and ecosystems; threats to freshwater systems and management strategies to provide sustainable benefits for ecosystems and human wellbeing. Students are expected to have a basic foundation in ecology and biodiversity. In addition to providing a foundation of theoretical knowledge, this course will emphasise practical skills and expose students to field and laboratory approaches for studying freshwater systems. It is an interactive ‘hands-on’ course where students are expected to prepare, participate and perform in an active way to engage with the content in a variety of ways. Assessment is designed to encourage students to work continuously with the course materials, explore and critically analyse research in this rapidly developing field.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3463 (TO BE DISCONTINUED WITH EFFECT FROM 2016/2017)
COURSE TITLE: POLLUTION & ENVIRONMENTAL MANAGEMENT
NUMBER OF CREDITS: 4
PREREQUISITE: BIOL 2461
ASSESSMENT:
Coursework 40%
Final Examination 60%
LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3465
COURSE TITLE: TROPICAL FOREST ECOLOGY AND USE
NUMBER OF CREDITS: 3
ANTl-REQUISITE: BIOL 3464 TROPICAL FORESTRY
ECOLOGY AND MANAGEMENT
PREREQUISITES: BIOL 2163 AND EITHER BIOL 1462 OR
BIOL 2464
COURSE DESCRIPTION: This course is designed to expose
students to the tropical forest ecology and how it influences
the human use of tropical forests such as timber production
and conservation. The course is organised into background
lectures and tutorials covering general and specific
concepts in tropical forest ecology and management. In
tutorials students are expected to prepare, participate and
perform in an active way in order to engage with the
content. Assessment will be based largely on in course tests
and a final theory exam.
ASSESSMENT:
Coursework 60%
Final Examination 40%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3466
COURSE TITLE: COASTAL ECOSYSTEMS AND RESOURCE
MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: This course will provide students
with an understanding of the characteristics of the major
coastal ecosystems of the Caribbean and adjacent regions.
It emphasises the ecological processes that determine
resource values and functions and highlights the reasons
for habitat and resource degradation. The course examines
the principles and practices of coastal ecosystem
management and reviews the major coastal management
initiatives in the region. It includes field surveys which cover
many of the issues covered in the lectures. Students are
introduced to ecosystems as resources and some basic
management principles are also introduced. For each
ecosystem the goods, services and attributes are described.
Students are additionally exposed to a number of
management tools and applications using relevant
Caribbean examples.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3469
COURSE TITLE: RESEARCH AND PRACTICAL SKILLS IN
ENVIRONMENTAL BIOLOGY
NUMBER OF CREDITS: 3
ANTl-REQUISITE: BIOL 3069 RESEARCH PROJECT
PREREQUISITES: PERMISSION OF THE HEAD OF
DEPARTMENT. ONLY AVAILABLE TO STUDENTS TAKING
THE ECOLOGY & ENVIRONMENTAL BIOLOGY
SPECIALISATION WITH 24 LEVEL II BIOLOGY CREDITS
COURSE DESCRIPTION: This course is designed to expose
students to the general approaches and techniques used
for research in Environmental Biology by conducting
research in a selected area of Environmental Biology. The
course is organised into background lectures and tutorials,
field and laboratory sessions covering general practical skills
and a short group research project. It is a ‘hands-on’ course
where students are expected to prepare, participate and
perform in an active way in order to engage with the
content. Assessment will be based entirely on practical
activities, skills and reporting.
ASSESSMENT:
Coursework 100%
LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3768
COURSE TITLE: PLANT DIVERSITY AND SYSTEMATICS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 1262 OR BIOL 1261 AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: This course provides an overview of plant diversity and systematics and explores the origin and diversity of vascular land plants emphasizing flowering plants in the flora of Trinidad and Tobago. The course covers taxonomy (identification, nomenclature, and classification), diversity, morphology and evolution of vascular plant groups, as well as phylogenetics (phenetics, cladistics, morphology and molecules). Practicals focus on skills and activities necessary for indentifying vascular plants in Trinidad and Tobago and the tools necessary for the understanding of the study of systematics. The course would be taught using interactive lectures, tutorials and hands on practical sessions. Assessment would consist of a final written examination and in course, online and practical assignments.

ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3769
COURSE TITLE: PLANT GENETIC IMPROVEMENT
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3763 Crop Improvement
PREREQUISITES: BIOL 2162 OR BIOL 2165 OR AGCP 2001

ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3771
COURSE TITLE: ENVIRONMENTAL PLANT PHYSIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3766 PLANT ECOPHYSIOLOGY
PREREQUISITES: BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: Environmental Plant Physiology focuses on the interaction between plants and their environment, exploring the diverse ways in which plants adapt to and influence their surroundings. This course will equip students with knowledge of how plants can be used to conserve land, restore ecosystem services, and provide sustainable food and energy. The first part of the course introduces the essential concepts of Environmental Plant Physiology and looks in detail at three important abiotic factors: light, water and temperature. The second part of the course examines the application of concepts through a series of case studies looking at different habitats and applied scenarios. In addition to case studies developed by the instructor, students will have the opportunity to develop their own case studies that explore the role of plant research in meeting the challenge of global climate change.

ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3772
COURSE TITLE: PLANT DEVELOPMENT
NUMBER OF CREDITS: 3
PREREQUISITE(S): BIOL 2061 AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: This course provides an advanced level focus on the molecular genetic, biochemical and physiological bases of plant development. Concepts of signal perception and transduction are initially reviewed. Students will be introduced to important experiments that have led to understanding many basic principles of plant development. Of particular importance is the use of mutation genetics as a tool to study development. Students in dissecting these experiments would be required to perform planned experiments and present their results and analysis in a group presentation format.

ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3773
COURSE TITLE: PLANT ANATOMY
NUMBER OF CREDITS: 3
PREREQUISITES: EITHER BIOL 1262 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012); AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: The course integrates developmental and functional aspects to explain the internal structure and external form of seed plants. The cells, tissues and organs, as well as their modifications, of representative plants are described. The roles of meristematic activity in primary and secondary growth and in determinate and indeterminate growth patterns are explained. Practical exercises are integrated with lectures as much as possible and emphasis is placed on hands-on specimen preparation and on effective use of the light microscope.

ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3409
COURSE TITLE: CARIBBEAN CORAL REEFS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: This course develops student competence in the biology of reef-building corals, the ecology of coral communities, and the impact of natural and anthropogenic factors on coral reefs in the context of the Caribbean region. In addition students are introduced to the ecosystem-based approach to reef management and to the economic valuation of reefs. Throughout the course the emphasis will be on the Caribbean and the interconnectedness of reefs throughout the region, however, comparisons will be made to reefs from other regions.

ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3866
COURSE TITLE: PARASITE BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2864 PARASITISM
PREREQUISITES:
BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012)
AND EITHER BIOL 2867 2867 OR BIOL 2862
ANTI-REQUISITE: BIOL 2864 - PARASITISM
COURSE DESCRIPTION: The course Parasite Biology is divided as follows:
• The study of individual parasites: It is only through the study of a parasite's biology and functions that steps can be taken to fight it.
• The study of host-parasite relationships: Disciplines which investigate how the host and parasite(s) interact include Physiology, Biochemistry, Cell Biology, and Pharmacology.
• Immunology: This deals with the immunological response that is triggered in the host and the ways in which the parasite attempts to evade it. Disciplines include Cellular and Molecular Immunology.
• Chemotherapy: This area investigates the effect of drugs on both the parasite and the host, as well effective treatments to ensure the death of the parasite and the recuperation of the host. Disciplines include Organic Chemistry, Pharmacology, Biochemistry and Medicine.
• Epidemiology: This field looks at the spread of parasitic diseases through study of the host, parasite and vectors. Disciplines include Tropical Hygiene, Entomology and Geographical distribution.

This course will be taught using a mixture of lectures, seminars and projects, team oral presentations, individual essays, reading materials and seminar-style classes, laboratory session to reinforce lectures and for hands on experience identifying, understanding form and function, and evolutionary processes. Course assessment will be based on a student seminar and an essay on current topics in parasitism together with lab exercises on form and function, and evolutionary processes. A final examination will be used to ensure student learning objectives are achieved.

ASSESSMENT:
Coursework 40%
Final Examination 60%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3867
COURSE TITLE: BIOLOGY OF ANIMAL BEHAVIOUR
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL3861 ANIMAL BEHAVIOUR
PREREQUISITES: (BIOL 1263 OR BIOL 1261 OR BIOL1065) AND EITHER BIOL 2867 OR BIOL 2862

ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: III  
SEMESTER: 1  
COURSE CODE: BIOL 3868  
COURSE TITLE: THE ECOLOGY OF HUMANS  
NUMBER OF CREDITS: 3  
ANTI-REQUISITE: BIOL2461 HUMANS & THE ENVIRONMENT  
PREREQUISITES: EITHER BIOL 1263 OR BIOL1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 2464 OR BIOL 1462  
COURSE DESCRIPTION: This course focuses on one of the most important animals on Earth today, Homo sapiens, considering the species from a broad biological and ecological perspective. The course introduces the evolution and origin of modern humans, the extent of their uniqueness in comparison with other animals and Primates, and the characteristics that contribute to their unprecedented success and dominance of their environment. We also explore selected aspects of human biology and ecology including genetic and cultural diversity and adaptation; technological and lifestyle changes and their relationship with health and disease patterns; human populations, resources and wellbeing; resource depletion, environmental degradation and global climate change. In conclusion we discuss the future of the human animal. Students are expected to have a basic foundation in ecology and biodiversity. In addition to providing a foundation of theoretical knowledge, this course take a ‘hands-on’ approach where students are expected to prepare, participate and perform in an active way in order to engage with the content in a variety of ways. Assessment is designed to encourage students to work continuously with the course materials, explore and critically analyse research in this complex and rapidly developing field. Students are expected to have a basic foundation in animal biology.  
ASSESSMENT:  
Coursework 50%  
Final Examination 50%  

LEVEL: III  
SEMESTER: 1 AND 2  
COURSE CODE: BIOL 3869  
COURSE TITLE: ZOOLOGY PROJECT  
NUMBER OF CREDITS: 3  
ANTI-REQUISITE: BIOL 3069 RESEARCH PROJECT  
PREREQUISITES: PERMISSION OF THE HEAD OF DEPARTMENT. ONLY AVAILABLE TO STUDENTS TAKING THE ZOOLOGY SPECIALISATION, WITH 24 LEVEL II BIOLOGY CREDITS.  
COURSE DESCRIPTION: This course gives students taking the Zoology Specialisation the opportunity to work independently or in a small group under the supervision of a member of staff on a research or study question in zoology of local and regional interest. Students develop research and/or evaluation and reporting skills as they design and conduct experiments, collect and analyse data and report and discuss the results of their own research or of the scientific literature, in an oral and written format.  
ASSESSMENT:  
Coursework 100%  

LEVEL III  
SEMESTER: 2  
COURSE CODE: BIOL 3870  
COURSE TITLE: INSECT BIOLOGY NUMBER OF CREDITS: 3  
ANTI-REQUISITE: BIOL 2866 ENTOMOLOGY  
PREREQUISITE: BIOL 2867 OR BIOL 2862  
COURSE DESCRIPTION: The first half of the course treats the unity of insects, i.e. those features that are common to all or many orders. The second half is an evolutionary survey of the insects, with some attention to arachnids, treating major orders and some families or superfamilies. In addition, one lecture is devoted to a more in-depth treatment of a selected group of insects or arachnids or a particular theme in arthropod biology. The basic teaching/learning approach is a traditional one of practical exercises followed by lectures and reading. Assessment is by means of reports on practical exercises, tests and an individualized species account.  
ASSESSMENT:  
Coursework 50%  
Final Examination 50%
LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3960
COURSE TITLE: ENVIRONMENTAL MICROBIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2265 (AT LEAST B-), BIOL 2164, BIOL 2165 AND BIOL 2360
COURSE DESCRIPTION: This course explores the diversity and function of microorganisms in the environment. Emphasis is placed on metabolic processes employed by microbes to transform organic and inorganic substances as part of bio-geochemical cycles. The role of microorganisms in pollution of water, soil and air is considered in addition to microbial processes used in environmental remediation and conservation. Conventional and molecular-based tools used for detecting, characterizing and monitoring microbes in the environment are also covered. The teaching and learning methods include lectures/tutorials, discussion sessions and labs.
ASSESSMENT
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3961
COURSE TITLE: PRINCIPLES OF MEDICAL MICROBIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2265 (AT LEAST B-), BIOL 2164, BIOL 2165 AND BIOL 2360
COURSE DESCRIPTION: Principles Medical Microbiology gives students a detailed insight into the principles and techniques of microbiology applied to human medicine. It covers medically important bacteria, viruses, fungi and parasites. Emphasis is placed on classification, detection and diagnosis of microbial pathogens and parasites in addition to their mechanisms and clinical manifestation. Students would also gain an understanding of epidemiological factors that contribute to human infectious disease and be introduced to the uses and challenges of antimicrobial and anti-parasitic agents for managing microbial diseases. The teaching and learning methods include lectures/tutorials and laboratory sessions.
ASSESSMENT
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3971
COURSE TITLE: FISHERIES MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: Fisheries biology and management are critical disciplines in today’s world, given the importance of the fishing industry as a source of animal protein in the human diet; the basis of a multimillion-dollar industry; and the threatened status of many of the major species on which we depend. This course introduces concepts in the related fields of fisheries biology, stock assessment and fisheries management. The course covers major trends in global and regional fisheries and fishing patterns; human and environmental influences on productivity and sustainability; traditional fish stock assessment models; and traditional, modern and emerging strategies for managing fisheries. Emphasis will be placed on tropical fisheries, which are among the most difficult fisheries to manage.
ASSESSMENT:
Coursework 50%
Final Examination 50%
ECONOMICS: ECON

