

# UNIVERSITY OF GHANA



VOLUME 4

**HANDBOOK FOR THE BACHELOR'S DEGREE  
COURSE DESCRIPTIONS FOR PROGRAMMES IN THE  
HEALTH SCIENCES  
September, 2017**

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Academic Affairs Directorate of the Registrar's Offices, University of Ghana, Legon.*

*For all enquiries in connection with this Handbook, write to:*

*The Director (Academic Affairs Directorate)  
University of Ghana  
Registrar's Offices  
P. O. Box LG 25  
Legon  
Accra, Ghana*

***NOTE TO THE UNDERGRADUATE HANDBOOKS***

***Undergraduate Handbooks of the University of Ghana are published in four volumes as follows:***

***VOLUME 1: REGULATIONS GOVERNING UNDERGRADUATE  
STUDY AND UNIVERSITY EXAMINATIONS***

***VOLUME 2: COURSE DESCRIPTIONS OF PROGRAMMES IN THE  
HUMANITIES***

***VOLUME 3: COURSE DESCRIPTIONS OF PROGRAMMES IN THE  
SCIENCES***

***VOLUME 4: COURSE DESCRIPTIONS AND REGULATIONS FOR  
PROGRAMMES IN THE HEALTH SCIENCES***

***Undergraduate students should therefore have Volume 1 and either Volume 2, 3 or 4 of the Handbooks, depending on the programme they have been offered.***

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## UNIVERSITY REQUIRED COURSES

The University has, beginning from the 2010/2011 academic year, introduced a unique general education programme which is intended to provide a rewarding experience for all students who undertake undergraduate studies in the University. The interdisciplinary courses in the programme, which are intended to foster broad student familiarity with key advances in the humanities, science and technology, are the following:

Course Code	Course Title	Target Group
UGRC 110	Academic Writing I	All students
UGRC 120	Numeracy Skills	Students in the Humanities except those offering Economics, Computer Science, Mathematics, Statistics and Business Administration
UGRC 131-136*	Understanding Human Societies	Students in the Basic and Applied Sciences
UGRC 141- 146**	Science and Technology in our Lives	Students in the Humanities
UGRC 150	Critical Thinking and Practical Reasoning	All students
UGRC 160	Introduction to Literature	Students in the Humanities offering, Computer Science, Mathematics, Statistics and Business Administration
UGRC 170	General Mathematics	Students in the Humanities offering Economics NOT for students with Economics and Mathematics/Statistics subject combinations
UGRC 210	Academic Writing II	All students
UGRC 220-238***	Introduction to African Studies	All students

\* *See write up below on structure for Understanding Human Societies*

\*\* *See write up below on structure for Science and Technology in our Lives*

\*\*\* *See write up below on structure for Introduction to African Studies*

It is expected that these compulsory courses will, in combination with students' main areas of study, produce students who are equipped to meet the development needs of Ghana and Africa, and equip graduates of the University of Ghana to be confident, rounded scholars, capable of holding their own with graduates from any part of the world.

**NOTE:** Details of the semesters in which students of various Schools are expected to take University Required Courses may be found in the programme structure for each Department/School.

### **UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be

introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments.

**UGRC 120: Numeracy Skills**

This course is designed for students to acquire basic numeracy skills needed for solving real life problems. It involves the following: review of basic algebraic skills; rates (fractions, proportions and percentages); approximating numbers (rounding up of numbers and significant numbers); mathematical reasoning, (deductive and inductive reasoning); statements; truth tables; necessary and sufficient conditions; basic set theory; nature and uses of statistics; sources of data; data types and measurement scales; methods of data manipulation (aggregation and interpretation); basic probability with illustrations from various disciplines; establishing relationships between variables, and the use of basic computer packages such as Excel in analyzing data.

**UGRC 131-136: Understanding Human Societies**

These courses are designed for students pursuing science-related programmes at the undergraduate level. The aim of the courses is to introduce students to the broad array of issues that shape human societies. Students are expected to select only one out of the six modules provided: the economy and business; culture and development; governance in the information society; human behaviour and the social environment; religion and societies; and language in society.

