AOU Pharmacy — Student Handbook (Part I)

Pharm.D. · Faculty of Medical Sciences · Courses, coursework, clinical training & assessment

AKPAKIP ORO UNIVERSITY (AU)

Oro Nation, Akwa Ibom State, Nigeria

FACULTY OF MEDICAL SCIENCES

DEPARTMENT OF PHARMACY

STUDENT HANDBOOK

PART I

Pharm.D. Pharmacy

Six-Year Doctor of Pharmacy (Pharm.D.) Programme, per the Pharmacists Council of Nigeria's (PCN) Current Mandate

Your Guide to Courses, Weekly Topics, Coursework, Clinical/Practical Training and Assessment

Academic Structure: Six Years / Twelve Semesters

Table of Contents

A. Welcome, Programme Goals and What You Will Achieve

A.1 About This Handbook

This handbook is your guide to the Pharm.D. Pharmacy programme at Akpakip Oro University. It is built on the Nigerian Universities Commission (NUC) Core Curriculum and Minimum Academic Standards (CCMAS) and designed to prepare you for registration with the Pharmacists Council of Nigeria (PCN), in line with International Pharmaceutical Federation (FIP) global education standards.

Teaching follows Outcome-Based Education (OBE): every course you take, every topic taught and every assessment you sit is designed to build toward the outcomes below.

A.2 What You Will Be Able to Do By Graduation (Programme Educational Objectives)

Within three to five years of graduating, you are expected to:

PEO1: Apply pharmaceutical, pharmacological and clinical sciences to the safe and effective use of medicines in patient care.

PEO2: Attain licensure with the Pharmacists Council of Nigeria (PCN) and progress into clinical, community, industrial, or public health pharmacy practice, or postgraduate study.

PEO3: Practise pharmacy with integrity, compassion and ethical judgement grounded in the Oro (Oron) Nation's and wider African cultural values of dignity, empathy, inclusion and justice.

PEO4: Integrate scientific evaluation of herbal and traditional medicine knowledge, including that of the Oro (Oron) Nation, with modern pharmaceutical practice.

PEO5: Engage in continuous, life-long learning and the responsible application of pharmacy informatics and digital tools throughout a professional career.

A.3 Programme Outcomes — Your Graduate Attributes

By the time you graduate, you will be able to demonstrate the following twelve outcomes:

No.

Outcome

Description

HPO1

Scientific and Clinical Knowledge

Apply the foundational biomedical, behavioural and clinical sciences relevant to the profession to safe, competent practice.

HPO2

Clinical/Professional Skills and Procedures

Perform the clinical, technical or professional procedures expected of a competent entry-level practitioner.

HPO3

Patient/Client-Centred Communication

Communicate effectively and compassionately with patients, clients, families and communities, respecting their autonomy and dignity.

HPO4

Professionalism and Ethics

Practise with integrity, accountability and adherence to professional codes of ethics and regulatory requirements.

HPO5

Population, Public and Community Health

Apply knowledge of population health, epidemiology and preventive practice to community and public health challenges.

HPO6

Evidence-Based Practice and Research

Critically appraise and apply research evidence to inform practice, and conduct basic research under supervision.

HPO7

Interprofessional Collaboration and Teamwork

Function effectively as a member of multidisciplinary healthcare and research teams.

HPO8

Health Systems, Management and Leadership

Understand the organisation, financing and management of health systems, including resource-limited settings.

HPO9

Cultural Competence and Health Equity

Practise with cultural sensitivity and attention to health equity, particularly within Niger Delta and Gulf of Guinea communities.

HPO10

Health Informatics and Digital Technology

Use health information systems and digital/AI-enabled tools responsibly to support practice and decision-making.

HPO11

Patient Safety and Quality Improvement

Apply patient/client safety principles and participate in continuous quality improvement.

HPO12

Life-Long Learning and Professional Development

Engage in continuous, reflective, life-long learning and professional development.

A.4 How to Use This Handbook

For every semester, you should identify:

The courses you must register, with codes, credit units, status (Core/Elective) and prerequisites.

The main topics to be taught and their weekly sequencing.

Clinical, laboratory or practical activities you must attend.

Assignments and coursework you must complete.

Continuous assessment requirements.