LEVEL: I
SEMESTER: 1
COURSE CODE: ECON 1001
COURSE TITLE: INTRODUCTION TO MICROECONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: This course provides students to the history of economic thought highlighting some of the key economic issues, which have preoccupied the discipline from its origins. The course also provides an introduction to the basic principles of micro-economic analysis together with the main perspectives on the functioning of the macro-economy. The micro-economic analysis is illustrated by reference to a key export sector in the Caribbean (e.g. oil or bananas). The implications of trends in the latter for the Balance of Payments and macro economy conclude this first semester course.

LEVEL: I
SEMESTER: 2
COURSE CODE: ECON 1002
COURSE TITLE: INTRODUCTION TO MACROECONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
CO-REQUISITE: ECON 1001
DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: This course emphasises macro-economic theory and policy and the related national income accounting together with international trade and the balance of payments. There is a significant stress on the implications of these economic issues for the Caribbean reality.

LEVEL: I
SEMESTER: 2
COURSE CODE: ECON 1005
COURSE TITLE: INTRODUCTION TO STATISTICS
NUMBER OF CREDITS: 3
PREREQUISITES: DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: Descriptive Statistics; Probability and Probability distributions, Sampling distributions, Estimation, Hypothesis testing, simple correlation and regression.

ENVIRONMENTAL SCIENCE: ESST

LEVEL: I
SEMESTER: 2
COURSE CODE: ESST 1000
COURSE TITLE: PHYSICS FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: Physics for Environmental Sciences offers an introduction into the physics of the Earth's climate system and the physical methods which are developed and applied to investigate quantitatively different environmental systems. The principal topics covered are the physics of the built environment, the physics of human survival, energy for living, environmental health, revealing the planet, the sun and the atmosphere, the biosphere, the global climate, and climate change. It provides an essentially non-mathematical treatment suitable for a first year undergraduate level course. Course delivery would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials

ASSESSMENT
Coursework 50%
Final Examination 50%
LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1001
COURSE TITLE: BIOLOGY FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course introduces the biological principles underlying the study of environmental science, and provides an introduction to the diversity of microbes, plants and animals. It also examines the importance and diversity of the biological component of the environment. It will also cover basic principles of biochemistry and genetics, and is a necessary foundation course for several Level II-III courses in the Environmental Sciences programme. Delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1002
COURSE TITLE: CHEMISTRY FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: Introduction to Environmental Chemistry offers an introduction to the field of environmental chemistry. It is designed to provide fundamental understanding in the underlying concepts of Chemistry along with the more specific areas relevant to environmental concepts. Students will be introduced to the fundamentals of general, physical and organic chemistry within the context of their application to environmental issues. To achieve this, qualitative and quantitative aspects of environmental processes will be studied. Specific topics include processes in the atmosphere, natural waters, and soils, along with the transport and fate of chemicals in the environment. Wherever possible, examples involving local/regional issues and current events will be used to illustrate the concepts in the course. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials
ASSESSMENT:
Coursework 50%
Final Examination 50%
LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1004
COURSE TITLE: SCIENCE COMMUNICATION
NO. OF CREDITS: 3
PREREQUISITE(S): 2 CAPE SCIENCE SUBJECTS (UNITS I & II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: The ability to communicate information and ideas to others is fundamental to every branch of science. Communications skills are reported by employers to be the qualities they most desire in potential job applicants. Scientists are often required to report their findings to a range of audiences using various delivery methods. Unfortunately, communication skills do not come naturally, nor can they be learned by simply reading about the subject. They require development, with the opportunity for practice and feedback, before students can feel truly comfortable expressing themselves orally and in writing, in logical, clear and concise terms. The aim of this course is to provide students entering the Environmental Science and Sustainable technology with instruction on developing effective scientific communication skills relevant to areas of research and employment. Some of the main skills would include reporting writing, literature reviews, oral presentation and team-work. The course content would be delivered in 5 modules using a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework 100%