**Descriptions of Modules:**

**UGRC 131: Understanding Human Societies/Culture and Development**

This module introduces students to culture-development linkages. It delineates the basic concepts of culture, resources and development and how these concepts holistically constitute the basis of human society. Approaches to understanding human society, both past and present, form the foundation for understanding cultural formations and the diverse resource usages.

**UGRC 132: Understanding Human Societies/Religion and Societies**

This module aims at introducing students to the on-going debate on the role of religion in human societies. It focuses on religious perspectives on social issues and discusses the way religion impacts social and political structures such as leadership and the family, as well as the environment. Students will in the end appreciate the synergy between science and religion in providing the wellbeing of all creation. Topics to be treated will include origins of religion, science and religion, religion in the modern world, religion and health, religion and the environment, gender, religion and cultural values.

**UGRC 133: Understanding Human Societies/Economy and Business**

This module is designed to offer students the opportunity of understanding the environment within which business operates in Ghana. The module places emphasis on the extent to which geographical, political, socio-cultural, economic and international forces have shaped the growth and practice of business and management in Ghana over time. It is also designed to help students to understand some macroeconomic issues with particular reference to the Ghanaian economy. More specifically, macroeconomic issues such as inflation, unemployment, poverty, exchange rate and economic growth will be discussed.

**UGRC 134: Understanding Human Societies/Language in Society**

This module is aimed at giving students a basic understanding of what language is and how it works in every human society. The course will help students to appreciate how language is used as a tool for doing things in the world. It shows how the study of language is at the intersection of the humanities and the social and natural sciences and how linguists conduct the business of studying language. Some of the topics to be covered are: the nature and functions of language, the language situation in Ghana, language, power and gender, as well as levels of linguistic analysis.

**UGRC 135: Understanding Human Societies/Human Behaviour and the Social Environment**

This module is designed to introduce students to human behaviour and the social environment. There are various dimensions to social issues and it is useful for students to get to know a wide range of these issues that concern them and the people around them. It also adds to their existing stock of knowledge.

**UGRC 136: Understanding Human Societies/Governance in the Information society**

This exposes students to the concepts of good governance and the information society, and the relationship between information and the key elements of good governance such as the rule of law, transparency and accountability. The module further examines the nature, scope and importance of governance and the relationship between the various institutions of governance in a modern society. The way public services ethics promotes good governance is also explored. Finally, the module takes a look at information literacy and sources of official information.

**UGRC 141-146: Science and Technology in our Lives**

These courses deal with the application of science to everyday life. The courses will, therefore, include material to assist students to appreciate the foundations of scientific thought, the application of science and technology and demands of changing societies for scientific and technological advancement. The courses are expected to foster broad familiarity with key advances in science and technology. The courses will be delivered through lectures, tutorials, class exercises, homework assignments, and examinations.

There are six modules/areas including: Earth Resources, Geohazards, Chemistry and Life, Food and Nutrition in everyday life, Everyday Physics, and Animals as Friends of Humans. Students are expected to select only one out of the six modules provided.

**UGRC 141: Science and Technology in our Lives/Everyday Physics**

The course presents some of the basic principles of physics that are useful for understanding and explaining everyday physical phenomena. Participants will learn about the laws of motion and how principles of mechanics are applied in everyday objects such as seat belts and airbags. The properties of semiconductors and their application to microelectronics will also be discussed. In addition, concepts in energy, both renewable and non-renewable, electricity, and electrical safety measures will be discussed.

**UGRC 142: Animals as Friends of Humans**

The course is a general introduction to animal species and groups commonly found in our environments - understanding their life styles, their interactions with humans, roles and contributions to the environment, and how to manage and conserve them. These include vertebrates, invertebrates like insects, and pathogenic organisms that cause diseases.

**UGRC 143: Science and Technology in our Lives/Earth Resources**

The earth is endowed with rich resources, many of which are indispensable to mankind. Many of these resources are covered by the earth and need to be uncovered for easy access and for our benefit. This course is aimed at providing students with the basic understanding of what resources are in general; with specific emphasis on earth resources. The course will assist students appreciate the fundamentals of scientific thought and the application of science and technology in gaining access to many of the resources that are hidden deep beneath the earth. Some of the topics to be covered include: our earth resources, alternative energy sources, groundwater resources, mineral deposits and fossil fuels.

