1 THE UNIVERSITY OF PORT HARCOURT ANTHEM

On the green low lands and swampy plains
Of the New Calabar Rivers stand
The University of Port Harcourt;
A citadel of learning and excellent education
A home of academic enthusiasts,
Searching, searching for knowledge and wisdom.

Enlightenment and self-reliance, our mission,
Our hope in the future is rooted in God alone;
The vision of our fathers shining in the stars,
Opportunities, unlimited and equal,
Our progenies citizens of the universe,
From far and near, the pride of Uniport echoes.

Refrain:

Unique, Unique, Unique Uniport
Unique, Unique, Unique Uniport
Unique, Unique, Unique Uniport

2. FROM THE HEAD OF DEPARTMENT'S DESK

BIOCHEMISTRY: AN INSIGHT INTO THE WONDER OF LIFE

The genealogy of Biochemistry is traceable to two distinct parent lines. The first lineage evolved from Physiology and Medicine as a result of investigations into the chemical composition of blood, urine, tissues and their variations in normal and disease states. The second line is traceable to Organic Chemistry, a product of studies of the structure of naturally occurring organic compounds.

In molecular terms, Biochemistry describes the structure, mechanisms and chemical processes that organisms share. It also provides organizing principles that underlie life in all its diverse forms. Collectively, these principles are referred to as the molecular logic of life. Biochemistry provides vital insights, including practical applications in Medicine, Agriculture, Nutrition and Industry. The ultimate goal of the Biochemist is to probe into the wonders of life and to have an in-depth understanding of its chemistry.

This Handbook provides information on the organisational structure, programmes, rights of Staff and Students, including Rules and Regulations governing the Department of Biochemistry. Detailed information on the "dos and don'ts" are properly documented in this Handbook for students' use.

Dear student, the Handbook is structured to be a reliable companion and guide throughout your stay in the Department. With lots of excitement, I welcome you to the Department that is domiciled in the Faculty of Science. Welcome to the Department that provides information on the Chemistry of life processes.

Thank you.

Dr. Mrs. C. U. Ogunka-Nnoka
Head of Department

3. PHILOSOPHY AND OBJECIVES OF THE DEPARTMENT

i. Programme Philosophy

The Department seeks to produce graduates who will be of considerable service to the various sectors of the nation's economy; including government regulatory agencies, petrochemical and food manufacturing industries, public health establishments and the academia.

ii Objectives

The Objectives of the Department are:

- To advance knowledge in Biochemistry in order to enhance skills and expertise required for self reliance and gainful employment.
- To educate the students on the importance of Research and Development using biochemical concepts and techniques for the development of our immediate environment and the nation; and
- To enable the students acquire knowledge through broad-based training in relation to the Minimum Academic Standards as required by the NUC, thereby making our graduates competitive in various challenges or ventures.

4. REQUIREMENTS FOR ADMISSION

Prospective candidates into the degree programme in Biochemistry must
Posses:

- A minimum of five (5) credits from WAEC or NECO examinations. Subjects include English Language, Mathematics, Biology, Chemistry and Physics.
- A high score (Normally 180 and above at UTME and POST-UME screening examinations).
- Successful completion of the Basic Studies Programme in the University of Port Harcourt, and
- Certification of medical fitness/good health by the University's Health Services Department.

5. BRIEF BACKGROUND INFORMATION

The Department of Biochemistry started as a discipline/Unit in the then School of Chemical Sciences in the University and existed as such from 1977 to 1983. As a result of the creation of the Faculty of Science in 1983 by a merger of the former Schools of Chemical Sciences, Biological Sciences, and Physical Sciences, Biochemistry became an autonomous unit and a full-fledged Department involved in teaching, research and service to community and humanity.

The Department has from its onset been teaching and awarding the degree of Bachelor of Science in Biochemistry to Biochemistry Major students. Until 2012/2013 academic session, the Department was responsible for the teaching of Biochemistry to students in the College of Health Sciences leading to the Bachelor of Medicine, Bachelor of Surgery (MBBS) Part I Examination along with the Departments of Anatomy and Physiology in the Faculty of Basic Medical Sciences. The Department also offers courses to Faculty of Science Students in the Departments of Microbiology, Pure and Industrial Chemistry, Animal and Environmental Biology (Zoology), Plant Science and Biotechnology (Botany) and Education (Science). It also serves Dentistry, Nursing and Pharmacy Faculties at the undergraduate level. The Department currently runs programmes of studies leading to B.Sc., M.Sc. and Ph.D. degrees in Biochemistry. In 1985, the Department started a Postgraduate programme leading to the award of M.Sc. in Biochemistry, with specialization in Enzymology, Nutrition/Toxicology, Medical Biochemistry, Immunochemistry and later Environmental Biochemistry and Pharmacological Biochemistry were added to the curriculum. Doctorate degree programmes are also available in the Department as well as a Postgraduate Diploma in Biochemistry which commenced in 2001. There are presently many students enrolled for the PGDB, M.Sc. and Ph.D. programmes.

The Department has been fortunate in its leadership and the following Academic staff have served as Heads of Department at various times from its inception to date (See Table 1).

TABLE 1: HEADSHIP OF THE DEPARTMENT OF BIOCHEMISTRY FROM 1981 TO DATE (2016)

S/NO	NAME	FROM	TO
1	Dr. (Mrs.) B. W. Abbey (now professor)	1981	1982 (Director of Studies (in School of Chemical Sciences)
		1982	1984
2	Prof. E. O. Anosike	1984	1986
3	Dr. E. O. Ayalogu (now Professor)	1986	1988
4	Dr. F. E. Omogbai (late)	1988	1990
5	Dr. P. O. Uadia (now Professor)	1990	1991
6	Dr. G. I. Ekeke (Professor, late)	1991	1992
7	Dr. (Mrs) S. G. Uzogara	1992	1994
8	Dr. M. O. Monanu (now Professor)	1994	1996
9	Dr. E. O. Ayalogu (now Professor)	1996	1999
10	Dr. (Mrs) J. O. Akaninwor (now Professor)	1999	2001
11	Dr. (Mrs) G. O. Ibeh (Professor, late)	2001	2003
12	Dr. A. A. Uwakwe (now Professor)	2003	2006
13	Dr. E. N. Onyeike (now Professor)	2006	2008
14	Dr. C. C. Monago (now Professor)	2008	2010
15	Dr. N. M. Nwinuka (late)	2010	2010
16	Prof. A. A. Uwakwe	2010	2012
17	Dr. (Mrs) E. B. Essien	2012	2014
18	Prof. M. O. Wegwu	2014	2016
19	Dr. (Mrs) C. U. Ogunka-Nnoka	May 2016	To date

Currently, the Department has thirty-five (35) members of Academic staff, twenty-nine (29) administrative/technical staff and six hundred and ninety-six (696) students.

Table 2.0 Various number of Students in each Class/Level

S/N	Class	Number of Students
1	Year 1	137
2	Year 2	240
3	Year 3	175
4	Year 4	144
	Total	**696**

TABLE 3.0 STAFF LIST OF BIOCHEMISTRY DEPARTMENT

3.1 ACADEMIC STAFF LIST

S/N	Names	Qualification	Designation/ Rank	Area of Specialization	Status
1	Prof. Bene-Willie Abbey	PhD	Professor	Nutritional Biochemistry	Full Time
2	Prof. E.N. Onyeike	PhD	Professor	Nutritional Biochemistry/Toxicology	Full Time
3	Prof.(Mrs) J.O. Akaninwor	PhD	Professor	Nutritional Biochemistry	Full Time
4	Prof. M.O. Monanu	PhD	Professor	Enzymology /Protein Chemistry	Full Time
5	Prof. A. A. Uwakwe	PhD	Professor	Medical Biochemistry/Enzymology	Full Time
6	Prof. C. C. Monago-Ighorodje	PhD	Professor	Medical Biochemistry/Toxicology	Full Time
7	Prof. M.O. Wegwu	PhD	Professor	Environmental Biochemistry/Toxicology	Full Time
8	Dr. (Mrs) E.B. Essien	PhD	Senior Lecturer	Biochemistry/Nutrition/Toxicology	Full Time
9	Dr. (Mrs) C. U. Ogunka-Nnoka	PhD	Senior Lecturer/Ag. HOD	Nutrition/Toxicology	Full Time
10	Dr. B.A. Amadi	PhD	Senior Lecturer	Nutrition/Toxicology	Full Time
11	Dr. Sunny Abarikwu	PhD	Senior Lecturer	Toxicology/Reproductive Biology	Full Time
12	Dr. Francis C. Anacletus	PhD	Senior Lecturer	Medical Biochemistry	Full Time
13	Dr. D.C. Belonwu	PhD	Senior Lecturer	Environmental Biochemistry	Full Time
14	Dr. L.C. Chuku	PhD	Senior Lecturer	Medical Biochemistry	Full Time
15	Dr. Jude Ikewuchi	PhD	Senior Lecturer	Pharmacological Biochemistry	Full Time
16	Dr. (Mrs) M.O.Ifeanacho	PhD	Senior Lecturer	Nutrition/Toxicology	Full Time
17	Dr. K.C. Patrick-Iwuanyanwu	PhD	Senior Lecturer	Environmental Biochemistry	Full Time
18	Dr. (Mrs) C.C. Ikewuchi	PhD	Senior Lecturer	Nutritional Biochemistry/Toxicology	Full Time
19	Dr. D.E. Peters	PhD	Senior Lecturer	Medical Biochemistry	Full Time