LEVEL: I
SEMESTER: 2
COURSE CODE: ESST 1005
COURSE TITLE: INFORMATION TECHNOLOGY FUNDAMENTALS
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I & II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course provides an introduction of the discipline of IT. It describes how it relates to environmental science and sustainable technology. The goal is to help students understand the diverse contexts in which IT is used and the challenges inherent in the diffusion of innovative technology. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework 50%
Final Examination 50%
LEVEL: I
SEMESTER: 2
COURSE CODE: ESST 1006
COURSE TITLE: HUMAN IMPACTS ON THE ENVIRONMENT
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I & II) OR ‘A’ LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL, OR; AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course gives an overview of human-environment interactions exploring causes, effects and solutions of human impacts using a broad temporal and spatial perspective. We consider the evolutionary and historical changes in human-environment interactions and the main drivers of change: population growth, technological and lifestyle changes. Regional variation in these drivers along with issues of economy, urbanisation and inequality will also be considered. The bulk of the course illustrates the complex and dynamic ecological interactions between humans and specific resources and components of the environment necessary for human wellbeing namely ecosystems and biodiversity, food, freshwater, clean air, materials and energy. The consequences of these interactions such as resource depletion, environmental degradation and global climate change will be highlighted. Future scenarios and management solutions will be explored. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework - 50%
Final Examination - 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: ESST 2001
COURSE TITLE: PRINCIPLES OF ENVIRONMENTAL CHEMISTRY 1
NUMBER OF CREDITS: 3
PREREQUISITES: ESST, and MATH 1115
COURSE DESCRIPTION: This course is a broad-based introduction to environmental chemistry for advanced environmental science students. The goal of the course is to introduce the application of chemical facts and principles to processes occurring in the environment, and the solution of problems relating to environmental processes and pollution. This course will cover issues surrounding water, air, soil chemistry, and the processes that occur naturally within them, along with the study of what happens when human interference changes the picture. There will be a specific effort made to include local and regional examples to illustrate the concepts covered in this course. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework - 50%
Final Examination - 50%

LEVEL:
SEMESTER: 1
COURSE CODE: ESST 2002
COURSE TITLE: ENVIRONMENTAL TECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1006
COURSE DESCRIPTION: ESST 2002 – Environmental Technology provides students with an understanding of the connection between environmental science and technological advancement. Students would gain insights into the basic concepts in environmental sciences, detailing the structure, problems and their interrelated causes in the ecosphere. It explains how technology has contributed to these problems and how clean-up and clean technology initiatives can be used to minimize, mitigate and reduce impacts. It also introduces students to the concepts of green science and green engineering and highlights their role in ensuring sustainability and sustainable development.
ASSESSMENT
Coursework - 50%
Final Examination - 50%
LEVEL: II
SEMESTER: 2
COURSE CODE: ESST 2005
COURSE TITLE: POLLUTION MANAGEMENT AND ABATEMENT TECHNOLOGIES
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1006; ESST 1002
COURSE DESCRIPTION: This course examines the various approaches used for pollution management taking into account legislative, management systems and engineering approaches. This would be addressed within the context of sustainable development. It also highlights some of the major environmental problems and focuses on how these are addressed. It would cover major strategies used for dealing with waste/pollution control in different matrices (air water and soils). The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework - 50%
Final Examination - 50%

