

UNIVERSITY OF NIGERIA, NSUKKA

DEPARTMENT OF CLINICAL PHARMACY AND PHARMACY MANAGEMENT

POSTGRADUATE PROGRAMMES IN CLINICAL PHARMACY AND PHARMACY MANAGEMENT

PHILOSOPHY:

The Department of Clinical Pharmacy and Pharmacy Management offers Postgraduate courses in Clinical Pharmacy leading to award of Master of Pharmacy (M.Pharm) and Doctor of Philosophy (PhD). The introduction of Clinical Pharmacy Education and practice has expanded the roles of Pharmacy in the modern health care delivery system worldwide. This has resulted in an evolving paradigm shift to a more expanded and team based clinical role providing patient-centered medication therapy management, health improvement and disease prevention services. Clinical Pharmacy seeks to improve public health through ensuring safe, effective and appropriate use of medications. The focus will be on original research in various areas of drug therapy that will contribute to new knowledge in patient care. It also seeks to produce highly skilled and competent pharmacists with in-depth knowledge of clinical research in health care delivery systems, pharmaceutical institutions and research centers.

OBJECTIVES:

The objectives of this program are to produce clinical pharmacist who are able to:

- a) Serve as academic clinical pharmacists.
- b) Design, develop, implement and monitor drug therapeutic plan that will produce specific therapeutic outcome to the individual patient
- c) Apply bioavailability and pharmacokinetic principles in patient monitoring.
- d) Assess and treat self-limiting disease including handling cases of accidental poisoning.
- e) Evaluate adequate publications in the literature to provide appropriate drug information services to other pharmacists and health care providers.
- f) Conduct clinical research including clinical trials, clinical protocols and pharmaco-economic evaluations.
- g) Meet the ever-increasing challenges of professional pharmacy practice in a rapidly changing environment in hospital and community pharmacy settings.
- h) Formulate excellent pharmacy management protocols ranging from supply chain logistics, human resource management, monitoring and evaluation for pharmacy businesses and public health pharmacy agencies and organization.

SCOPE:

The program, which is based on didactic and clinical training emphasizing drug-therapy in patients, will produce competent clinical pharmacists. The program covers the following special areas: pharmaceutical services, pharmaceutical care, biopharmaceutics and clinical pharmacokinetics, drug information systems and services, communication skills, pharmacotherapy of disease states, public health pharmacy, supply chain management and logistics, pharmacoeconomics, pharmacoepidemiology and pharmacy practice management.

ADMISSION REQUIREMENTS

a. Master of Pharmacy (M.Pharm) programme

- i. Graduates of the University of Nigeria or other recognized universities who have obtained an approved Bachelor degree in Pharmacy with at least second-class honours upper division based on a 5 point scale GPA or its equivalent (declassified degree program).

b. Doctor of Philosophy (PhD) programme

- i. Graduates of the University of Nigeria or other recognized universities who have obtained the degree of Master of Pharmacy (M.Pharm) in the clinical areas of pharmacy with a minimum of 4.0 GPA on a 5 point scale or 60% provided that satisfactory research work form part of the Master's degree
- ii. In addition, candidates must satisfy other admission requirements of the school of Postgraduates studies.

AREAS OF SPECIALIZATION

Areas of specialization may include:

- i. Pharmaceutical services e.g. drug information services
- ii. Pharmacotherapy of various units e.g. oncology, cardiovascular, neurology
- iii. Ambulatory care/adult medicine
- iv. Clinical pharmacokinetics and biopharmaceutics
- v. Pharmaceutical care
- vi. Social pharmacy and behavioral pharmacy
- vii. Pediatric pharmacy
- viii. Hematology
- ix. Pharmacy practice and management
- x. Infectious diseases
- xi. Public health pharmacy
- xii. Pharmacoeconomics and pharmacoepidemiology

DURATION OF PROGRAMMES

MPharm

The minimum and maximum duration of the Masters program shall be

Full-Time:	Minimum- 3 semesters Maximum- 6 semesters
Part-time:	Minimum- 4 semesters Maximum- 8 semesters

PhD

Full-Time:	Minimum of 8 Semesters Maximum of 12 Semesters
Part-Time:	Minimum of 10 Semesters Maximum of 14 Semesters

MODE OF STUDY

Masters (M.Pharm)

The degree of masters will be prosecuted through coursework, clinical clerkship and project. Course work and clinical clerkship (residency) will contribute 2/3 of the total unit load. The research work will be presented in a project.