20	Dr. S.I. Omeodu	PhD	Lecturer I	Enzymology	Full Time
21	Dr. E.O. Nwaichi	PhD	Lecturer I	Environmental Biochemistry	Full Time
22	Dr. Onuoha, S.C	PhD	Lecturer I	Medical Biochemistry	Full Time
23	Mr. E.A. Ogbonnaya	M.Sc	Lecturer I	Biochemical Pharmacology	Full Time
24	Dr. (Mrs) Onyegeme-Okerenta, Blessing	PhD	Lecturer I	Environmental Enzymology	Full Time
25	Dr. (Mrs.) N. F. Okoye	PhD	Lecturer II	Medical Biochemistry	Full Time
26	Dr. Karibo A. Okari	MBBS, M.Sc	Lecturer II	Medical Biochemistry	Full Time
27	Dr. Ohiri, R.	PhD	Lecturer II	Environmental Biochemistry	Full Time
28	Dr. Okoro Samson E.	PhD	Lecturer II	Environmental Biochemistry	Full Time
29	Dr. Winifred Chioma Udeh	MBBS, M.Sc	Lecturer II	Medical Biochemistry	Full Time
30	Dr. (Mrs.) Ezim Ogechukwu Ebere	PhD	Lecturer II	Nutrition & Toxicology	Full Time
31	Mr. Okonkwo, C.J.	M.Sc	Lecturer II	Pharmacological Biochemistry	Full Time
32	Dr. Alexander E. Mene	MBBS, M.Sc	Lecturer II	Medical Biochemistry	Full Time
33	Mr. Charles, I.A.	M.Sc	Asst. Lecturer	Medical Biochemistry	Full Time
34	Mr. Adisa O.I.	M.Sc	Asst. Lecturer	Biochemistry	Full Time
35	Mrs. Okereke, C.J.	M.Sc	Asst. Lecturer	Environmental Biochemistry	Full Time

3.2 NON-TEACHING STAFF LIST (ADMINISTRATIVE/TECHNICAL)

S/N	Names	Qualification	Designation
1	Mr. Mark-Balm, T.	HND	Chief Med. Lab. Technologist
2	Mrs. Igwe, C. Joy	M.Ed (Sci.)	Chief Technologist
3	Mr. Sam Idiasirue	B.Eng (Chem.)	Chief Med. Lab. Technologist
4	Mr. Ezenatein, F.C.P.	HND	Chief Technologist
5	Mr. Ezi, Peters	M.Ed	Principal Executive Officer I
6	Mr. Yeeh, Nelson	B.Sc	Principal Executive Officer II
7	Mrs. Lucy Chinagorom	WASC	Chief Secretarial Assistant
8	Mrs. Mba, Oluchi	B.Sc	Confidential Secretary I
9	Mrs. Christy Okey	HND	Senior Technologist
10	Mrs. Onuah Chigozie L.	M.Sc	Senior Medical Lab. Scientist
11	Mrs. Dan-Wachuku-Uche, N. C.	M.Sc	Technologist I
12	Mr. Siedoma Batombari	B.Tech	Technologist I
13	Mr. Nnadiukwu A. T.	M.Sc	Technologist I
14	Mr. Ohanador Olisa R.	B.Tech	Technologist I
15	Mrs. Charity Enyi	WASC	Snr. Lab. Supervisor
16	Mrs. Justinah Amadi	WASC	Snr. Lab. Supervisor
17	Mrs. Anyike Agnes Ego	HND	Snr. Lab. Supervisor
18	Alee Magnus	OND	Medical Lab. Tech.
19	Mr. Akani Chijioke C.	B.Tech	Laboratory Supervisor
20	Mrs. Wali Dorathy	WASC	Computer Operator
21	Mr. Smart Osiagor	WASC	Senior Lab. Assistant.
22	Mrs. Ikpoki Obiri	WASC	Snr. Lab. Assistant
23	Mrs. Joy Omereji	WASC	Snr. Lab. Assistant
24	Mrs. Akams Jemimah	WASC	Laboratory Assistant
25	Mrs. Nwidemua, Zita Ifeoma	WASC	Laboratory Assistant
26	Mr. Opurum, Gift	WASC	Caretaker
27	Mrs. Amadi, Achinike	FSLC	Caretaker
28	Mr. Obasigwe Congo	FSLC	Caretaker
29	Mrs. Chukwu, Wizor F.	WASC	Head Lab. Attendant

6. THE DEPARTMENT OF BIOCHEMISTRY CURRICULUM

YEAR 1 (100 LEVEL)

6.1 FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
CHM 130.1	General Chemistry 1	3
FSB 101.1	General Biology 1	3
GES 100.1	Communication Skill in English Language	3
GES 102.1	Introduction to Logic and Philosophy	3
MTH 110.0	Algebra and Trigonometry	3
MTH 120.1	Calculus	3
PHY 101.1	Mechanics and Properties of Matters	3
PHY 102.1	Laboratory Practice 1	1
TOTAL		**21**

6.2 SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
CHM 131.2	General Chemistry II	3
GES 101.2	Computer Appreciation and Application	2
CHM 132.2	Introduction of Principles of Organic Chemistry	3
FSB 102.2	General Biology II	3
GES 103.2	Nigerian People and Culture	2
PHY 103.2	Laboratory Physics II	1
PHY 112.2	Introduction to Electricity and Magnetism	3
BCH 110.2	Introductory Biochemistry	2
TOTAL		**19**
Total credit units for Year One		**40**

6.3 YEAR TWO (200 LEVEL)

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
BCH 210.1	General Biochemistry I	3
BCH 214.1	General Biochemistry II	3
CHM 235.1	Analytical Chemistry I	3
CHM 260.1	Organic Chemistry I	3
MCB 200.1	General Microbiology	3
CSC 280.1	Introduction to Computer Programming	3
TOTAL		**18**

6.4 SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
CHM 240.2	Physical Chemistry I	3
CHM 261.2	Organic Chemistry II	3
FSB 202.2	Genetics I	3
FSB 203.2	Biological Techniques	2
PHY 115.2	Heat, Light and Sound	2
FSC 2CI.2	Community Service	1
MTH 264.2	Statistics for Biology and Agricultural Science	3
BCH 220.2	Metabolism of Carbohydrates	2
TOTAL		**19**
Total credit units for Year Two		**37**

6.5 YEAR THREE (300 LEVEL)

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
BCH 303.1	Metabolism of Lipids, Vitamins and Minerals	2
BCH 304.1	Metabolism of Amino Acids and Proteins	2
BCH 305.1	Metabolism of Nucleic acids	2
BCH 313.1	Enzymology	3
BCH 318.1	Techniques in Biochemistry and Immunochemistry	2
CHM 361.1	Heterocyclic Chemistry	2
CHM 365.1	Structure and Reactivity in Organic Chemistry	3
BCH 312.1	Tissue and Organic Biochemistry	3
GES 300.1	Fundamental of Entrepreneurship	2
TOTAL		**21**

6. 6 SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
BCH 325.2	Students Industrial Work Experience Scheme (SIWES)	9
TOTAL		**9**
Total Credit Units for Year Three	**29**	

6.7 YEAR FOUR (400 LEVEL)

FIRST SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
BCH 402.1	Biological Macromolecules	2
BCH 404.1	Bioinorganic Chemistry	1
BCH 408.1	Biochemical Reasoning	1
BCH 411.1	Biophysical Chemistry and Membrane Biochemistry	2
BCH 413.1	Advanced Enzymology	2
GES 400.1	Entrepreneurship Project	2
BCH 414.1	Endocrine Biochemistry/Biochemical Regulations	3
BCH 415.1	Molecular Biology and Genetic Engineering	2
BCH 416.1	Plant and Soil Biochemistry	2
BCH 418.1	Advance Biochemical Methods	2
TOTAL		**19**