Major examinations, projects and any specialisation/posting pathway you must declare.

What you should be able to do by the end of the course.

What you need to prepare for the next semester.

A.5 Credit Units, Clinical Posting and Grading

One (1) credit unit is equivalent to one hour of lecture/tutorial contact per week, or two-to-three hours of laboratory/clinical contact per week, over a fifteen-week semester. Your indicative total load across the twelve-semester Pharm.D. programme is approximately 220-235 credit units, consistent with PCN's six-year curriculum mandate. Experiential exposures and clerkships are compulsory, logged, and assessed Pass/Fail where indicated. Continuous assessment typically makes up 30-50% of your grade depending on the course, with the balance from end-of-semester or professional examinations.

Pharm.D. Pharmacy

Delivered by the Department of Pharmacy, Faculty of Medical Sciences, as a six-year Doctor of Pharmacy (Pharm.D.) programme in line with the Pharmacists Council of Nigeria's (PCN) current mandate, with specialisation pathways in Clinical Pharmacy, Pharmaceutical Industry & Technology, Pharmacognosy & Herbal Medicine, and Public Health Pharmacy.

Programme Emphasis

The programme trains pharmacists competent in pharmaceutical sciences, clinical pharmacy practice, pharmaceutical technology and public health pharmacy, meeting PCN requirements and aligned with international pharmacy education standards (e.g. FIP), with particular attention to the health needs of the Niger Delta and Gulf of Guinea, including its herbal medicine traditions.

Curriculum Structure — Semester-by-Semester Summary

Semester

Level

Academic Theme

Semester 1

100 Level, First Semester

Foundations of Pharmacy I

Semester 2

100 Level, Second Semester

Foundations of Pharmacy II

Semester 3

200 Level, First Semester

Core Pharmaceutical Sciences I

Semester 4

200 Level, Second Semester

Core Pharmaceutical Sciences II

Semester 5

300 Level, First Semester

Pharmaceutical Sciences and Pharmacology I

Semester 6

300 Level, Second Semester

Pharmaceutical Sciences and Pharmacology II

Semester 7

400 Level, First Semester

Clinical Pharmacy Foundations

Semester 8

400 Level, Second Semester

Clinical and Industrial Pharmacy Practice

Semester 9

500 Level, First Semester

Biopharmaceutics and Research I

Semester 10

500 Level, Second Semester

Pharmacy Management and Research II

Semester 11

600 Level, First Semester

Advanced Clinical Clerkships I

Semester 12

600 Level, Second Semester

Final Clinical Year and Professional Readiness

Semester 1 — 100 Level, First Semester

Academic Theme: Foundations of Pharmacy I

Registered Courses

Code

Course Title

Units

Status

Prerequisite

GST 101

Communication in English I

2

C

None

GST 103

Nigerian Peoples and Culture

2

C

None

BIO 101

General Biology I

3

C

None

CHM 101

General Chemistry I

3

C

None

PHY 101

General Physics I

3

C

None

MTH 101

Elementary Mathematics for Pharmacy

2

C

None

PHA 101

Introduction to the Pharmacy Profession

2

C

None

Total Units This Semester

17

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Foundational biology, chemistry, physics and mathematics for pharmaceutical science; orientation to the pharmacy profession.

Coursework Requirements

Science problem sets and practicals

Mathematics exercises

Career reflection essay

Semester 2 — 100 Level, Second Semester

Academic Theme: Foundations of Pharmacy II

Registered Courses

Code

Course Title

Units

Status

Prerequisite

GST 102

Communication in English II

2

C

GST 101

GST 104

Use of Library, Study Skills and ICT

1

C

None

BIO 102

General Biology II

3

C

BIO 101

CHM 102

Organic Chemistry I

3

C

CHM 101

PHY 102

General Physics II

2

C

PHY 101

PHA 102

Pharmaceutical Mathematics and Statistics

3

C

MTH 101

PHA 104

Human Anatomy and Physiology I

3

C

BIO 101

Total Units This Semester

17

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Organic chemistry fundamentals; pharmaceutical mathematics and statistics; introductory human anatomy and physiology.