**UGRC 144: Science and Technology in our Lives/Geohazards**

The course introduces students to various geological hazards, with an emphasis on an understanding of the natural processes that operate on our planet Earth, both at the surface and deep within the interior. The course also examines the causes and effects of these hazards and the appropriate preventive measures. Processes examined include:

- Earthquakes and associated hazards
- Volcanic activities and hazards related to volcanoes
- Mass wasting and their impact on the environment
- Waste disposal and management problems, and the potential impact of wastes on the environment
- Medical geology which looks at the processes responsible for the release of chemicals and naturally occurring dangerous geologic elements onto the environment, the mechanisms through these elements enter our body and the accompanying health effects on humans, animals and plants living in that environment
- Greenhouse effect and climate change
- Flooding

**UGRC 145: Science and Technology in our lives/Food and Nutrition in Everyday life**

This course is designed to offer students the opportunity to understand, know and apply the principles of the science of food and nutrition to promote health. The course will give an overview of the differences between nutrition and food science as well as transitions in the food industry and nutrition. The nutrients in food, food types, food habits and effects, food security, water as a nutrient, food safety and nutrition will be covered. The significance of breastfeeding in infant nutrition, health and national development will also be discussed.

**UGRC 146: Science and Technology in our lives/Chemistry and Life**

This course is aimed at giving students a basic understanding of the application of chemistry to in our lives. The course will expose students to the importance of the atmosphere and the chemistry involved in how various pollutants arise as well as how the atmosphere can be protected. Global warming, the water we drink as well as sources of energy will also be examined. This will enable students to make informed decisions in these areas on the choices they will make in the near future.

**UGRC 150: Critical Thinking and Practical Reasoning**

An essential element in the training of social studies and humanities students is providing a corrective and diagnostic skill set that enables students to discriminate logically between: rhetorical ploys that give *motives* vs. arguments providing *good logical reasons* for believing an assertion. Students need to recognise the contrast between *inductive* and *deductive* reasoning and the different types of support yielded by each, to evaluate the quality of evidence

confirming an empirical hypothesis about human conduct, to maintain individual professional and scholarly discretion in the face of peer pressure and mob mentality. Those enrolled in this course will be provided the vocabulary and techniques to employ critical thought and practice within the academic arena and beyond.

**UGRC 160: Introduction to Literature**

This course will engage students in careful reading and analysis of a challenging selection of literary works from a range of genres including the novel, the short story, poetry and drama. The focus will be on intensive reading and discussion of the literature to inculcate in students the skill of interpretation. Students are expected to be active readers as they analyze and interpret textual detail, establish connections among their observations and draw logical inferences leading toward an interpretive conclusion. They will be introduced to formal features of the selected texts, including plot, character and language, as well as to the links between literature and life, to make them better readers of their world. The course will include a writing component that focuses on expository, analytical and argumentative writing about the literature. In short, students will read, discuss and write about texts while developing skills such as the sophisticated use of literary elements and terminology, close readings of various texts, creating, drafting and editing analytical essays.

At the completion of this course, the students will be able to:

- Make warranted and reasonable assertions about an author's arguments
- Recognize and use literary terms
- Apply literary terminology to fiction, drama, and poetry
- Analyze different genres of literature, particularly short stories, novels, drama and poetry
- Read literary texts closely
- Read, understand and write analytical literary essays
- Recognize and assess the elements of different literary genres

**UGRC 170: General Mathematics**

General Mathematics I (Non-Mathematics students in Economics) deals with the following topics: Indices and Logarithms; Equations and inequalities; Functions and graphs; Arrangements and selections; Binomial theorem; Limits, differentiation and integration. The course objectives include:

- Acquire conceptual understanding and problem solving skills in mathematics
- Manipulate and simplify algebraic expressions and solve their equations
- Analyze polynomial, rational and trigonometric functions
- Understand the concepts of Differentiation and Integration
- Use the techniques, skills and strategies above to solve variety of practical problems in the social, managerial and life sciences with special emphasis on business and economics.