LEVEL: II
SEMESTER: 2
COURSE CODE: ESST 2004
COURSE TITLE: PHYSICS FOR ENVIRONMENTAL SCIENCE II
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1000
COURSE DESCRIPTION: Environmental Physics builds on the level I courses, Physics for Environmental Sciences, Chemistry for Environmental Sciences, Mathematics for Environmental Sciences I and Mathematics for Environmental Sciences II. There is a quantitative approach to the physics of the processes of the environment together with a more of an integrated view of the science of the environment. Topics to be covered include energy and the environment, weather and climate, climate change and global warming, radiative forcing and pollution. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework - 50%
Final Examination - 50%
LEVEL: II  
SEMESTER: 1  
COURSE CODE: ESST 2006 (OFFERED WITH EFFECT FROM 2015/2016)  
COURSE TITLE: POLLUTION BIOLOGY  
NUMBER OF CREDITS: 3  
PRE-REQUISITE(S): ESST 1001 BIOLOGY FOR ENVIRONMENTAL SCIENCES  
COURSE DESCRIPTION: Healthy ecosystems rely on interactions between the living portions of the environment and its non-living components. However, human activities can cause significant disturbance as a result of the accidental or deliberate introduction of pollutants into the environment. These disturbances can cause significant alterations in the interactions between the various components that make up the ecosystem. The main focus would be on the effects of these pollutants and how they can be assessed using physicochemical and biological endpoints. Particular attention would be placed on describing (1) what pollution is and how/why it is harmful at multiple levels of biological organization, (2) what the root sources and causes of pollution are, (3) what happens to pollutants (chemical, biological and physical) when they enter the environment, and (4) how each pollutant class affects individual and community health over acute to chronic exposure periods. The course will focus on a variety of anthropogenic stressors in outdoor and indoor environments such as (1) chemical agents including ozone, asbestos, radon, smoke, nanoparticles, heavy metals, chlorination by-products, pesticides, petroleum hydrocarbons and endocrine active chemicals; (2) physical stressors including radiation, heat and noise; and (3) food/water-borne stressors such as bacteria, viruses, algae/biotoxins and parasites. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.  
ASSESSMENT:  
Coursework - 50%  
Final Examination - 50%

LEVEL: III  
SEMESTER: 2  
COURSE CODE: ESST 3000  
COURSE TITLE: ENVIRONMENTAL TOXICOLOGY  
NUMBER OF CREDITS: 3  
PREREQUISITES: ESST 2001  
COURSE DESCRIPTION: Healthy ecosystems rely on interactions between the living portions of the environment and its non-living components. However, human activities can cause significant disturbance as a result of the accidental or deliberate introduction of contaminants into the environment. These disturbances can cause significant alterations in the interactions between the various components that make up the ecosystem. This course introduces the concepts of environmental toxicology. It is concerned with the toxic effects of environmental chemicals (both natural and anthropogenic) on living organisms. Fundamental toxicological concepts will be covered including dose-response relationships; absorption of toxicants; distribution and storage of toxicants; biotransformation and elimination of toxicants; acute and sub-lethal toxicity; target organ toxicity and risk assessment. The interaction between toxicants and organisms would be investigated at varying levels of biological organizations, ranging from molecular, tissue, organ, individual, population and ecosystem. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.  
ASSESSMENT:  
Coursework - 50%  
Final Examination - 50%
LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3001
COURSE TITLE: ENVIRONMENTAL FATE AND TRANSPORT
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2001, ESST 2004 and MATH 1125
COURSE DESCRIPTION: A significant aspect of environmental studies is the ability to predict the fate (end point) and transport mechanisms (how the contaminants get to the endpoint) of environmentally relevant chemicals. This course is designed to introduce students to the concepts of environmental fate and transport. The factors that affect the movement of chemicals in the air, soil, water and biotic environments will be discussed, including vapour pressure, wind, water movement, soil/water and biota/water partitioning and chemical transformation reactions. Mathematical and chemical treatments will be utilized to predict the final distribution of chemicals in the various environmental compartments. The delivery of course materials would involve a combination of lectures, tutorials and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework - 75%
Final Examination 25%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3002
COURSE TITLE: ENVIRONMENTAL MODELING
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND MATH 1125
COURSE DESCRIPTION: This course introduces advanced statistical concepts that can be applied to data in the biological, life sciences and environmental sciences. It covers more advanced statistical concepts in the arena of experimental design, quantitative analysis of data and statistical inference. This course emphasizes applications and will empower students to use sound statistical methods in the analysis of environmental data. Assessment is designed to make students work continuously with the course materials, exploring and critically analysing research and real world data. Assessment will be continuous through assigned problem sheets allowing continuous feedback and guidance on problem solving techniques.

ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3003
COURSE TITLE: ENVIRONMENTAL MONITORING AND ASSESSMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND ESST 2005
COURSE DESCRIPTION: Environmental monitoring is a broad field which intends to answer both very specific questions such as "what is the concentration of lead in the water and is it above a threshold of safety" to very broad questions such as "what is the condition of a particular ecosystem and is it changing?" Answering such questions with an effective monitoring strategy takes very different approaches. The lectures, discussions, readings and field exercises for this course are intended to expose the student to a wide range of monitoring strategies and current environmental issues. This course will introduce students to broad principles within the field of environmental monitoring and give students a basic understanding of various monitoring techniques that can be used to assess environmental impacts. It would focus on chemical, biological and ecological methods applied to air water and soil. It would emphasize why monitoring is important and focus on some approaches, sample management and quality control. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3004
COURSE TITLE: CAPSTONE PROJECT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND ESST 3002
COURSE DESCRIPTION: During the first semester, students would be required to discuss ideas with different advisors and decide on a specific project option. They would also be required to do a literature review, outlining the problem and the approach to be used. Upon completion of their research students would have to write a 15 minute oral presentation. Students should also consult the course manual for further details. Capstone projects are expected to demonstrate reflection, critical thinking, and effective communication (including presentation, research and technological skills as defined by the nature of the project). The benefit of the capstone project is that you are able to take the theoretical ideas learned and apply them to address real issues.