6.8 SECOND SEMESTER

COURSE CODE	COURSE TITLE	CREDIT UNITS
BCH 421.2	Industrial Biochemistry	3
BCH 422.2	Pharmacological Biochemistry	2
BCH 423.2	Environmental Biochemistry	2
BCH 425.2	Food and Nutritional Biochemistry	2
BCH 420.2	Forensic Biochemistry	1
BCH 429.2	Seminar	3
BCH 430.2	Research Project	6
TOTAL		**19**
Total Credit Units for Year Four		**38**

FIRST YEAR (100 LEVEL)

CHM 130.1 General Chemistry 1 (3 Units)

Basic principles of matter and energy from the chemist's point of view. Matter and units of measurement. Atomic structure. Theory and molecular structure. The periodic classification of the elements. Chemical bonding. Properties of gases, solids, liquids and solutions. Chemical equilibrium. Ionic equilibra. Chemical thermochemistry

FSB 101.1 General Biology 1 (3 units)

Characteristics of life. Investigations in biology. The scientific substance of life; the unit of life (including methods of study). Activities of cells, the control of metabolic activities, cell division. Basic principles of inheritance. Genetics.

GES 100.1 Communication Skills in English Language (3 units)

The course seeks to develop in the students a well informed attitude towards English Language, and to equip them with knowledge of English communications and study skill that will facilitate their work in the University. Lectures and tutorials will cover the use of the library, study methods, grammar, punctuation and mechanics, principles of effective writing, word use, reading and comprehension.

MTH 110.1 Algebra and Trigonometry (3 units)

Elementary notions of sets, subsets, union, intersection, complements, venn diagrams, real numbers integers, rationales and irrationals, mappings of a set. Real functions and their compositions, quadratic functions, cubic functions. Roots of quadratic and cubic functions. Partial functions. Equations with complex roots. Complex numbers. Geometric representation of complex numbers. Demutters. Series and sequences of angles, circular functions. Addition theorems. Double and half angles.

MTH 120.1 Calculus (3 units)

Function of a real variable, grams, limits and ideas of continuity. The derivative as limit of rate of change, methods of integration. Definite integrals. Application to areas, volumes.

PHY 101.1 Mechanics and Properties of Matters (3 units)

Topics covered in this course will include the following: motion in one dimension and in a plane; Work and Energy; Conservation laws; Oscillation. Solid friction, rotational kinematics and rotational dynamics, equilibrium of rigid bodies, gravitation, Galilean invariance, surface tension, elasticity and viscosity.

PHY 102.1 Laboratory Practice 1 (1 unit)

The Course emphasizes experimental verifications and quantitative measures of physical laws. Treatment of measurement, errors and graphical analysis. The experiments include studies of mechanical systems, static and rotational dynamics of rigid bodies, viscosity, elasticity, surface tension and hydrostatics.

GES 102.1 Introduction to Logic and Philosophy (2 units)

A brief survey of the scope, notions, branches and problems of philosophy, symbol logic. Special symbols in symbolic logic. Conjunction affirmation, negation, disjunction, equivalence and conditional statements. Laws of thought. The method of deduction. Using rules of inference and biconditionals. Quantification theory.

CHM 131.2 General Chemistry II (3 units)

Application of the principles of chemical and physical change to the study of behaviour of matter and the interaction between matter. Chemistry of the representative elements and their common compounds with emphasis on gradation of their properties. Brief chemistry of the first series of transition elements, general principles of extraction of metals. Introductory nuclear chemistry.

CHM 132.2 Introduction to Principles of Organic Chemistry (3 Units)

A survey of carbon compounds including an overview of the common functional groups in aliphatic and benzenoid compounds. Introduction to reactant and reactions in organic chemistry.

FSB 102.1 General Biology II (3 units)

A course of variety of organisms. Principles of classification of organisms. A study of selected animals and plant groups. Analysis of the flora and fauna of assigned habitants.

GES 103.2 Nigeria Peoples and Culture (2 units)

A study of Nigeria history and culture in pre-colonial times. Nigerian perception of his world. Culture areas of Nigeria and their characteristics. Obligations of the citizens. Environmental sanitation.

GES 101.2 Computer Appreciation and Application (2 units)

History of computers. Generalizations and classifications of computers. IPO model of a computer. Components of a computer system – hardware and soft ware; soft ware application.

Programme language, organization of data. Data computer techniques. Introduction to computer networks. Use of the key boards as an input devise. DOS, Windows, Word processing, spread sheets. Application of computers in Medicine, Social Science, Humanities, Education and Management Sciences.

PHY 103.2 Laboratory Physics II (1 unit)

The experiments carried out in this course will cover areas discussed in PHY 112.2. These experiments include verification of the laws of current electricity, measurement of the electoral properties of conductors, direct current and alternate current, circuit properties, series and parallel resonant circuits, transformer characteristics and other electrical circuit problems.

PHY 112.2 Introduction to Electricity and Magnetism (3 units)

This is the introductory course on Electricity and Magnetism. Topics covered will include: The electric field, Gauss's Law, Electric Potential, capacitors and dielectric, current and resistance, electromotive force and circuits, the magnetic field, Ampere's Law, Faraday's Law of Induction.

BCH 110.2 Introductory Biochemistry (2 units)

Brief history of Biochemistry, Pioneers of Biochemistry (Watson & Crick, Hans Kreb, Michelis Menten, Achievement of notable Nigerian Biochemists etc). Role of a biochemist (Medical, Industry, Pharmaceutical, Environmental, Oil and gas etc. Branches of Biochemistry. Modern Biochemistry (History of Human genome project), Biochemistry and Agriculture.

5.10 SECOND YEAR

BCH 210.1 General Biochemistry I (3 Units)

Acids, bases and buffers. Chemistry of amino acids, proteins and their derivatives. Methods of isolation and identification. Primary, Secondary, tertiary and quaternary structures of proteins. Determination and biochemical importance of the structures. Chemistry and structure of carbobydrates, their nomenclature and chirality. Vitamins and minerals. Enzymes.

BCH 214.1 General Biochemistry II (3 units)

Structure and functions of cells and organelles: Eukaryotic and Prokaryotic cells. Transport processes (passive and active). Basic concepts of biochemical energetic. Chemistry, structure and functions of lipids. Chemistry structure and functions of nucleic acids. Viruses.

CHM 235.1 Analytical Chemistry I (3 units)

Introduction to basic analytical chemistry. The theory of errors, statistical treatment of data, sampling, gavimetric analysis and volumetric methods of analysis.

CHM 260.1 Organic Chemistry I (3 units)

Fundamental theories and principles of chemical reactivity, chemical reactions and synthesis of non-functional compounds. Reactions and mechanisms of common reactions, stereochemistry.

MCB 200.1 General Microbiology (3 units)

History and development of Microbiology. Characteristics of microorganisms; growth and reproduction. Principles of sterilization and disinfections. Problems of infectivity. Brief survey of micro organisms as friend or foes. Antimicrobial agents and sensitivity tests.

CSC 280.1 Introduction to Computer Programming (3 Units)

Historical details of computers. Principles of programming : Programming with FORTRAN language.

GES 300.1 Fundamental of Entrepreneurship (2 units)

Principles of entrepreneurship. Leadership attributes of an entrepreneur. Entrepreneurship and the Nigerian economy; Feasibility studies; Managing an enterprise: Micro Financing: Intellectual property: Management information systems: Entrepreneurship health, etc.

CHM 240.2 Physical Chemistry I (3 units)

Introduction to basic physical chemistry. The emphasis is on properties of gases, the three laws of thermodynamics and the principles of chemical kinetics and electrochemical cells.

CHM 261.2 Organic Chemistry (3 units)

Chemistry and spectroscopic properties of dysfunctional compounds dienes, tenes, diketones and dialdehydes, etc. Chemistry of aromatic compounds, Aromaticity and routes of polynuclear aromatic compounds.

FSB 202.2 Genetics I (3 units)

Heritable and non-heritable characteristics. Mendelian genetics. Gene interactions, quantitative genetics. Extra-chromosomal inheritance. Sex determination. Elementary probability in genetics. Gene structure and function. Linkage and recombination in eukaryotes. Introduction to recombination in prokaryotes.