**UGRC 210: Academic Writing II**

Academic Writing II is a follow-up to Academic Writing I and builds upon the skills acquired in the first year. Students will be required to read and critique a variety of academic essays in their areas of study. Writing activities will derive from these reading tasks and students will be guided to develop their writing through process writing which involves: pre-drafting, drafting, re-writing and revising. In this broad context, students will revise and consolidate their grammar through proof reading and editing activities. The course will also involve training students to write from multiple sources as a preparation for doing research-based writing. Activities will be geared towards getting students to develop the skills of extracting and sorting

information from multiple sources and synthesizing them into coherent arguments in an essay. Students will be required to write such a synthesis essay for assessment. Subsequently, students will be introduced to academic presentation skills.

The Language Centre will teach the Academic Writing II course in all programmes in Level 200, except the following:

- The School of Engineering which has opted to offer Technical Report Writing (FAEN 206) in lieu of Academic Writing II.
- The School of Agriculture and some departments in the Schools of Physical and Biological Sciences have opted to provide their own courses in the second six weeks of the first semester of Level 200 (Academic Writing II). Programme-specific lectures in Academic Writing in the second half of the first semester will be run.

### **UGRC 220-239: Introduction to African Studies**

This course introduces students to the field of African Studies including Africa's histories, peoples and cultures. It begins with a general introduction to the discipline, its history and values; continues with an introduction to Gender Studies in Africa; and thereafter students select from an extensive and diverse menu of 'electives'. While all students take the general introduction and the introduction to gender, students are registered into the electives that they will take in the second half of the semester.

The general introduction serves as the springboard from which to launch the entire course.

Objectives of the course:

- ❖ To help students appreciate the contemporary value of African Studies as an area of enquiry.
- ❖ To help students engage with discourses on African realities.
- ❖ To encourage students to appreciate the African Identity.
- ❖ To help students develop a sense of Self Determination in the global world.
- ❖ To make students aware of the negative stereotypes about Africa and to encourage them to challenge these stereotypes.
- ❖ To help students develop appropriate methodologies and frameworks for examining Africa and its past through multi-disciplinary approaches.
- ❖ To highlight some of Africa's contributions to world civilizations and knowledge generation.
- ❖ To enhance students' knowledge in specific areas of African Humanities and Social Sciences

The overall introduction covers three weeks, including two hours of lectures, and one hour of tutorials per week.

### **Introduction to Gender**

The main objective of this two week introduction (four hour), is to help students appreciate the gendered nature of African societies, how this impacts development, and state as well as civil society responses to gender inequalities. This component explains key concepts in African gender studies and explains why and how we address gender issues in African studies. This component of the course also makes a case for transforming gender relations on the basis of three justifications: (1) citizenship rights and the constitution, (2) development imperatives, and (3) the promotion of gender equitable cultures. The role of individual and group agency and leadership in changing gender relations will be highlighted.

The introduction to gender covers three weeks, including two hours of lectures, and one hour

of tutorials per week. Also included is a practical activity, typically a film show.

At the end of the first 6 weeks students take part in a continuous assessment exercise.

**Elective Component:**

In the second half of the semester students join one of 19 pre-selected “elective” classes, each of which is described below. An examination for each of these is carried out at the end of the semester.

**UGRC 220: Introduction to African Studies/ Appropriate Technology for Development in Africa**

**Course Description**

The course is introduced by defining important concepts and theories of Appropriate Technology, emphasizing that it is technology that is appropriate, most suitable, practicable, and result oriented. It reviews the most dominant, but simple technologies used at local community levels. These include patterns of industrial and trade regimes in Africa, technologies used in rural energy production and consumption, water resource management technologies, and inter-agency collaboration in rural development activities, using these appropriate technologies. The course concludes by examining the gender dynamics and rural governance systems as critical thresholds for the understanding of appropriate technology use, and development prospects in Africa.

**UGRC 221: Introduction to African Studies/African Art, its Philosophy and Criticism**

**Course Description**

This course is designed to introduce students to an understanding of African art and its conceptual framework as evidence of material culture, actively involved in the historical process and life of the African. As a cultural practice, it forms the bedrock of African aesthetic expression. The course argues that the environment, availability of materials for producing art, different histories and external influences, have affected African art and its development. The course proposes that African art is reflective and representative of African belief, philosophy, values and taste, and is used in several social, political and religious functions. As a fairly new field of discipline, the course introduces students to forms of art, historical and theoretical enquiries and approaches to the subject, such as art as history, history as an art, aesthetics, style, subject and subject matter interpretations and meanings, visual narratives, gender perceptions, roles and representations, art criticism and contemporary discourses on the practice of art on the continent.