REQUIREMENTS FOR GRADUATION

A Candidate must have fulfilled the following conditions to be awarded the M.Pharm in the relevant area:

M. PHARM

- i. Pass all the courses and residency (Clerkship) prescribed.
- ii. Carryout a research relevant to the area of specialization and submit an acceptable dissertation/ project which will be examined orally.
- iii. A student shall present two seminars before the award of the degree.
- iv. Student must attend the number of prescribed workshops/global lectures by SPGS.
- v. Students enrolling for the program are required to complete at least **30 credit** units of course work alongside the project submission.
- vi. In all cases, MPharm students must write and submit to the department a dissertation duly supervised by a lecturer in the department whose qualifications are not below a PhD. Such a dissertation must be sent to an external examiner nominated by the department and appointed by Senate for that purpose.

PHD

- i. Carry out a comprehensive research relevant to the area of specialization and submit an acceptable thesis, supervised by a member of staff whose qualification is not below the PhD, and who is not lower than Senior Lecturer in rank.

- ii. The PhD thesis must be defended before an external examiner dully nominated for that purpose and appointed by Senate.
- iii. A student shall present three seminars one of which shall be at the Faculty level before the award of the degree.
- iv. Student must have attended the 2 mandatory SPGS global workshops
- v. A student shall have at least two publications one of which should be from his/her masters' research work and/or part of his/her PhD research work before the award of the degree.
- vi. Students enrolling for the PhD program are required to complete at least **30 credit** units of course work alongside the dissertation submission.
- vii. Student teaching: Teaching experience is considered an integral part of the training of graduate students especially PhD students. As part of the general requirements for the PhD degree, each student is required to participate in the teaching program of the Department of Clinical Pharmacy

LIST OF APPROVED SUPERVISORS

Professor C.V. Ukwe BPharm (UNN), MPharm (UNN) PhD (UNN)	Clinical Pharmacy, Social Pharmacy
Professor J.M. Okonta BPharm (UNN), MPharm (UNN) PhD (UNN)	Pharmacokinetics, Phytotherapeutics, Clinical Pharmacy
M.O. Adibe BPharm (UNN), MPharm (UNN) PhD (UNN)	Pharmacoeconomics, Outcomes Research Clinical Pharmacy
C.M Ubaka BPharm (UNN), MPharm (UNN) PhD (UNN)	Clinical Pharmacy, Pharmacy Practice, Infectious disease
N.U. Igboeli BPharm (UNN), MPharm (UNN) PhD (UNN)	Clinical Pharmacy, Outcomes research, Pharmacotherapeutics
E.E. Ayogu BPharm (UNN), MPharm (UNN) PhD (UNN)	Pharmacogenetics, Clinical Pharmacy

JOB OPPORTUNITIES

Graduates with clinical pharmacy background are needed as drug experts the teaching hospitals, where they function alongside other health care professionals at the patients' wards and clinics. Clinical pharmacists also play important roles in pharmaceutical industry, especially in the research and development units where clinical trials and pharmacovigilance on registered products are often carried out. There also ample job opportunities for clinical pharmacists in research centers and non-governmental organizations involved in public health advocacy and population treatment campaigns. Clinical pharmacists form a critical part of the academic team in any pharmacy school in the country and are often indispensable in teaching institutions.

STRESS AREAS

Biostatistics and research Methods/ Clinical Psychology	0
Pathophysiology and therapeutics/Seminar	1
Pharmaceutical care, communication skills and patient assessment and clinical chemistry	2
Biopharmaceutics and clinical pharmacokinetics	3
Clinical clerkship	4
Drug Information systems and services	5
Pharmacy Management and pharmacoeconomics	6
Public Health Pharmacy	7
Project	9

Departmental Courses

Masters Programme (MPharm)

Masters candidates are requested to register all courses including project as listed below:

First semester

PGC 601	Research Methodology and application of ICT in Research	3
CPM 601	Biostatistics and Research Methods	3
CPM 611	Advanced Pathophysiology & Therapeutics I	3
CPM 613	Seminar	2
CPM 621	Pharmaceutical Care	3
CPM 623	Patient assessment & Clinical chemistry	3
CPM 641	Clinical Clerkship	6
CPM 631	Biopharmaceutics & Clinical pharmacokinetics	3
PCM 651	Drug Information Systems & Services	<u>3</u>

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Second Semester

CPM 602	Social & Behavioral Pharmacy	3
CPM 612	Pathophysiology & Therapeutics II	3
CPM 622	Advanced Communication Skills	3
CPM 661	Pharmacy Practice & Management	3
CPM 662	Pharmacoeconomics & Pharmacoepidemiology	3
CPM 671	Public Health Pharmacy	3
CPM 690	Project	<u>6</u>

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COURSE DESCRIPTION

PGC 601 Research Methodology and application of ICT 3 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.

- Oncology
- Rheumatology, etc
- Rational drug therapy in special patient population- pregnancy, pediatrics, adolescence and geriatrics.

CPM 613 Seminar 2 units

- Based on topics chosen by the department on current relevant research on specialized fields.