PHY 115.2 Heat, Light and Sound (2 units)

This course is designed for students in the Biological Sciences. Topics to be covered in the course will include: Thermometry, calorimetry and heat transfer. Geometrical optics will include reflection and refraction of light at the plane and curved surfaces and optical instruments. Properties and propagation of sound waves. Sound waves propagating in air columns. Doppler effect.

FSB 203. 2 Biological Techniques (2 units)

Plant selection, identification and storage; collection and preservation of plant specimens. Identification of plants and animals. Procedure for the observation of living tissues. Procedure for the observation of dead tissues (Mirotomy). The microscope – its structure, use and care. Cytological techniques. Electrophoretic techniques. Chromatographic techniques. Principles of colorimetry and spectrophotometry. Preparation of simple reagents and stains. Simple histochemical techniques. Basic microbiological techniques. Palynology. Photographic techniques. Laboratory hazards and safety measures. Experimental designs. Population sampling: transects. Quadrants. Sampling in the

laboratory. Collection and preservation of animal specimen: collection apparatus, soil organisms. Killing and preservation of animal specimens. Introductory experimental design and analysis: complete randomized, randomized complete block, factorial.

FSC 2CI.I Community Service (1 unit)

This course affords the students the opportunity to render selfless practical service to the immediate and neighbouring communities. The activities include grass cutting, flower planting, and any kind of manual work as approved by the Director of Community service and departmental representatives.

MTH 264.1 Statistics for Biology and Agricultural Sciences (3 units)

The use of statistical methods in Biology and Agriculture. Frequency distributions. Laws of probability. The binomial. Poisson and normal probability distributions. Estimation and tests of hypothesis. The binomial design of simple agricultural and biological experiments. Analysis of variance and covariance. Simple regression and correlation, contingency tables. Some non-parametric tests.

BCH 220.2 Metabolism of Carbohydrates (2 units)

Degradation and digestion of carbohydrates – sugars, storage polysaccharides and cell walls. Reactions of sugars. Glycolysis, the Tricarboxylic acid cycle, the phosphogluconate pathway, the glyoxylate pathway; the pentose phosphate pathway and the cori cycle: the calvin pathway. Gluconeogenesis and glyconeogenesis. Disorders of carbohydrate metabolism regulations.

5.11 YEAR THREE (300 LEVEL)

BCH 303.1 Metabolism of Lipids/Vitamins and Minerals (2 units)

Classification of lipids – fatty acids, triglycerides, glycosylglyceroles, phospholipids, waxes, prostaglandins. Lipid miceles, monolargers bilayers Lipoprotein systems. Oxidation and synthesis of fatty acids; cholesterol synthesis> Formation of ketone bodies. Integration of lipid metabolism. Acetic acid as a central precursor for biosynthesis of lipids, vitamin and mineral metabolism.

BCH 304.1 Metabolism of Amino Acids and Proteins (2 units)

Amino acids as building blocks of proteins; covalent backbone of proteins; Amino acid sequence of protein, review of protein properties. Protein isolation, fractionation, purification and characterization of proteins. Biological functions of proteins. Oxidative degradation of amino
acids and metabolism of one carbon units. Biosynthesis of amino acids and some derivatives; the urea cycle; metabolism of inorganic nitrogen. Disorders of amino acid metabolism, regulation.

BCH 305.1 Metabolism of Nucleic Acids (2 units)

Genome organization, Metabolism of purines and pyrimidines, nucleosides and nucleotides; abnormalities in nucleic acid metabolism-xeroderma pigmentation and skin cancer.

BCH 313.1 Enzymology (2 units)

Vitamins and co-enzymes. Fat and water soluble vitamins. Structures and functions of vitamins and co-enzymes. Classification and nomenclature of enzymes. Genetics of enzymes inhibition. Mechanisms of enzymes-catalysed ractions. Effects of temperature, pH ions and inhibitors on enzyme catalysed reactions. Michaelis – Menten Equation Allosteric/Regulatory enzymes. Active sites of enzymes. Estimation of kinetic parameters and enzyme activities, Km, Vmax, Ki etc. Zymogen activation, digestive enzymes etc.

BCH 318.1 Techniques in Biochemistry, Biology and Immunochemistry (2 units)

Principles of instrumentation, paper, thin-layer and high performance liquid chromatographic techniques and applications. Gel filtration techniques and applications. Spectrophotometric methods and applications. Centrifugation techniques and applications. Flourimetry and applications. Electrophoresis

and applications. Radioimmunoassay and flouroimmunoassay techniques and applications. Nuclear magnetic resonance and electron spin resonance and applications in Biochemistry. Qualitative analysis. X-ray and fluorescence methods. Principles, instrumentation and techniques in immunology and immunochemistry. Method for molecular weight determination (viscosity, osmotic pressure, ultra-centrifugation, light scattering, gel filtration, etc) in proteins.

CHM 361 Hetercyclic Chemistry (2 units)

Preparation and properties of hetercyclic compounds: compounds with linked aromatic rings; 3-,4-,5- and 6- membered ring compounds (furan,pyrole, thiophene and condensed analogues). Polycyclic/carbocyclic compounds.

CHM 365.1 Structure and Reactivity in Organic Chemistry (3 units)

Stereochemistry; Kinetics and Mechanism of organic reactions; reactive intermediates; Theory of organic chemistry.

BCH 325.2 Students Industrial Work Experience Scheme (9 units)

Student will be attached to some industrial organizations for 6 months to gain practical experience in relation to the subject of Biochemistry.

5.12 FOURTH YEAR (400 LEVEL)

BCH 408.1 Biochemical Reasoning (1 units)

Evaluation and design of experimental biochemistry from available information and data; common sense and scientific research. Data analysis in Biochemistry. Case study of specific biochemical reactions. Interpretation of biochemical events. Deduction from available biochemical information. Methods of gaining scientific knowledge. Research problems and methods of identifying researchable topics. The effective use of the library, preparation of dissertations or theses, papers for journal publications and journal reviews.

BCH 402.1 Biological Macromolecules (2 units)

Structure and functions of macromolecules. Storage and structural polysaccharides; mucopolysaccharides, glycoproteins, bacterial cell wall, biosynthesis of protein, synthesis of complex lipids, lipoproteins and nucleic acids.

BCH 404.1 Bioinorganic Chemistry (1 Unit)

Relationship between the physicochemical properties and biological functions of inorganic ions. Ligand complexes and their biochemical significance. Electrolyte metabolism. Nitrogen fixation and sulphur cycle.

BCH 411.1 Biophysical Chemistry and Membrane Biochemistry (2 units)

Application of chemical thermodynamics to biological systems. Biochemical energetics, oxidative phosphorylation. High energy compounds. ATP generation. Structure, composition and functions of biological membranes. Isolation characterization and classification of membranes; chemistry and biosynthesis of membranes. Molecular organization of cellular components – natural and artificial membrane bilayers. The unit membrane hypothesis. Membrane transport system (active and passive). Ionophores. Transport of sugars and amino acids. Chemical work of biosynthesis.

BCH 412.1 Tissue and Organ Biochemistry (3 units)

A short review of microbial physiology and genetics. A review of general metabolic pathways and application in industrial processes. Continuous culture methods, principles and applications. The chemostat and its application in industrial fermentations. Fermentation – alcohol, amino acid antibiotics and other secondary metabolites. Primary and secondary metabolism. Process evaluation and development. Over production of metabolites – amino acids, taste enhancers, vitamins, toxin etc. Methods for screening and selecting micro-organisms of industrial importance. Induction of mutation in micro-organism and plants for the purpose of over production; Strain selection/development and enhancement. Gene dosage and its application in industrial processes.

BCH 413.1 Advanced Enzymology (2 units)

Steady state enzymes kinetics. Transcient kinetic methods. Chemistry of enzymes catalysis. Regulatory enzymes. Molecular models for allosterism. Multienzyme complexes. Enzymes assays. Criteria for

determining purity of enzymes. Enzyme reconstitution. Regulation of enzyme activity and synthesis. Production, isolation, purification and characterization of enzymes.

BCH 414.1 Endocrine Biochemistry/Biochemical Regulation (2 Units)

The endocrine system. Reproduction and morphogenesis. Regulation and interrelationship of metabolism pathways. The relationship of Kreb's cycle to protein, carbohydrate, lipid and nucleic acid metabolism. Integration of metabolic pathways. Turnover rates and metabolic pools. Regulation of enzymes of metabolic pathways – feedback inhibition versus enzyme synthesis. Catabolite repression and product repression. The lactose operon and arabinose operon. Identification of different regulatory mechanism in metabolic pathways.

