

Part-Time:	A minimum of 4 Semesters A maximum of 8 Semesters
Master/PhD Programme	
Full-Time:	A minimum of 8 Semesters A maximum of 12 Semesters
Part-Time:	A minimum of 10 Semesters A maximum of 14 Semesters
PhD Programme:	
Full-Time:	A minimum of 6 Semesters A maximum of 10 Semesters
Part-Time:	A minimum of 8 Semesters A maximum of 12 Semesters

Job Opportunities

Candidates do have career prospects in various areas of the Pharmacy profession, such as, Hospital and Community Pharmacy practice, Pharmaceutical, cosmetic and food industry, Research Institutes, Academia and Government services.

LIST OF APPROVED SUPERVISORS

PROFESSORS

Patience O. Osadebe, B.Pharm (Ife); M.Pharm (Sofia); Ph.D (Nig.): Medicinal Chemistry; Phytochemistry

Chika J. Mbah, B.Pharm (Ife); M.Pharm (Nig); Ph.D (Nig.): Medicinal Chemistry, Pharmaceutical Analysis.

Ngozi J. Nwodo, B.Sc (Nig.); M.Sc (Nig.); Ph.D (Nig.): Medicinal Chemistry; Phytochemistry

SENIOR LECTURERS

Godwin C. Ebi, B.Sc (Nig.); M.Sc (ABU): Polymer Chemistry; Phytochemistry

Wilfred O. Obonga, B.Sc (Uniuoyo); M.Sc (Nig.); Ph.D (Nig.): Medicinal Chemistry; Phytochemistry

Edwin O. Omeje, B.Pharm (Nig.); M.Pharm (Nig.); Ph.D (Nig.): Medicinal Chemistry; Phytochemistry, Biotechnology.

LECTURER I

Matthias O. Agbo, B.Sc (NAU); M.Sc, Ph.D (Nig); Pharmaceutical Chemistry, Phytochemistry

Philip F. Uzor, B. Pharm., M. Pharm. Ph.D (Nig.); Natural Products Chemistry

COURSE CONTENTS

FIRST SEMESTER

Course code	Course Title	Units
PGC 601	Research Methodology and application of ICT in Research	3

PCH 601	Research Techniques	4
PCH 611	Advanced Medicinal Chemistry	4
PCH 641	Advanced Organic Chemistry	4
PCH 661	Quality Assurance	4
PCH 671	Rational Drug Design	4
		23

SECOND SEMESTER

PCH 621	Modern Analytical Techniques	4
PCH 631	Toxicological Chemistry	4
PCH 651	Chemistry of Natural Products	4
PCH 690	Project Dissertation	8

COMPULSORY COURSES

SPGS I	Research Methods (Seminar and Research)	3
SPGS II	Use of ICT in Research	3
		26

(Seminar and Research)

COURSE DISTRIBUTION

PGC 601 (Research Methodology and application of ICT in Research) 6 units

In-depth research work aimed at acquiring full knowledge and presentations in scholarly writing of the concepts, issues, trends in the definition and development of the study area from African and Western perspectives. Major steps in research: Selection of problem, Literature review, Design, Data collection analysis and interpretation, Conclusions. Study of various research designs, Historical, Case studies Surveys. Descriptive, Cross sectional, Experimental, etc. Analysis, Surveys and synthesis of conceptual and philosophical foundations of different disciplines. Identification of research problems and development of research questions and or hypotheses. Detailed treatment of methods of collecting relevant research data and the format for presenting research results (from designing the table of contents to Referencing, bibliography and appendix). Data analysis and result presentation in Different disciplines using appropriate analytical tools. Methods of project/dissertation writing. Application of appropriate advanced ICT tools relevant in every Discipline for data gathering, analysis and result presentation. Essentials of Spreadsheets, Internet technology, and Internet search engines. All registered Masters Degree students must attend a solution-based interactive workshop to be organized by the School of Postgraduate Studies for a practical demonstration and Application of the knowledge acquired from the course, conducted by selected Experts.

PCH 601 (Research Techniques)

Literature review of relevant pharmaceutical materials. Assay of selected drugs by official methods. Statistics in Pharmaceutical Analysis: Analysis of Experimental Data: least Squares, Curve-Fitting linear Regression), interpolation-Linear and so on, Experiments on spectrophotometry: Colorimetry and other relevant and current techniques. Experiments on Electrophoresis, chromatography, spectrophotometry: Colorimetry and other relevant and current

techniques. Isolation and characterization of Natural Products, for example alkaloids; glycosides; essential oils; flavonoids; triterpenoids. Literature review of relevant pharmaceutical materials. Assay of selected drugs by official methods. Experiments on Electrophoresis. Qualitative Estimation of elements in organic compounds and quantitative estimation of various functional groups. Assay of selected drugs by official methods: Experiments on Chromatography (4 units)

PCH 611 (Advanced Medicinal Chemistry)