**UGRC 222: Introduction to African Studies/ Africa in the Contemporary World**

**Course Description**

This course introduces students to the major social, economic and political developments in Africa. It explores key issues, trajectories, themes, actors, debates, strategies and challenges facing contemporary African states, placing them in historical and global contexts. Key themes include: Economic and Political Crises; Political Transitions and Democratization; International Actors, Aid and Development, Peace and Security, Civil Society and Governance, Identity and Politics as well as Regionalism and Renaissance of African Unity. By the end of the course, students are expected to acquire deeper understanding not only of the major issues, actors, themes and institutions in socio-economic and political developments in Africa but also appreciate Africa’s interactions with the rest of the world, and how Africa’s

past has shaped its contemporary social, economic and political conditions as well as key challenges facing African states in the 21st Century.

**UGRC 223: Introduction to African Studies/ Africa and the Diaspora**

**Course Description**

This course is designed to provide a general overview of the voluntary and involuntary journeys, life experiences, as well as the general culture of Africans in the Diaspora. It will also discuss some of the surviving African cultural elements in the Americas, and analyze certain cultural and political coping/resistance strategies. The course hopes to demonstrate the resilience of African culture as expressed in music, literature, language, religious beliefs, festivals and art. It will critique some of the ideological bases for the various slave-trading epochs, and suggest ways of enhancing the African image within the global community. Furthermore, it will and discusses some notable contributions of the African Diaspora to the body of world civilization.

**UGRC 224: Introduction to African Studies/African Popular Culture: Traditional Festivals and Funeral Ceremonies**

**Course Description**

This course is a general survey of African festivals and funeral ceremonies. It is intended to make the under-graduate students conscious of the two events in their own communities, and also to help them identify, classify, perceive and understand the relative importance of these popular events. Assuming anthropological, sociological and folkloristic perspective, this course will examine 'Traditional Festivals' and 'Funeral Ceremonies' as two components of 'African Popular Culture'. The course will pay particular attention to conflicts in these social phenomena and their respective roles in African societies.

**UGRC 225: Introduction to African Studies/African Dance**

**Course Description**

This course is to introduce level 200 students to Traditional African Dance. The course will give students the opportunity to understand the role of dance in the Ghanaian Society since the dance is part and parcel of our life cycle. Further explanation of the principles of African Dance movements, and historic and cultural contexts in which the dances are presented will also be explained. Emphasis is placed on the relationship between dance and music, while increasing strength, flexibility, and developing rhythmic sensitivity. By the end of the seven weeks, the student should be able to dance at least three Traditional dances to the drum language. This introductory course has theory and practical components.

Dance was, and continues to be, a very important aspect of who we are as Africans. It encompasses all four areas, which make up our living beings. Dance is spiritual, intellectual, emotional, and physical and dances should be appreciated and accepted as they are presented. Dance in the context of African Tradition is very patent to the life of Africans. To the African, Life with its rhythms and cycle is Dance. We dance to celebrate life, to show appreciation for all the gifts bestowed upon us by the Creator God, in our lives today, and all the generations past since the beginning of time. The dances reflected our daily lives but were represented as bigger, greater and more wonderful.

**UGRC 226: Introduction to African Studies/African Drama**

**Course Description**

Drama is a universal phenomenon deriving from play and manifesting in important aspects of human spirituality. The rich ritual and ceremonial life which characterizes the social, political

and religious institutions of Africa has deep roots in indigenous dramatic traditions of Africa. Selected ceremonies, festivals and rituals will be analyzed to reveal their representation of and interface with institutions of leadership on the one hand and gender on the other. The course will also look at drama as an art form and briefly trace its evolution. It is intended to undertake a systematic survey of contemporary forms of drama and theatre and to provide students with the critical tools to both evaluate and appreciate this important art form. The course will provide students with the opportunity to observe and participate in theatrical manifestations such as plays and festivals. Given the wide range of dramatic works produced in Africa, works studied in this course will be changed from time to time.