BCH 415.1 Molecular Biology and Genetic Engineering ((3 units)

Replication, transcription and translation – a brief review. The genetic code and its relationship to cellular functions. DNA replication in a cell-free system. Genetic transformation, transfunction and conjugation. Gene mutation, mutagenic agents and thin applications to gene-transfer. Gene mapping. Structure of eukaryote genome. Recombination DNA and its application. Hybridomas.

BCH 416.1 Plant and Soil Biochemistry (2 units)

Biochemical patterns in photosynthesis; photosynthesis units; photochemical reactions for the cooperation of two photochemical systems in photosynthesis. Secondary metabolic plant products. Alkaloids – sources, structures, synthesis and functions. Biosynthesis and functions of lignin, terpenes and terpenoids. Plant phenolics, the shikmic acid pathway. Flavonoids – anthocyanins, flavonols and flavones, etc. Ultrastructure, formation and function of the plant

cell wall. Cell organelles – structure, formation and growth of the plant cell wall. Metabolism of auxins, gibberellins, cytokinins, plant growth hormones regulators and herbicides. Biochemistry of seed development, growth and fruit ripening. Soil chemistry. Humus formation, manure and fertilizers. Structure and function of membranes and regulatory systems, features of intermediary metabolism in plants.

BCH 418.1 Advanced Biochemical Methods (2 units)

The purpose of this course is to familiarize students with operations of latest biochemical equipment and with methods of research, assimilation and dissemination of information. Students will therefore go round industries and laboratories housing specialized equipment with the aim of exposing them to such equipment under the supervision of lecturers. In addition, students will be taught the principles, instrumentation and applications of HPLC, Chromato-focusing, AAS, PCR, Kjeldhal estimations and Haematological procedures. Special assignments and essays will be given to students.

BCH 421.2 Industrial Biochemistry (3 units)

Introduction to industrial processes. Central overview of available material for biochemistry-oriented industries. The food industry – production of starches and protein-rich food, confectionaries, etc. Drinks, milk production, fruit juice production. Starch for industrial uses. Yeast multiplication for baking and brewing industries. Sugar production from tubers and canes, etc. Production of medical enzymes. Production of diagnostic kits and reagents. Commercial extraction of aromas and pigments from raw materials. Production of activated charcoal-coke production from coal. Soap and candle making. Biodegradation – production of natural compost as fertilizers, utilization of urban waste materials. Biotechnology in biochemical industry. Commercialization of biochemical information – genetical, nutritional and general health counseling . Student seminar presentation.

BCH 422.2 Xenobiotics/Pharmacological Biochemistry (2 units)

Fates of foreign substances in the body. Detoxification mechanism. Principles of drug metabolism. Role of gut bacteria, bile and nutritional state in drug metabolism. Food additives, pesticides and storage of chemicals in the body. Nigerian traditional medicinal plants in the management and therapy of common ailments in Nigeria –malaria, sickle cell anaemia, common cold, hepatitis etc.

BCH 423.2 Environmental Biochemistry (2 Units)

Pollutants of air, land, water and foods (e.g. fishes etc). Effect of pollutants on the environment. Effect of refrigerants, automobile exhausts and industrial smog on health and environment. Effects of industrial discharges (untreated) in streams, rivers and lakes. Roles of governmental and non-governmental organizations in environmental pollution. Policies, rules and regulations on drugs, food and environmental management. Use of chemicals and biochemicals in the fishing industry. Indiscriminate

use of fertilizers and effects on environment. Biochemical consequences of pollution and oil spillage. `

BCH 425.2 Food and Nutritional Biochemistry (2 units)

General nutrition – History of development of nutrition. Food and food constituents. Physical and chemical methods for determining the constituents of food. Energy value of foods. Public or Community Health aspects of Nutrition. Etiology, epidemiology, prevention and control of nutritional status of the individual and the community. Global aspects of nutritional problems. Nutritional problems in Nigeria and ways of solving nutritional problems. Food science and technology. Food standards. Food spoilage, deterioration and preservation. Toxicants and contaminants in food; food processing, analyses of food products.

BCH 420.2 Forensic Biochemistry (1 unit)

What is Forensic Biochemistry? Role of forensic Biochemist. History and development of Forensic sciences. Organization of the crime laboratory. Services of the crime laboratory. **Hairs and Fibers (**Morphorlogy of hair, Identification and comparism of hair, Types of Fibers.

Comparism and preservation of fiber evidence.) **Finger Prints (**History of finger prints, classification of finger prints, Methods of detecting finger prints, preservation of developed prints.) **Forensic Serology:** The Nature of blood, Forensic characteristics of blood stains, stain patterns of blood, principles of hereditary, paternity dispute investigation. **DNA**: What is DNA, DNA typing, Gel electrophoresis, The combined DNA Index System (CODIS), The collection and preservation of Biological evidence for DNA analysis.

BCH 429.2 Seminar in Biochemistry (3 Units)

Emphasis shall be on recent advances in biochemistry. The course is expected to give students the opportunity for independent imaginative thought and expression. Under the supervision of staff, students will choose from a pool of topics for detailed study. The topic is presented orally and then submitted for scoring. The seminar is scored as follows: Introduction 5%, (Presentation: Illustration 10%, Mastery of topic 15%, Response to questions 5%, Poise (dressing, comportment) and time management 20%); Seminar write-up 40%.

BCH 430.2 Research Project (6 units)

An experimental investigation of problems of biochemical interest (human, animal, environmental) under the supervision of an academic staff assigned by the Department. Thesis based on the project will be submitted to the Department before its assessment by an External Examiner.

GES 400.1 Entrepreneurship Project (2 units)

The course will involve the application of the fundamentals or entrepreneurship which will include planning, design, production, finishing and marketing of the potential products and services. Each student or group of students is expected to initiate a project of his/her choice in conjunction with supervisors. Alternatively, the students can choose a project from a pool of projects compiled by the Faculty/Departments.

7. GUIDELINES FOR COURSE SYSTEM AND INSTRUCTION

7.1 For purposes of teaching and examination, the academic year is divided into two semesters, each of approximately sixteen weeks.

7.2 **Instruction shall be** by courses and every proposed course with an outline of contents must be presented to Senate for approval.

7.3 The Unit of credit for a course is the credit unit, one credit unit being when a class meets for one hour every week for one semester in a lecture or tutorial, or for 3 hours every week in practicals in the laboratory, workshop or fieldwork.

7.4 **Each course carries 1 to 6** credit units and its duration is normally one semester except Industrial Training with a 9 credit unit.

7.5 **The normal course load** for a full-time student is 15 to 24 credit units per semester. No student is permitted to register less than 15 or more than 24 credit units in any semester. .

7.6 **Prerequisite and concurrent requirement** for courses may be prescribed, but may be waived at the discretion of the Faculty teaching the course for which they are prescribed upon the recommendation of the department offering the course.

7.7 **Every course** shall be continuously assessed, and examined at the end of the semester in which it is given.

7.8 **Re-sit examination** have no place in the course credit system and are not permitted.

7.9 Students are required to obtain a minimum of 75% attendance at lectures/tutorials and or laboratory session/practicals to be eligible for examination in the courses.

8. COURSE EVALUATION

Each course is evaluated through class attendance, continuous assessment (involving tests, term papers, group seminars and practical) and Examinations.

9. STUDENT COURSE EVALUATION

Teaching staff are regularly evaluated or assessed by the QA/QC Department of the University and interview sessions with students.

10. GENERAL REQUIREMENTS FOR A DEGREE

10.1 Programme

10.1.1 To obtain a degree Biochemistry, students must complete the approved programme of study in the department, and all courses which the programme specifies must be attempted. All students are urged to familiarize themselves with the specific requirements for a Bachelor's degree in Biochemistry as specified in this hand book.

10.1.2 **It is the responsibility** of the Department to ensure that copies of a brochure with correct details of all current programmes are available to each set of incoming students.

10.2 **Students will normally graduate** on the programme which was in effect in the Department at the time they were admitted into the Department, except Senate directs otherwise.

10.3 **The Pass Mark** for undergraduate courses is 40%.

10.4 **When re-registering failed courses**, students must not exceed the maximum number of 24 credit units for one semester. Any course(s) which would cause the maximum to be exceeded must be deferred to the following academic year.

10.5 **Students are not allowed to repeat a course which they have passed.**

10.6 It is mandatory that a student presents and defends his/her project to earn a degree.

11. CRITERIA FOR GRAUDATION

Biochemistry student shall be allowed to graduate with a maximum of any two (2) failed courses provided these are not Research Projects, Student Industrial Work Experience Scheme (SIWES), GES courses and Community Services Course. These courses are used in computing the degree results.