Coursework Requirements

Organic chemistry practicals

Pharmaceutical calculations exercises

Anatomy/physiology assignment

Semester 3 — 200 Level, First Semester

Academic Theme: Core Pharmaceutical Sciences I

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 201

Human Anatomy and Physiology II

3

C

PHA 104

PHA 203

Organic Chemistry II

3

C

CHM 102

PHA 205

Pharmaceutical Inorganic Chemistry

2

C

CHM 101

PHA 207

Pharmaceutics I

3

C

None

PHA 209

Medical Biochemistry I

2

C

CHM 102

GST 201

Entrepreneurship Studies I

2

C

None

PHA 291

Early Experiential Exposure I

0

C

Pass/Fail, logged

Total Units This Semester

15

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Anatomy/physiology continuation; organic and inorganic pharmaceutical chemistry; dosage form fundamentals; biochemistry; early experiential pharmacy exposure begins.

Coursework Requirements

Chemistry practicals

Pharmaceutics compounding exercise

Biochemistry assignment

SIWES

Students begin early experiential exposure in community and hospital pharmacy settings.

Semester 4 — 200 Level, Second Semester

Academic Theme: Core Pharmaceutical Sciences II

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 202

Pharmaceutical Organic Chemistry

3

C

PHA 203

PHA 204

Pharmaceutics II

3

C

PHA 207

PHA 206

Medical Biochemistry II

2

C

PHA 209

PHA 208

Pharmaceutical Microbiology I

3

C

BIO 102

PHA 210

Plant Biology and Pharmacognosy I

2

C

BIO 101

GST 202

Entrepreneurship Studies II

2

C

GST 201

Total Units This Semester

15

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Pharmaceutical organic chemistry; advanced pharmaceutics; biochemistry continuation; pharmaceutical microbiology; introductory pharmacognosy and plant biology.

Coursework Requirements

Organic chemistry practicals

Pharmaceutics formulation exercise

Microbiology lab reports

Plant specimen identification exercise

Semester 5 — 300 Level, First Semester

Academic Theme: Pharmaceutical Sciences and Pharmacology I

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 301

Pharmaceutical Analysis I

3

C

PHA 203

PHA 303

Pharmacology I

3

C

PHA 201

PHA 305

Pharmaceutics III (Dosage Forms)

3

C

PHA 204

PHA 307

Pharmacognosy II

2

C

PHA 210

PHA 309

Medicinal Chemistry I

3

C

PHA 202

PHA 391

Experiential Exposure II

0

C

Pass/Fail, logged

Total Units This Semester

14

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Pharmaceutical analysis techniques; introductory pharmacology; dosage form design; pharmacognosy of local and regional medicinal plants; medicinal chemistry.

Coursework Requirements

Pharmaceutical analysis practicals

Pharmacology assignment

Dosage form compounding exercise

Pharmacognosy specimen report

Semester 6 — 300 Level, Second Semester

Academic Theme: Pharmaceutical Sciences and Pharmacology II

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 302

Pharmaceutical Analysis II

3

C

PHA 301

PHA 304

Pharmacology II

3

C

PHA 303

PHA 306

Medicinal Chemistry II

3

C

PHA 309

PHA 308

Pharmaceutical Microbiology II

2

C

PHA 208

PHA-E1

Specialisation Elective (choose one; see options below)

3

E

Varies

Total Units This Semester

14

Specialisation / Pathway Options

Code

Option Title

PHT-A01

Clinical Pharmacy Fundamentals

PHT-B01

Pharmaceutical Industry and Technology Fundamentals

PHT-C01

Pharmacognosy and Herbal Medicine Fundamentals

PHT-D01

Public Health Pharmacy Fundamentals

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Advanced pharmaceutical analysis; systems pharmacology; medicinal chemistry continuation; pharmaceutical microbiology continuation.

Coursework Requirements

Pharmaceutical analysis practicals

Pharmacology case study

Medicinal chemistry assignment

Semester Project: "Herbal Remedy Documentation Project"

Students document and preliminarily evaluate a traditional Oro (Oron) Nation herbal remedy, linking pharmacognosy coursework to local heritage.

Semester 7 — 400 Level, First Semester

Academic Theme: Clinical Pharmacy Foundations

Students formally declare one specialisation pathway at the start of Semester 7, carried through Semester 8: (A) Clinical Pharmacy, (B) Pharmaceutical Industry and Technology, (C) Pharmacognosy and Herbal Medicine, or (D) Public Health Pharmacy.