**UGRC 227: Introduction to African Studies/African Music**

**Course Description**

The course aims at introducing non-music majors to some of the basic but key concepts in African music, their meanings, scopes, as well as the thought systems that underpin the creation, performance and consumption of music in sub-Saharan Africa. To give meaning to the intellectual and creativity dimensions of the discipline, the course is presented in two parts- i.e. theory and practical.

Topics to be explored in the more theoretical class discussions include the definitions, categories and characteristics of African Music; Music, language and surrogacy; Uses and functions of music (including court music), music and the related arts, as well as the gendered spaces in African music practice.

**Course Objectives:** It is expected at the end of the course that, students' intellectual curiosity about indigenous conceptions about African musical forms, their functions would be aroused in order to:

- Appreciate the values of indigenous African music from African perspective
- Question some stereotypes about African traditional music

**UGRC228: Introduction to African Studies/Chieftaincy and Development**

**Course Description**

Chieftaincy is about the best known and the most cherished institution in most parts of Africa, yet very few people are conversant with its internal workings. This course provides students with a general overview of the chieftaincy institution and its relationship to development in Africa. It also examines how the Chieftaincy institution changed through time. The course will empower students with analytical skills that would enable them understand how chiefs function in their communities and how they adapt themselves to the modern dynamics of political state formation in Africa.

**UGRC 229: Introduction to African Studies/ Culture and Development**

**Course Description**

This is a semester long course scheduled for the first semester and repeated in the second semester. The course discusses the cultural issues that underpin the quest for socio-political, economic, religious and technological advancement, and the need to preserve or jettison, or reshape, where necessary, certain endogenous values, beliefs, behaviours, and attitudes, and to exploit their beneficial aspects while at the same time discussing potential strategies for coming to terms with the unsavoury aspects of some indigenous norms and practices.

**UGRC 230: Introduction to African Studies/ Gender and Culture in Africa**

**Course Description**

This course examines how culture shapes the positions of women and men in African societies

and analyses cultures and cultural practices as dynamic, contested and rooted in socio-economic conditions and power relations. Key concepts in gender studies are analyzed in relation to debates about accepted notions of culture. In this introductory class, we provide students with the opportunity to interrogate the ways in which gender is embedded in various social institutions including the family, the media, religious, political and economic institutions. Students will be encouraged to reflect on their own experiences of gender, and their role in reinforcing and transforming the nature of gender relations in society.

**UGRC 231: Introduction to African Studies/Gender and Development**

**Course Description**

This course will introduce students to key concepts and issues in gender and development with a focus on Africa. It argues that development is not a neutral process, but impacts on men and women differently. Key topics will include issues of production and reproduction as well as men and women's access to resources in Africa such as land, labour, credit, time and social capital. The course will also examine the gendered implications of natural resource management and sustainable development as well as decision making. It will further examine state and civil society responses to gender issues in Africa. The main objectives of this foundation course is to sensitize students to gender issues and enable students recognize and understand the relevance of gender as a development issue and how gender inequalities impact negatively on development.

**UGRC 232: Introduction to African Studies/Issues in Africa's Population**

**Course Description**

This course introduces students to the key debates around issues in Africa's population. Africa's population is distinct in many respects. Students will receive an overview of significant aspects of demographic concepts and population - its composition, growth etc. - and related issues such as human resource development, socio-economic development, environmental sanitation and preservation, and migration. Challenges associated with some of these issues will be addressed at various levels, with special attention paid to the population of Ghana. The so-called impact of the rapid population growth rate on development in the sub-region has been an important issue of debate so far as the population of Africa and development is concerned. Though there are no definite conclusions, there has been growing consensus among many governments, policy-makers, and researchers that population variables influence development in Africa. The need to understand the relationship among Africa's population and related issues is urgent, not only for policy-makers of today but also for students who are future leaders and/or policy-makers. The challenges of other population issues such as environmental change, HIV/AIDS and gender are also of equal importance.