Pass grade(s) shall replace fail grade(s) and the pass grade(s) shall be used to compute the CGPA. The maximum grade to be earned in respect of replacement of fail grade with a pass grade is "C".

Duration of Degree Programme

The maximum length of time that a student shall be permitted to spend on a B.Sc. progamme in Biochemistry shall be six academic year. A student who, after the maximum length of time allowed for a degree programme, has not obtained a degree shall have his degree result calculated on fail out basis.

12. ACADEMIC ADVISERS

Every student is assigned an Academic Adviser at the beginning of each session by the Head of Department. An Academic Adviser is a member of the academic staff assigned to advise the student on academic affairs as well as on personal matters. Academic Advisers are expected to follow their students' academic progress and provide counseling to them and should give clear information on their office doors about appropriate times at which they will be available to students who wish to consult them.

13. REGISTRATION OF COURSES

(a) As specified by the University, the period for normal registration is the first three weeks of each academic year, excluding the orientation week while the period for late registration (which attracts a surcharge) is the fourth and fifth weeks of the first semester of the academic year.

(b) Registration of courses is online, thereafter; the student should submit a copy of his/her Course Registration Print-Out to the Head of Department.

(c) Designated lecturers in the Department cross-check student's academic records and credentials and sign their registration forms. Each form is then submitted to the Head of Department for signing.

Students must re-register all previously failed courses in which the programme requires a pass, and meet the prescribed requirements for each Course registered; furthermore, that

the total credit units registered are not less than 15 or more than 24 per semester. **When re-registering failed courses**, students must not exceed the maximum number of 24 credit units for one semester. Any course(s) which would cause the maximum to be exceeded must be deferred to the following academic year.
Students are not allowed to repeat a course which they have passed.

Students are not allowed to sit for examinations in courses for which they have not previously registered. Such actions are fraudulent and culprits will be appropriately disciplined.

Only results of bona-fide students (that is, those who have paid their school charges and registered their courses online) will be published online.

14. AUDITING OF COURSES

Students may attend a course outside their prescribed programme. The course shall be recorded in their transcript only if they have registered and requested for it with the approval of the Head of Department and the Dean of Faculty and has taken the prescribed examination. An audited course shall not be used in calculating the CGPA.

15. CHANGE OF DEGREE PROGRAMME

A student who has been admitted to a degree programme on satisfying the minimum requirements for entry into the University as well as course requirements for the Faculty and Department shall not normally be allowed to change until he/she has completed the first academic year in the degree programme. A student awarded a scholarship in a discipline different from that for which he/she is admitted shall be allowed to change Faculty or department to that in which the programme specified by the Scholarship Award is available, provided that he/she meets the requirements of the Faculty or Department to which a change is desired.

15.1 Inter-Faculty Transfer:

Application to change Faculty shall normally be made by the student concerned through the purchase of the form from Admissions office in the 2nd semester proceeding the year of transfer. The Form shall be filled by the student, the HOD and Dean of the present Department/Faculty and thereafter processed by the Department and Faculty to receive the student not later than 6 weeks of the 1st semester of the year of transfer. The recommendation from the Faculty Board of the Faculty to receive the student shall be forwarded to the Committee of Provost and Deans (CPD) for approval. Thereafter, a letter of approval of transfer shall be issued by the Admissions Officer to the student before actual transfer takes place. Any student who transfers before approval by CPD shall be deregistered from the University for irregular

transfer. For the purpose of transfer, the O-Level and UTME subjects must be relevant to the new programme.

15.2 To qualify for transfer into the professional programmes:

Medicine, Dentistry, Nursing, Pharmaceutical Sciences, Engineering and Management Sciences, a student shall be required to have CGPA of 4 points or above at the time of application. For a student to qualify for transfer into other Faculties, he/she requires a CGPA of 3.00 points at the time of application.

15.3 Intra-Faculty Transfer: This is transfer within the same Faculty. Intra Faculty Transfer should be done by the Faculty Board and the Committee of Provost and Deans informed. To qualify for Intra-Faculty Transfer, students shall be required to have a minimum of the continuation CGPA of 1 point. However the transfer is subject to the decision of the Department/Faculty and the availability of vacancy. Students transferring from Medicine, Dentistry, Nursing and Pharmaceutical Science to science must have the continuation CGPA of 1 point.

16. TIME TABLES

16.1 The lecture time table should be released at least two weeks before the first day of lectures. For large classes the different streams shall be allocated same slot on the timetable and the streams taught in parallel classes running at the different venues.

16.2 Faculty Officers are required to collate information on the number of students registered for each course in their Faculty at the close of registration, and forward it to the Timetable Committee not later than three weeks after the close of registration.

16.3 The examination timetable shall be released at least three weeks before the scheduled date of the start of examinations.

16.4 Examinations involving large classes shall be conducted in the first week of examinations. At the time of such examinations no other examination shall be scheduled, so as to enable enough space and invigilators to be available. Large classes are defined as University-wide or Faculty-wide courses.

16.5 Scheduled times and dates for examinations must be adhered to. If it is found necessary to reschedule an examination this must be with the permission of the Chairman, Timetable Committee and the Provost or Dean of Faculty.

17. TEACHING

17.1 Large classes shall be co-taught and no class shall exceed 500. The assignment of lecturers to teach the different streams of students in any of these large classes shall be done at a properly constituted departmental meeting of the parent department.

17.2 The Co-ordination of the teaching of Faculty- and University- wide courses involving freshmen should be restricted to senior academic staff not below the rank of Senior Lecturer.

17.3 Head of Department ensures that lecturers take their teaching assignments seriously. In particular, course outlines based on the approved course descriptions must be made available to students free of charge at the commencement of lectures.

17.4 Continuous assessment normally constitutes 30% of the marks for the course, but may be up to 60% for courses of a practical nature. Continuous assessment must be administered during the teaching period and not as a test immediately preceding the examination or as an extra question on the examination paper.

18. GRADING SYSTEM

The Following system of Grade Points shall be used.

NEW STUDENT		
MARK/SCORE	**LETTER NOTATION**	**GRADE POINT**
70% and above	A	5.00
60 – 69	B	4.00
50 – 59	C	3.00
45 – 49	D	2.00
40 – 44	E	1.00
0 – 39	F	0.00

Students are obliged to sit for examinations in all registered courses. Any student who fails to sit for a course examination without satisfactory reason earns the grade of 'F' and must re-register for the course(s).

19. COMPUTATION OF GRADE POINT AVERAGE

Every course carries a fixed number of Credit Units (CU), one Credit Unit being when a class meets for one hour every week for one semester, or three hours every week in the laboratory.

A. Quality points (QP)

Quality Points (QP) are derived by multiplying the Credit Units for the course by the Grade Points earned by the student: e.g. in a course with 3 Credit Units in which a student earned a B with 4 Grade Points, the Quality Points are 3 x 4 = 12.

B. Grade Point Average (GPA)

Grade Point Average (GPA) is derived by dividing the Quality Points (QP) for the semester by the Credit Units (CU) for the Semester: e.g. in a semester where the student earned 56 Quality Point for 18 Credit Units, the GPA is 56÷18 = 3.11

C. Cumulative Grade Point Average (CGPA) is derived by adding the Total Quality Point (TQP) to date and dividing the Total Credit Units (TCU) to date: e.g. if the TQP are 228 and the TCU are 68, then the CGPA is 228÷ 68 = 3.35

20. CONTINUATION, PROBATION AND WITHDRAWAL

20.1 Continuation Requirement:

The continuation requirement for undergraduate students in the University is a CGPA of 1.50 at the end of every academic year.

20.2 Probation

Probation is a status granted to a student whose academic performance falls below an acceptable standard. A student whose Cumulative Grade Point Average is below 1.50 at the end of a particular year of study earns a period of probation for one academic year.

20.3 Advised- Withdrawal from Programme

A student whose Cumulative Grade Point Average is below 1.50 at the end of one year's probation shall be required to withdraw from the programme. However, to minimize waste of human resources, consideration should be given to withdraw from the programme of study and possible transfer to other programmes within the University; provided CGPA is not below 1.00. Moreover, the student shall meet the Departmental and Faculty requirements concerning UTME subjects, UTME score and relevant O-Level credits. The Faculty/Department must be willing to accept the student. *Students transferring from Medicine, Dentistry and Pharmaceutical Sciences to the Faculty of Science under this condition must have a continuation CGPA of 2.00.*

20.4 **Limitation of Registration**

Students on probation cannot register more than 15 credit units per semester. The purpose of the restriction is to give the students a chance to concentrate on improving their performance.