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 401

Clinical Pharmacy and Pharmacotherapeutics I

4

C

PHA 304

PHA 403

Pharmacology III

3

C

PHA 304

PHA 405

Pharmacy Practice and Dispensing

2

C

None

PHA 407

Pharmaceutical Jurisprudence and Ethics I

1

C

None

PHA 409

Industrial Pharmacy I

2

C

PHA 305

PHA-P1

Pathway Course (choose track A, B, C or D)

3

E

Declared pathway

Total Units This Semester

15

Specialisation / Pathway Options

Code

Option Title

A - PHA 411

Advanced Clinical Pharmacotherapeutics

B - PHA 413

Pharmaceutical Manufacturing and GMP

C - PHA 415

Natural Products and Herbal Medicine Development

D - PHA 417

Pharmacoepidemiology and Public Health Pharmacy

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Fieldwork

At least one supervised pharmacy practice or industrial site visit relevant to the declared pathway shall be undertaken.

Coursework Requirements

Pharmacotherapeutics case study

Dispensing practical

Industrial pharmacy report

Pathway case study report

Semester 8 — 400 Level, Second Semester

Academic Theme: Clinical and Industrial Pharmacy Practice

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 402

Clinical Pharmacy and Pharmacotherapeutics II

4

C

PHA 401

PHA 404

Hospital and Community Pharmacy Practicum

3

C

PHA 405

PHA 406

Pharmaceutical Jurisprudence and Ethics II

2

C

PHA 407

PHA 408

Clinical Toxicology

2

C

PHA 403

PHA-P2

Pathway Course (continuation of declared track)

3

E

Declared pathway

Total Units This Semester

14

Specialisation / Pathway Options

Code

Option Title

A - PHA 412

Ambulatory Care Pharmacy Practicum

B - PHA 414

Industrial Pharmacy Practicum

C - PHA 416

Herbal Medicine Quality Control Practicum

D - PHA 418

Pharmacovigilance Practicum

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Output

Hospital and community pharmacy practicum; clinical toxicology case management; continuation of declared pathway practicum.

Coursework Requirements

Practicum logbook

Toxicology case study

Pathway practicum report

Semester 9 — 500 Level, First Semester

Academic Theme: Biopharmaceutics and Research I

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 501

Biopharmaceutics and Pharmacokinetics

3

C

PHA 402

PHA 503

Pharmacoeconomics and Health Systems

2

C

None

PHA 505

Research Project I

3

C

None

PHA 507

Hospital Clerkship I

4

C

PHA 404

PHA 509

Drug Information and Pharmacy Informatics

2

C

None

Total Units This Semester

14

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Biopharmaceutics and pharmacokinetic modelling; pharmacoeconomics; research project proposal; supervised hospital clerkship; drug information resources.

Coursework Requirements

Pharmacokinetics problem sets

Research proposal

Hospital clerkship logbook

Semester 10 — 500 Level, Second Semester

Academic Theme: Pharmacy Management and Research II

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 502

Pharmacy Management and Entrepreneurship

2

C

None

PHA 504

Research Project II

3

C

PHA 505

PHA 506

Hospital Clerkship II

4

C

PHA 507

PHA 508

Pharmaceutical Regulatory Affairs

2

C

PHA 406

PHA 510

Community Pharmacy Clerkship

3

C

PHA 404

Total Units This Semester

14

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Pharmacy business management; research project data collection; continued hospital clerkship; regulatory affairs; community pharmacy clerkship.

Coursework Requirements

Business plan exercise

Research project interim report

Clerkship logbooks

Semester 11 — 600 Level, First Semester

Academic Theme: Advanced Clinical Clerkships I

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 601

Advanced Clinical Clerkship — Internal Medicine

4

C

PHA 506

PHA 603

Advanced Clinical Clerkship — Paediatrics

3

C

PHA 506

PHA 605

Advanced Clinical Clerkship — Infectious Disease

3

C

PHA 506

PHA 607

Research Project III

3

C

PHA 504

Total Units This Semester

13

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Focus

Advanced, consolidating clinical clerkships with increasing responsibility under supervision; research project continuation.