**UGRC 233: Introduction to African Studies/Our African Heritage through Literature**

**Course Description:**

Africa as a cultural space reflects an intriguing unity in diversity. Word smithery is a vital element of the cultural life of the region. Literature as a performance art takes a central role in a range of contexts formal, sacred, popular and profane and therefore permeates the rich ceremonial life of African peoples. A functional analysis of the literature will demonstrate the extent to which it reveals notions of gender and leadership in African society. This course also intends to explore the creative ways in which primary values have been, and continue to be expressed, explored and contested in African societies.

The course seeks to introduce students to the notion of a living literary culture in Africa,

discussing issues such as values and worldviews, writing, performance, context and keys to informed literary analysis. Case studies will mainly be drawn from performance and writing traditions of societies in West, East and Southern Africa. In addition, the more recent domination of Africans by Arabs and Europeans has occasioned the evolution of a significant body of written literature with powerful artistic and political significance. The course will also discuss the thematic concerns of literary artists putting works into social and political perspective from a local and global point of view.

**UGRC 234: Introduction to African Studies/Philosophy in African Cultures**

**Course Description**

This course intends to introduce students to philosophical thought in African cultures, emphasizing its relation and relevance to contemporary African cultures and development. Topics will include the African cosmologies, concepts of God, the deities, ancestors; African communal and individualist values, concept of the human being, destiny, evil and ethics/morality, gender and race.

**UGRC 235: Introduction to African Studies/Dagbani**

**Course Description**

This is a beginner's course for non-native speakers of a Ghanaian language-Dagbani. The course is designed to introduce second year students who cannot speak, understand or read Dagbani to the language. It is a semester-long course to be taken in either the first or second semester of every academic year at the discretion of the student. It is a three credit course, and two contact hours will be used every week for teaching and an additional hour for tutorials. The main components of the course are:

- Issues in African languages
- Reading, comprehension and vocabulary development
- Grammar
- Writing
- Listening and Speaking
- The culture of the language community

**UGRC 236: INTRODUCTION TO AFRICAN STUDIES/EWE**

**Course Description**

This is a beginner's course for non-native speakers of a Ghanaian language-Ewe. The course is designed to introduce second year students who cannot speak, understand and read Ewe to the language. It is a semester-long course to be taken in either the first or second semester of every academic year at the discretion of the student. It is a three credit course. Two contact hours will be used every week for teaching and an additional hour for tutorials. The main components of the course are:

- Issues in African languages
- Reading, comprehension and vocabulary development
- Grammar
- Writing
- Listening and Speaking
- The culture of the language community

**UGRC 237: INTRODUCTION TO AFRICAN STUDIES/GA**

**Course Description**

This is a beginner's course for non-native speakers of a Ghanaian language-Ga. The course is

designed to introduce second year students who cannot speak, understand and read Ga to the language. It is a semester-long course to be taken in either the first or second semester of every academic year at the discretion of the student. It is a three credit course. Two contact hours will be used every week for teaching and an additional hour for tutorials. The main components of the course are:

- Issues in African languages
- Reading, comprehension and vocabulary development
- Grammar
- Writing
- Listening and Speaking
- The culture of the language community

### **UGRC 238: INTRODUCTION TO AFRICAN STUDIES/ASANTE TWI**

#### **Course Description**

This is a beginner's course for non-native speakers of a Ghanaian language-Twi. The course is designed to introduce second year students who cannot speak, understand and read Twi to the language. It is a semester-long course to be taken in either the first or second semester of every academic year at the discretion of the student. It is a three credit course. Two contact hours will be used every week for teaching and an additional hour for tutorials. The main components of the course are:

- Issues in African languages
- Reading, comprehension and vocabulary development
- Grammar
- Writing
- Listening and Speaking
- The culture of the language community

### **UGRC 239: SOCIAL FRAMEWORKS OF DEVELOPMENT**

#### **Course Description**

This course examines the social dimensions of rural development by critically investigating development theories and how they impact on different social groups. Development theories claim to be based on technical considerations, expertise and blueprints. However they are often built on biases that create winners and losers and marginalize some sectors of society. The course examines the changing frameworks of development over time, the strengths and weaknesses of various development theories, and the frameworks they use to analyse African societies. The course also examines various tensions and interests in development theories and policies including tensions between developed and developing countries within a globalised framework; urban and rural interests; peasant farmers and commercial farmers within a national framework; and between youth and elders, and males and females within the local community context. It also examines the tensions between the economic and social objectives of development.

