

**ST. MARY'S COLLEGE**

**CAPE BIOLOGY UNIT 1**

**Course Outline 2016-2017**

**Term 1**

<b>Proposed Date/Week</b>	<b>Unit/Section</b>	<b>Topic</b>	<b>Modules</b>
<b>Wk 1-4</b>	<b>01</b>	<b>Biochemistry</b>	<b>Water</b>
			:01 – structure and properties of water
			<b>Carbohydrates</b>
			:02- structure and function of glucose and relationship to sucrose
			:03 –structure and function of starch, glycogen and cellulose and relationship in living organisms
			<b>Lipids</b>
			:04- molecular structure of triglycerides and function
			<b>Proteins</b>
			:05- structure of amino acids and peptide bond formation
:06-formation of primary, secondary, tertiary and quaternary structure			
:07-molecular formation of haemoglobin and collagen			
<b>Wk 5-6</b>	<b>02</b>	<b>Cell structure</b>	:01- drawings of typical animal and plant cells under microscope and related organelles
			:02- structure and function of cell membrane
			:03-function of organelles in both animal and plant cells
			:04- structure and function of prokaryotic and eukaryotic cells
			:05-Concepts of tissues and organs
<b>Wk 7-8</b>	<b>03</b>	<b>Enzymes</b>	:01- structure of enzymes and catalase metabolic reactions
			:02- mode of enzyme activity
			:03- factors affecting enzyme activity
			:04- role of inhibitors
			:01 – structure of RNA and DNA

<b>Wk 9-10</b>	<b>04</b>	<b>Nucleic acids/Protein formation</b>	:02 – relationship between nucleotides and amino acid sequence in polypeptides
			:03 – role of DNA and RNA in protein synthesis
			:04 – implications of changes in DNA in Sickle cell anaemia and PKU
<b>WK 11-13</b>	<b>05</b>	<b>Mitosis and Meiosis</b>	:01- description of diagrams of mitotic cell division
			:02- importance of replication and genetic stability
			:03- homologous pairing and terms diploid and haploid
			:04- description of diagrams of meiotic cell division and how
			:05- describe how meiosis contributes to heritable variation

## Term 2

<b>Proposed Date/Week</b>	<b>Unit/Section</b>	<b>Topic</b>	<b>Modules</b>
<b>Wk 1-2</b>	<b>01</b>	<b>Reproduction in plants</b>	:01- advantages and disadvantages of sexual and asexual reproduction to the species
			:02- structure of the anther and pollen grain formation
			:03- structure of ovary and ovule and formation of embryo sac
			:04- self and cross pollination
			:05- events from pollination to seed formation
			:06- consequences of asexual and sexual reproduction
<b>Wk 3-6</b>	<b>02</b>	<b>Reproduction in man</b>	:01- structure and function of female and male reproductive system
			:02- gametogenesis in male and females
			:03- importance of hormones in the menstrual cycle
			:04- implantation and development of the foetus
			:05- structure and function of the placenta
			:06- structure and function of the amnion and the effects of maternal behavior on foetal development

## Term 2 continued

Proposed Date/Week	Unit/Section	Topic	Modules
Wk 7-8	03	Patterns of Inheritance	:01 – explain terms gene, allele, dominant, recessive, codominant, homozygous and heterozygous
			:02 – genetic diagrams
			:03 – chi- square test and relevance of results
Wk 9-10	04	Variation and natural selection	:01- description of gene and chromosomes
			:02- relevance of mutations to genetic variation
			:03- environmental factors that lead to natural selection
			:04- natural selection and evolution
			:05- concepts of species and speciation
Wk11-13	05	Biodiversity and Conservation	:01- importance of biodiversity
			:02- in situ and ex situ conservation methods
			:03- endangered species in the caribbean
			:04- exploitation of natural resources