ASSESSMENT
Coursework 100%
LEVEL: III  
SEMESTER: 1  
COURSE CODE: ESST 3006  
COURSE TITLE: FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS (GIS)  
NUMBER OF CREDITS: 3  
PREREQUISITES: BIOL 2163  
COURSE DESCRIPTION: A basic course that focuses on how geographical information science (GIS) is used and applied in environmental research and resource management. It introduces students to fundamental concepts in GIS including the basic data structures in GIS, sources of data, geographic positioning systems and other data collection techniques, geodesy (including geoids, datums, geographic coordinate systems and map projections) and data management (including fundamental concepts in the development of geodatabases). Using examples from the natural sciences, we will explore basic spatial and tabular analyses, and how GIS is used to assist environmental scientists and natural resource managers, how it is employed for data management, landscape ecology and how it aids in decision making. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.  
ASSESSMENT  
Coursework 100%  

LEVEL: III  
SEMESTER: 2  
COURSE CODE: ESST 3007  
COURSE TITLE: ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEMS  
NUMBER OF CREDITS: 3  
PREREQUISITES: ESST 3003  
COURSE DESCRIPTION: Environmental management information systems (EMIS) present ICT solution for environmental management: planning, assessment, compliance monitoring and impact assessment as well as emergency. They integrate a number of advanced analytical functions for operational real-time control, but also scenario analysis, strategic planning, and optimization, within a shared common information basis. EMIS should be compliant with environmental management system standard ISO 14001 on integrated pollution prevention and control, including industrial emissions, and noise monitoring and management for construction, operations, and traffic. Students will learn what hardware, software and techniques are appropriate for building an EMIS. They will be familiar with EMIS design principles and guidelines illustrated by a number of case studies. Industrial EMIS support strategic planning and environmental impact assessment with real-time monitoring, on-line reporting, and operational control including emergency management options. They could include EMIS modules like: 1) tools addressing resources (e.g. water, energy) efficiency, emission optimization and techno-economic valuation; 2) model supported tools for monitoring, reporting and forecasting of environmental impacts from normal operations with online compliance reporting, alerts and alarms; 3) tools for risk assessment and emergency management of accidental release of hazardous materials; 4) administrative data bases of emission sources, MSDS and hazardous substances data base, use and storage, waste streams; 5) tools for simulation model-based analysis, environmental and strategic impact environmental assessment.  
ASSESSMENT  
Coursework 50%  
Final Examination 50%
LEVEL: III  
SEMESTER: 2  
COURSE CODE: ESST 3101  
COURSE TITLE: ENVIRONMENTAL ERGONOMICS  
NUMBER OF CREDITS: 3  
PREREQUISITES: ESST 2002  
COURSE DESCRIPTION: The course concentrates on the interaction between the user and his or her physical environment. The principles, methods and models used in environmental ergonomics are provided in terms of the effects of heat and cold, vibration, noise and light on the health, comfort and performance of people. Humans do not respond to the environment in a way monotonically related to direct measures of the physical environment. There are human characteristics which determine human sensitivities and responses. Practical methods for assessing responses to individual environmental components are presented as well as responses to ‘total’ environments. The course provides a basic explanation of the systems of the body to establish a foundation for understanding and consistently applying ergonomic principles. Covers the human senses and the sensory process for each, including techniques for assessing sensory impact. Explains the functionality, relationship, and elements of the integrated roles of the musculo-skeletal system. Introduces the basic ergonomic principles of work place and work tool design. Includes coverage of the concepts of information processing and user experience design of digital workplaces. The course introduces the green ergonomics approach and the relationship between ergonomics and sustainable development. Design principles for green ergonomics based on ecological and ergonomics science are introduced. Environmental health and safety principles are presented. The course content is oriented to the model of European Ergonomist. Study of this course is beneficial to students wishing to qualify for the title Eur. Ergs. in this subject.  
ASSESSMENT  
Coursework  100%  