Coursework Requirements

Clerkship logbooks

Case presentations

Research project progress report

Semester 12 — 600 Level, Second Semester

Academic Theme: Final Clinical Year and Professional Readiness

Registered Courses

Code

Course Title

Units

Status

Prerequisite

PHA 602

Advanced Clinical Clerkship — Elective Rotation (choose pathway)

4

E

Declared pathway

PHA 604

Final Research Project and Defence

3

C

PHA 607

PHA 606

Professional Practice and Licensure Preparation (PCN)

2

C

PHA 406

PHA 608

Capstone Seminar

1

C

None

PHA 699

Final Qualifying Examination

0

C

Pass/Fail

Total Units This Semester

10

Weekly Scheme of Work

Weeks

Topics / Learning Activities

Requirements

Complete elective clinical rotation; complete and defend final research project; prepare for PCN licensure examination and internship.

Graduation Portfolio Requirements

Transcript

Clerkship logbooks across all rotations

Research project report

PCN licensure examination readiness record

Professional development portfolio

B. Your Weekly Study Model

Plan your week across the following components:

Lectures — core teaching contact.

Tutorials — problem-solving and case discussion.

Laboratory/clinical/practical sessions.

Independent study — reading and revision.

Coursework — assignments, case reports and logbooks.

Group work — team-based case studies and ward/field exercises.

Maintain a personal Clerkship Logbook and Professional Portfolio throughout your six years, consolidating practical/compounding records, clerkship evaluations and reflective notes. You will need this evidence for PCN licensure examination and registration.

C. What a Normal Teaching Semester Looks Like

A normal fifteen-week teaching semester generally follows this pattern:

Week(s)

What Happens

Week 1

Orientation / course introduction.

Weeks 2-5

Core theory and guided tutorials.

Week 6

Continuous assessment / test.

Weeks 7-10

Advanced theory plus laboratory/clinical/practical activities.

Week 11

Practical/coursework assessment.

Weeks 12-13

Integrated case-based/problem-based learning.

Week 14

Revision and case presentations.

Week 15

Final revision / course completion.

Examination period

As separately published by the University.

D. Recommended Textbooks and References

Use these as your core reading list across the programme. Your lecturers will indicate the specific chapters and editions relevant to each course in the weekly scheme.

D.1 Pharm.D. Pharmacy

Pharmaceutics and Pharmaceutical Technology

Allen, L.V. and Ansel, H.C. — Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, Wolters Kluwer.

Aulton, M.E. and Taylor, K.M.G. — Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Elsevier.

Pharmacology and Medicinal Chemistry

Katzung, B.G. — Basic and Clinical Pharmacology, McGraw-Hill.

Patrick, G.L. — An Introduction to Medicinal Chemistry, Oxford University Press.

Pharmaceutical Chemistry and Analysis

Beckett, A.H. and Stenlake, J.B. — Practical Pharmaceutical Chemistry, CBS Publishers.

Watson, D.G. — Pharmaceutical Analysis, Elsevier.

Clinical Pharmacy and Pharmacotherapeutics

Dipiro, J.T. et al. — Pharmacotherapy: A Pathophysiologic Approach, McGraw-Hill.

Walker, R. and Whittlesea, C. — Clinical Pharmacy and Therapeutics, Elsevier.

Pharmacognosy and Herbal Medicine

Evans, W.C. — Trease and Evans Pharmacognosy, Elsevier.

Sofowora, A. — Medicinal Plants and Traditional Medicine in Africa, Spectrum Books.

Pharmaceutical Microbiology and Biopharmaceutics

Hugo, W.B. and Russell, A.D. — Pharmaceutical Microbiology, Wiley-Blackwell.

Shargel, L., Wu-Pong, S. and Yu, A.B.C. — Applied Biopharmaceutics and Pharmacokinetics, McGraw-Hill.

Pharmacy Practice, Law and Management

Pharmacists Council of Nigeria (PCN) — Code of Ethics for Pharmacists, current edition.

Rutter, P. — Community Pharmacy: Symptoms, Diagnosis and Treatment, Elsevier.

E. Where to Get Further Help

This Student Handbook covers what you need to plan and succeed in each semester. Detailed course specifications, learning-outcome mapping and marking schemes for each course are held by your course lecturers in their course files, and can be requested from your Head of Department or Faculty Officer.