20.5 **Warning of Danger of Probation**

Students should be warned by their Department if at the end of any semester their GPA falls below 1.50.

20.6 **Repeating Failed Course(s)**

Subject to the conditions for advised-withdrawal from the programme and or probation, a student must repeat the failed course(s) at the next available opportunity, provided that the total number of credit units carried during that semester does not exceed 24.

20.7 **Temporary Withdrawal from Study**

(i) Any student who has a genuine reason(s) to apply for temporary withdrawal from the study should apply to the University in writing through the Department and Faculty/College stating the reason(s) for his/her application, and needs to obtain approval from Senate.

The application should specify the period (session) to be away and the session for resumption of study. The Head of Department of the student should furnish the Faculty with the CGPA of the student at the time of the request, and this must be presented to the Senate of the University.

(ii) **Temporary withdrawal on grounds of ill-health**

Any student who seeks to proceed on temporal withdrawal on grounds of ill-health should write and inform the University within 30 days of the onset of the ill-health or, depending on the circumstance, expeditiously, providing relevant papers from the Director of Health Services of the University.

(iii) **Deemed withdrawal**

At the end of every academic year, any student who has been found to be absent from the University without permission will be treated as having withdrawn from the programme. Such a student may be re-admitted upon application to the Senate of the University through the Department/Faculty, showing the acceptable reason for re-admission.

20.8 **Resumption of Studies**

The student should notify the University at the time he/she resumes studies with evidence of approval of temporary withdrawal from studies.

20.9 (i) **Taking Examination as First Attempt**

Any student who takes ill and goes into hospital during examination should write and inform the University and attach the original of the Medical Report(s). The application to sit for the missed examination as the first attempt should indicate the course(s), semester and session involved. The medical report(s) should be authenticated by the Director, Health Services Department of the University. After that, the application will be considered by the Departmental and Faculty Boards respectively, and recommended to Senate for approval.

(ii) **Permission to be away during Examination while Representing the University**

Any student who goes to represent the University in an approved and authorized competition should notify his/her Department through the Dean, Student Affairs before leaving. In such a situation, on return, the Department should conduct all missed tests/examinations for the student.

21. CLASSIFICATION OF DEGREE

The Degree shall be awarded with 1st, 2nd upper, 2nd lower or 3rd class honours, or as a Pass degree. The cumulative Grade Point Average of these classes shall be.

CLASS OF DEGREE	CUMULATIVE GRADE POINT AVERAGE
1ST CLASS	4.50 – 5.00
2ND CLASS UPPER	3.50 - 4.49
2ND CLASS LOWER	2.40 – 3.49
3RD CLASS	1.50 – 2.39
PASS	1.00 – 1.49

22. EXAMINATION REGULATIONS

A University as well as a department examination timetable is provided for each semester examination. Examinations are scheduled for the last three weeks of the semester with the first week reserved for University and Faculty-wide courses. One week is usually provided for revision.

For all examinations, well-packaged question papers are accompanied by a list of supervisors, Invigilators and the examination control form (ECF). The question papers, adequately packaged and sealed, are submitted to the Supervisor at least one hour before the start of the examination.

Supervisors/Invigilators identify and check students into the examination hall using the authenticated register of students for that course. The student must show the invigilator his/her registration/identity card on entry to every examination. He/she must leave these on the desk throughout the examination for easy inspection by the invigilator.

All examination scripts used by the students must be endorsed by the supervisor at least 30 minutes after the commencement of the examination.

No unregistered student is allowed to take any examination. A student should be in the examination room at least 30 minutes before the start of the examination. A student who is up to 30 minutes late shall be admitted, but shall not be given any extra time. A student who arrives more than 30 minutes after the start of the examination shall not be admitted. A student may be allowed to leave the examination room temporarily before the end of the examination, but must NOT:

(a) Do so during the first hours of the examination except in cases of emergency like illness.
(b) Do so unaccompanied OR with his scripts.

All students must write their matriculation number (not name) at the appropriate places on the cover and pages of the answer booklet; write their name and matriculation number and sign the attendance register within the first hour of the examination.
No student shall keep any handbag, briefcase, books, notebooks, or paper near him/her during the examination; directly or indirectly give or accept any assistance during the examination, including lending, borrowing any material;
continue writing when, at the end of the allotted time, the invigilator orders all students to stop writing; avoid noise-making and/or communicating with any other student or with any other person, except with the invigilator, if necessary. Students who disrupt an examination at any venue will have their examination cancelled and they will be required to re-register for the course.

23. RESULTS

23.1 Results should be returned in quadruplicate distributed as follows; a copy to the course lecturer, a copy to the Head of Department, and two copies to the Dean, who signs and returns one copy of the mark sheet to the Department.

23.2 Summary of results for all courses taken in the Department with the date of departmental meeting reflected on them shall be presented to the Extra-Ordinary meeting of Senate five weeks following the conclusion of the semester and degree examinations. Lecturers who fail to meet the deadline would face strict sanctions of salary suspension. The Dean shall report such lecturers to the Senate for necessary sanctions to be applied.

23.3 An internal moderator for an examination must have access to the question papers, the scripts and the course mark sheets must show an itemized distribution of the scores. All results must be published provisionally on-line not later than 24 hours after the Faculty Board has considered them.

23.4 Computation of results should be restricted to academic staff, duly appointed by the Head of Department.

23.5 Examiners should ensure the security of scripts, and the scripts should normally be returned to the Head of Department after one year, Scripts are not to be disposed of until after five years.

23.6 Faculty Officers, Heads of Departments, and Provost/Deans/Directors should ensure that mark sheets and results are treated as high security documents. A copy of the mark sheets (Electronic copies on PDF and MS Excel as well as the hard copies) of all the courses should be sent to the Director Academic Affairs Office for preparation of students' transcripts.

24. EXTERNAL EXAMINER SYSTEM

24.1 An external Examiner who shall normally be of the rank of a Professor shall be nominated by the Departmental Board, and approved by Senate, to moderate all final year degree results.

24.2 The appointment shall be for a period of one year in the first instance and renewable for another one year only. He or she may not be re-appointed until after two years have elapsed.

24.3 The external examiner shall conduct oral examination of final year projects.

24.4 After due consideration of all results and projects the External Examiner shall sign all final year Degree Spreadsheets.

24.5 The External Examiner shall forward a written report of the examination exercise to the Vice Chancellor.

25. PROCEDURE FOR CHANGE OF RESULTS.

25.1 Results may be changed as a result of a review or as the result of the discovery of an error or fraudulent change in the recording of either semester or degree results.

25.2 No result/grade approved by the Faculty Board shall be changed without reference to the Faculty Board.

25.3 No result/grade approved by Senate shall be changed without reference to Senate.

25.4 Any application for a change of result/grade must be made in writing appropriately routed, giving clearly defined reasons for the change.

25.5 Where the change is suspected to be the result of fraud, it should be investigated at the appropriate level and a recommendation made to Senate.

26. PROCEDURE FOR THE REVIEW OF SCRIPTS OF AGGRIEVED STUDENTS

26.1 Students shall be entitled to see their marked examination scripts if they so desire, provided appropriate steps are taken to safeguard the scripts.

26.2 Any student who is aggrieved about the grading of a course examination may petition to the Head of Department in the first instance. The Head of Department shall refer the petition to the Dean of the Faculty, who shall cause the script(s) to be re-assessed and the scores presented to the Faculty Board for determination.

26.3 A student applying for a review of answer scripts shall be required to pay the approved fee to the Bursary Department before commencement of the review. This shall be exclusive of postage and honorarium to the reviewer where applicable.

26.4 If the appeal results in a significant improvement (i.e. a change in letter grade) on the student's original grade, the fee so paid shall be refunded to the student within 30 days from the release of the result. Students whose letter grade is not marked higher lose their money.

26.5 Application for review of answer scripts must be made not later than one month from the date of publication of provisional results by the Faculty.

26.6 The application must be personal, i.e. an appeal by someone for the review of someone else's script shall not be entertained.

26.7 No group appeal by candidates involved in the examination in question (or any other group of persons) shall be entertained.

27. PROCEDURE FOR INVESTIGATION OF EXAMINATION MALPRACTICES

Examination malpractice recognized by the University includes all forms of cheating which directly or indirectly, falsify the ability of the students. These shall include cheating within an examination hall, cheating outside examination hall, and any involvement in all illegal examination-related offences. Forms of cheating are categorized as follows:

A. Cheating within an examination hall/room

These include the following amongst others:

Copying from one another/exchanging question/answer sheets, or oral/written communication between/amongst students; Using an electronic device to cheat e.g. handset, i-pad, i-pod etc. Bringing in prepared answers written on any part of the body, copying from textbooks, etc., or any other instructional aids smuggled into the examination hall.