LEVEL: III  
SEMESTER: 2  
COURSE CODE: ESST 3102  
COURSE TITLE: ENVIRONMENTAL IMPACT ASSESSMENTS  
NUMBER OF CREDITS: 3  
PREREQUISITES: ESST 3003  
COURSE DESCRIPTION: This course introduces the methodology of environmental impact assessment (EIA) as a vital tool for sound environmental decision-making. It provides an introduction to the concepts, methods, issues and various stages of the EIA process. The role of the various stages of the EIA process, such as screening, scoping, EIA document preparation, public involvement, review and assessment, monitoring and auditing, appeal rights and decision-making are examined. The course mainly focuses on EIA in the Caribbean drawing on case studies from the region, but also includes other EIA systems of other countries. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.  
ASSESSMENT  
Coursework  50%  
Final Examination  50%  

LEVEL: III  
SEMESTER: 1  
COURSE CODE: ESST 3103  
COURSE TITLE: ENVIRONMENTAL HEALTH  
NUMBER OF CREDITS: 3  
PREREQUISITES: BIOL 2464 AND ESST 1006  
COURSE DESCRIPTION: This course provide an understand of how both the natural and built environment affect human health, by looking at the impact of physical, chemical and biological factors external to humans. It examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries. Topics include how the body reacts to environmental pollutants; physical, chemical, and biological agents of environmental contamination; vectors for dissemination (air, water, soil); solid and hazardous waste; susceptible populations; biomarkers and risk analysis; the scientific basis for policy decisions; and emerging global environmental health problems. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials  
ASSESSMENT  
Coursework  100%
LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3104
COURSE TITLE: CLIMATE CHANGE AND ABATEMENT TECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2005
COURSE DESCRIPTION: Climate change and its effects are a major environmental concern today; this is particularly so for small island developing states in the Caribbean. This course will develop students’ understanding of the nature of climate change and the strategies that can be used to mitigate its effects. The course will have two main units; the first will discuss the issues surrounding climate change, primarily the science behind climate change; the mechanisms that underpin the greenhouse effect, energy balances, molecular energy absorption by greenhouse gases, the sources of these gases and the general global effects of the global warming and how this translates into climate change. The consequences of climate change will be discussed, as well as the continuing debate on whether or not global warming/climate change are happening at all, or being caused by rising carbon dioxide concentrations in the atmosphere. The second unit will introduce the mechanisms that are in use to mitigate the potential hazards of climate change. This will include legislative and technical efforts to reduce greenhouse gas emissions. The course will cover international agreements like the Kyoto Protocol, local and regional legislation, technological solutions, like alternative energy sources and strategies to reduce the current climate change impacts being experienced by some nations. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.

ASSESSMENT
Coursework  50%
Final Examination  50%

FOUNDATION COURSES: FOUN

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: FOUN 1101
COURSE TITLE: CARIBBEAN CIVILISATION
NUMBER OF CREDITS: 3
PREREQUISITES:
FACULTY RESPONSIBLE: FACULTY OF HUMANITIES & EDUCATION
COURSE DESCRIPTION: (NOT FOR HUMANITIES STUDENTS)
OBJECTIVES:
1. To develop an awareness of the main process of cultural development in Caribbean societies, highlighting the factors, the problematics and the creative output that have fed the emergence of Caribbean identities.
2. To develop a perception of the Caribbean as wider than island nations or linguistic blocs.
3. To stimulate students’ interest in, and commitment to Caribbean civilisation and to further their self-definition.

Modules:
1. Origins
   I  Caribbean space / physical environment / Amerindian peoples and Cultures: their legacy.
   II  European conquest, settlement and demographic changes.
2. Fighting for Freedom
   I  Slavery, marronage and rebellion.
   II  New in/out- migration, indenture, and their consequences: 19th and 20th centuries.
3. Quest for Identity
   I  Race and nationalism.
   II  Independence, dependence and regionalism.
   III  Creolisation and ethnic identity.
4. Ideas, Ideologies and Theologies
   I  Education/religion in the Caribbean.
   II  Caribbean Intellectual Traditions.
5. Caribbean Expressions
   I  Caribbean music - Calypso, Reggae.
   II  Caribbean festivals.
   III  Sports.
   IV  Caribbean voices - French, English, Spanish, Linguistic Identity.

ASSESSMENT
In-course test     40%
Final 2-hour examination     60%