CPM 621 Pharmaceutical care 3 units

- Overview of Patient care concepts
- Definitions of Pharmaceutical care
- Principal elements of Pharmaceutical care
- The Pharmaceutical Care processes
- Pharmaceutical care interventions, Pharmacist led interventions, Collaborative interventions
- Pharmaceutical care Outcomes: Primary Outcomes, Secondary Outcomes
- Patient Care Education/Training
- These concepts are to be related to specific disease states

CPM 622 Advanced Communication Skills 3 units

- Basic principles of communication
- Interpersonal communication (i.e. healthcare personnel, patient, public)
- Communication skills training
- Patient education/counseling
- Patient interviews: disease history, medication history taking etc.

CPM 623 Patient Assessment & Clinical Chemistry 3 units

- History and Physical examination techniques,
- Medical terminologies,
- Biochemical and pathological test methods and interpretation with relevance to therapeutics,
- Patient medication records; compilation and uses.

CPM 631 Biopharmaceutics & Clinical Pharmacokinetics 3 units

- Biological and physicochemical factors in bioavailability.
- Bioavailability and bioequivalence of drug products etc.
- Review of pharmacokinetic parameters of Absorption, distribution and elimination of drugs and clinical significance.
- Application of Pharmacokinetics in Clinical situation.
- Therapeutic Drug Monitoring.

CPM 641 Clinical Clerkship 6 units

This involves practical applications of knowledge in real patients setting.

- Specific areas to be covered include:
 - Internal Medicine,
 - Pediatrics,
 - Psychiatry,
 - Geriatrics,
 - Ambulatory care,
 - Intensive Care,
 - Surgery,
 - Hematologic/Oncologic care
- Activities here includes:
 - Drug therapy monitoring,
 - Patient drug information,
 - Patient education and counseling on health promotion,
 - Disease prevention and health maintenance.
 - Oral case presentation.
 - Clerkship reports and documentation.

CPM 651 Drug Information System & Services

3 units

- Information sources and services,
- Methods of use and nature and status of information available such as books, journals, the pharmaceutical associations, Drug Information Centers, Poison Centers, self-help societies, industries;
- Skills required in disseminating information,
- Limitations on the use of drug leaflets, legal status of advice from local drug information centers and its relationship to professional responsibility and negligence,
- Information and Communication Technology in pharmacy; principles of information evaluation,
- Drug Information services and monitoring and evaluation of adverse reactions.

CPM 661 Pharmacy Practice Management

3 units

- Basic principles of management, human resource management, financial management, time management,
- Management tools e.g. quality assurance, validation auditing, health economics,
- Ethics in pharmaceutical practice: general overview of current local and international laws, and treaties,
- Supply chain management of health commodities.

CPM 662 Pharmacoepidemiology & Pharmacoeconomics

3 units

- Introduction to pharmacoepidemiology
- Use of epidemiological methods for the assessment of benefits and economic impacts of drugs
- Antibiotic resistance and stewardship: concepts, strategies, team and barriers
- Drug Utilization Research

Course Descriptive for PhD programme

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 PhD 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.

CPM 701 Advanced Research Design of Biomedical Studies

5 Units

- Introduction to Research.
- Research Design
- Literature Review and appraisal
- Proposal Writing
- Identification of research problem
- Methods of data collection
- Steps in Research Presentation
- Dissertation and Thesis Writing
- Advanced ICT tools used in research
- Systematic review

CPM 702 Principles of Biostatistics I & II

5 Units

- Pre-experimental data collection/treatment
- Questionnaire design
- Sampling techniques
- Univariate analysis
- Multi-sample hypothesis
- Two Factor ANOVA
- Correlation
- Regression
- Binomial distribution
- Test of randomness

CPM 711 Ethics in Research

4 Units

CPM 712	Pharmacoeconomic outcomes and Health Policies	4 Units
	<ul style="list-style-type: none"> • Pharmacoeconomic Evaluation • Cost Effectiveness Analysis • Decision making (Willingness to pay) and Pricing • Appraisal of Pharmacoeconomic studies • Drug Utilization Research • Pharmacovigilance and Drug Safety • Pharmacoepidemiology • Pharmacoepidemiological Methods • Antibiotics Stewardship 	
CPM 713	Structure and Management of Clinical Trials	4 Units
	<ul style="list-style-type: none"> • Clinical Trials I – Introduction • Clinical Trials II – RCT Protocol • Clinical Trials III – Review of Successful RCT protocols • Clinical Trials IV – Developing a small sized RCT (Practical) 	
CPM 714	Seminar Presentation and Article Writing Skills	3 Units
	<ul style="list-style-type: none"> • Based on topics chosen by the department on current relevant research on specialized fields. • Practical session on manuscript appraisal and writing for publication in peer review journals. 	
CPM 790	Thesis	12 Units