A general study of the correlation of physical properties and chemical structure .
Chemotherapy of Neoplastic disease: Antiviral Drugs: used in Radiotherapy.
Stereochemistry and drug action. Drug Metabolism: Phases I and II.
A general study of the correlation of physical properties and chemical structure with biological activity.
Structure activity relationship and mechanism of action of the important categories of drugs; psychotomimetics; tranquilizers; Anabolic agents; oral contraceptives; new steroidal drugs.
Stereochemistry and drug action. Drug Metabolism: Phases I and II. (4 units)

PCH 621 (Modern Analytical Techniques)

Principles of spectrophotometry and applications of absorption spectroscopy: ultraviolet, Visible, Infra-red, to structure elucidation and determination in Pharmaceutical Chemistry. The use of Nuclear Magnetic Resonance (H-NMR and Carbon13-NMR), Mass spectroscopy in confirmation of organic structure. Analysis of Experimental Data: least Squares, Curve-Fitting linear Regression), interpolation-Linear and so on. Polarimeter, Tracer Techniques, use of Geiger Muller and scintillation counters and their application to various fields in application to various fields in Pharmaceutical Chemistry. X-ray Diffraction Analysis. (4 units)

PCH 631 (Toxicological Chemistry)

Isolation of toxic compounds and their determination utilizing modern methods of analysis.
Qualitative and quantitative analysis of various potent toxic drugs, viz; Barbiturates, Aconitine, Strychnine, Opium, Methaqualone, Glutethimide, Chlordiazepoxide, Diazepam; Deiphenllydrazine, Phenothiazines, etc.
Atomic absorption spectroscopy, specific analysis of heavy metals by Atomic Absorption Spectroscopy (AAS), viz: Arsenic, Beryllium, bismuth, Copper, Iron, Lead, Lithium, and Mercury. Nickel, Tantalum and Zinc. (4 units)

PCH 641 (Advanced Organic Chemistry)

A detailed study of organic reaction mechanisms. Kinetics, electronic effects Stereochemistry; stereo selective synthesis, study of important name reactions including applications in drug synthesis: Grignard, Mannich, Hoffmann, Clemmenson, Friedel-Craft reactions etc.
A detailed study of organic reaction mechanisms: Polar free radical and pericyclic mechanisms.
Study of important name reactions including applications in drug synthesis: Grignard, Mannich, Hoffmann, Clemmenson, Friedel-Craft reactions etc. (4 units)

PCH 651 (CHEMISTRY OF NATURAL PRODUCT)

Biosyntheses of Natural products stereochemistry of important steroids including conformational studies of the steroid nucleus; vitamin D₂: Cortisone, Androsterone, strophanthidin General methods of isolation and purification production of plants, study of Biogenesis: Acetate hypothesis: isoprene rules: Biogenetic hypothesis: relating to alkaloids. (4 units)

PCH 661 (Quality Control and Assurance)

The application of available Analytical methods in establishing the quality of pharmaceuticals/cosmetics and Mixtures therefore, especially of those products in Nigeria.

The study of chemical basis of product Quality Control and Assurance; A detailed approach to the instrument and chemical analysis of raw materials employed in the production of pharmaceuticals and cosmetics.

The application of available analytical methods in establishing the quality of pharmaceuticals/cosmetics and mixtures thereof, especially of those products in Nigeria. (4 units)

PCH 671 (Rational drug Design)

A critical review of drugs comprising racemic mixtures. A comprehensive study of the relevant factors in rational drug design. Custom design and synthesis of specific, pure and desired drug molecules. (4 units)

PCH 690 (Research Project)

The candidate is expected to carry out a research project in an allied field of pharmaceutical Chemistry. viz: Medicinal Chemistry, Drug Metabolism, Analytical Pharmaceutical Chemistry, Instrumental methods of Assay of Drugs. (8 units)

PHD COURSE CONTENT

PGC 701 Synopsis and Grant Writing (3 Units)

Identification of types and nature of grant and grant writing, mining of grants application calls on the internet. Determining appropriate strategy for each grant application. Study of various grant application structures and contents and writing of concept notes, detailed project description, budgeting and budget defense. Study of sample grant writings in various forms and writing of mock research and other grants. Identification of University of Nigeria synopsis structure and requirements, (Introduction, Methodology and Results). Determining the content of each sub-unit of the synopsis. Steps in writing of synopsis from the Dissertation/Thesis document. Structural and language issues. Common errors in synopsis writing and strategies for avoiding them. The roles of the student and the supervisor in the production of a synopsis. Writing of mock synopsis. All registered Ph.D students must attend a solution-based interactive workshop to be organized by the School of Postgraduate Studies for a practical demonstration and application of the knowledge acquired from the course conducted by selected expert.

PCH 790 (Doctoral Thesis)

No course work is involved for any candidate in the Department. Study is completely based on thoroughly researched and adequately analyzed results of the data which must contribute significantly to the overall knowledge and insight of the Pharmaceutical Sciences.