Impersonation, collaboration with an invigilator/lecturer where it involves the lecturer providing written/oral answers to a student in the examination hall, Receiving information, whether written or oral, from any person(s) outside an examination hall.

Refusal to stop writing at the end of the examination. Non-submission of answer scripts at the end of an examination and illegal removal of answer scripts from the examination hall; sitting for an examination for which the student is not qualified as a result of manipulation of registration forms; Colluding with a medical doctor in order to obtain an excused duty/medical certificate on grounds of feigned illness.

B. Cheating outside the examination hall/room

These include:

Plagiarism: the use of another person's work without appropriate acknowledgement both in the text and in the references at the end. Colluding with a member of staff to: obtain or on his own initiative obtaining set questions or answer beforehand; modify or on his/her own initiative modifying students' score card, answer scripts and /or mark sheets; submit a new, prepared answer script as a substitute for the original script after an examination; Writing of projects, laboratory and /or field report on behalf of a student; Soliciting for help after an examination; secretly breaking into a staff office or departmental office in order to obtain question papers, answer scripts or mark sheets, or substituting a fresh answer script for the original script; Refusing to co-operate with the Faculty Investigating Panel or the Senate Committee on Examination Malpractices in the investigation of alleged examination malpractices.

C. Relative Offences

1. Producing a fake medical certificate
2. Assault and intimidation of the invigilator within or outside the examination hall.
3. Attempting to destroy and /or destroying evidence of examination malpractice.
4. Intimidation/threats to extort sex/money/other favors from students by a member of staff in exchange for grades.

28. PUNISHMENT FOR EXAMINATION MALPRACTICE

(a) A student found guilty of any form of examination malpractice in section A, will have the result in the course cancelled and suspended for one semester for a first offence. Suspension for one session is the punishment for a second offence.

(b) A student found guilty of any form of examination malpractice in section B, will have the result in the course cancelled and is suspended for one session for the first offence. Expulsion from the University is the punishment for a second offence.

(c) A student found guilty of any offence in section C, is expelled from the University.

(d) This decision is communicated to all students and their sponsors before the commencement of each session, and the information pasted on all Notice Boards throughout the University.

(e) The decision should take effect immediately after the publication.

29. SECRET SOCIETIES/CULTS

Secret societies/cults are anti-social and are banned by the University. Any student proved to belong to a secret society will be expelled.

30. WRITING AND PRESENTATION OF RESEARCH PROJECT

The thesis must be typed/word processed using high quality paper and the following specifications are to be adhered to:

i) Size of Paper: Quarto is the size of paper approved for the B.Sc thesis.

ii) Layout: The margins at the binding (left) edge must be adequate (not less than 40mm i.e. 11/2 inches) and other margins not less than 20mm (i.e. 3/2 inches). Double spacing is to be used for the typing.

iii) Pagination: All pages must be numbered consecutively using Arabic numerals. From the introduction onwards, while the preliminary pages are numbered using roman numerals.

iv) Preliminary pages: Among these include the Title page, acknowledgements and abstract. The abstract (one paragraph) must be concise and informative and exceeding one page.

v) Colour: The colour approved for the binding the thesis in the Faculty of Chemical Science is golden-yellow (confirm from the department)

31. SUBMISSION EXAMINATION AND CORRECTION OF RESEARCH PROJECT

Four (4) copies of each student's research project write-up, must be submitted to the department through the students' supervisor before the dateline set for submission for a given oral examination.

EXAMINATION OF RESEARCH PROJECT AND SIGNATORIES

An external examiner shall be invited for the examination of the thesis in addition to general knowledge of the candidate of biochemistry. Each candidate is required to bring one additional copy for him/herself to the oral examination paginated in the same way as the copies submitted above. The Board of examiners shall sign the thesis following the examination and they are as follows.

- Supervisor(s)
- Head of Department
- External Examiner
- Chairman Board of Examiners (usually the Dean of the Faculty).

CORRECTION OF RESEARCH PROJECT

All correction indicated by the Board of Examiners must be effected immediately by the student in consultation with the supervisor(s). After the corrections, the theses must be returned through the student's supervisor(s) to the Head of Department.

32. CONVOCATION

The University degrees are conferred on successful candidates at the university's convocation ceremony as determined by the Senate.

33. ACADEMIC ADVISERS

Every student is assigned and Academic Adviser at the beginning of each session by the Head of Department. An Academic Adviser is a member of the academic staff assigned to advise the student on academic affairs as well as on personal matters. Academic Adviser are expected to follow their students' academic progress and provide counseling to them and should give clear information on their office doors about appropriate times at which they will be available to students who wish to consult them.

APPENDIX 1
LIST OF STUDENTS REGISTERED FOR A COURSE

SESSION…….
COURSE NUMBER…… COURSE TITLE……
TEACHING DEPT ……. PARENT DEPT ……
TEACHING FACULTY……. PARENT FACULTY…….

FOR USE DURING REGISTRATION					FOR USE DURING EXAM	
S/N	MAT. NO	NAME	GENDER	SIGNATURE	MAT. NO	SIGNATURE
1						
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3						
4						
5						
6						
7						
8						
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10						
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28						
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30						

APPENDIX 2
EXAMINATION SUPERVISOR'S REPORT FORM

COURSE NO ……
COURSE TITLE……
DATE OF EXAMINATION…….
VENUES USED……

THE INVIGILATORS ALLOCATED	THE INVIGILATORS PRESENT

(CONTINUE ON BACK IF NECESSARY)
TOTAL NO. OF STUDENTS PRESENT ……..
TOTAL NO OF SCRIPTS SUBMITTED ……..
COMMENTS ON THE EXAMINATION …….
……..
……..
(CONTINUE ON BACK IF NECESSARY)

NAME OF SUPERVISOR…….. SIGN…….

APPENDIX 3
EXAMINATION INVIGILATOR'S REPORT FORM

COURSE NUMBER ……..
COURSE TITLE ……
DATE OF EXAMINATION ……..
VENUE OF EXAMINATION……
TIME EXAMINATION STARTED …….....
TIME EXAMINATION ENDED ……..
NUMBER OF STUDENTS ……...
NUMBER OF ANSWER BOOKLETS COLLECTED ……
NUMBER OF ANSWER BOOKLETS USED……..
NUMBER OF UNUSED BOOKLETS RETURNED……
COMMENTS ON THE EXAMINATION ……
……
……
……

(CONTINUE ON BACK IF NECESSARY)
NAME OF INVIGILATOR ……..
SIGN……

APPENDIX 4
REPORT OF EXAMINATION MALPRACTICE FORM

NAME OF STUDENTS/STAFF ……
STUDENT'S REGISTRATION/MATRICULATION NUMBER ……
STUDENTS/STAFF'S DEPARTMENT ……
COURSE NUMBER (if applicable) ……...
VENUE OF EXAMINATION (if applicable) ……
LOCATION OF EXAMINATION MALPRACTICE ……...
DATE AND TIME OF EXAMINATION (if applicable) ……..
EXAMINATION OFFENCE (with evidence/statement if any) ……
……..
……..

(CONTINUE ON BACK IF NECESSARY)
CHIEF INVIGILATOR/INVIGILATOR'S SIGNATURE ……
WITNESS'S SIGNATURE (if any) ……...
STUDENT'S COMMENT (if possible) …….
……..
……..

(CONTINUE ON BACK IF NECESSARY)
STUDENT'S SIGNATURE (if possible) ……...

APPENDIX 5
UNIVERSITY OF PORT HARCOURT
ADD/DROP COURSE REGISTRATION FORM
……./…… SESSION

To be completed in quadruplicate. (1) Dean's Office. (2) Exams & Records.
(3) Department and (4) Students Copy.

Name ……

(SURNAME FIRST) (OTHER NAMES)

Matriculation No …….. Sex ……..

Department ……

Year of Study ……..

COURSE TO BE DROPPED

Serial	Course No.	Course Title	Credit Units	Lecturer's Signature and date
1				
2				
3				
4				

COURSE TO BE ADDED

Serial	Course No.	Course Title	Credit Units	Lecturer's Signature and date
1				
2				
3				
4				

The above changes are approved.

	Name	Signature	Date
Academic Adviser ……..		……..	…….
Head of Department ……..		……...	…….
Dean ……		……	……..