**INSTITUTE OF AFRICAN STUDIES  
ADMINISTRATION**

<b>Dzodzi Akuyo Tsikata</b>	-	Associate Professor
<i>LL.B. (Hons) B.L. (Ghana), MA (The Hague)</i>		<b>Director</b>
<i>M.Phil (Ghana), PhD(cum laude) (Leiden)</i>		
<b>Akosua Adomako Ampofo</b>	-	Professor
<i>BSc, MSc (KNUST), PGD (Dortmund)PhD(Vanderbilt)</i>		
<b>Albert Kanlisi Awedoba</b>	-	Professor
<i>BA, MA (Ghana), DPhil (Oxford)</i>		
<b>Sebastian Kojo Amanor</b>	-	Professor
<i>BA (Hons), MA, PhD (Lond)</i>		
<b>Esi Sutherland-Addy</b>	-	Professor
<i>BA (Ghana), MA (UCLA)</i>		
<b>Daniel Avorgbedor</b>	-	Professor
<i>Dip (Ghana), MA (Truman), PhD (Indiana)</i>		
<b>Kwame Amoah Labi</b>	-	Senior Research Fellow <b>(Research Coordinator)</b>
<i>BA (Hons) (KNUST), MPhil (Ghana), PhD (Ghana)</i>		
<b>Kojo Opoku Aidoo</b>	-	Senior Research Fellow
<i>BA (Hons), MPhil, PhD (Ghana)</i>		
<b>Ebenezer Ayesu</b>	-	Senior Research Fellow <b>(Research Coordinator)</b>
<i>BA, MPhil (Ghana), PhD (Indiana)</i>		
<b>Richard Asante</b>	-	Senior Research Fellow
<i>BA, MPhil, PhD (Ghana)</i>		
<b>Osman Abdu-Rahnan Alhassan</b>	-	Senior Research Fellow <b>(Research Coordinator)</b>
<i>BA (Hons) (Ghana), MPhil (Bergen), PhD (Ghana)</i>		
<b>Mercy Akrofi-Ansah</b>	-	Senior Research Fellow <b>(UGRC Coordinator)</b>
<i>BA, P.G.D.E., MPhil (Ghana), PhD (Manchester)</i>		
<b>Edward Nanbigne</b>	-	Research Fellow <b>(Research Coordinator)</b>
<i>Dip. English (Winneba), BA, MPhil (Ghana)</i>		
<i>BA, MPhil, PhD (Ghana)</i>		
<b>Michael Kpessa</b>	-	Research Fellow
<i>BA (Ghana), MA (Brock), PhD (McMaster)</i>		
<b>Samuel Ntewusu</b>	-	Research Fellow <b>(Examinations Officer)</b>
<i>BA, MPhil (Ghana), PhD (Leiden)</i>		
<b>Godwin Kwafu Adjei</b>	-	Research Fellow
<i>Dip. Music (Winneba), BA, MPhil, PhD (Ghana)</i>		
<b>Moses Nii-Dortey</b>	-	Research Fellow <b>(Research Coordinator)</b> <b>(Ag. Artistic Director)</b>
<i>Dip. Mus/Ed, BEd (UEW),</i>		
<i>MPhil, PhD (Ghana)</i>		
<b>Deborah Atobrah</b>	-	Research Fellow
<i>BSc (Admin), MPhil, PhD (Ghana)</i>		
<b>Irene Appeaning Addo</b>	-	Research Fellow
<i>BSc, PG Dip (Ghana), MSc (Rotterdam) PhD (Ghana)</i>		
<b>Stephen Owoahene Acheampong</b>	-	Senior Research Fellow <b>(Research Coordinator)</b>
<i>Dip (Ghana), Th.M, PhD (Toronto),</i>		
<i>STD (Regis, Toronto)</i>		
<b>Benjamin Kobina Kwansa</b>	-	Research Fellow
<i>BA, MPhil (Ghana), PhD (Amsterdam)</i>		
<b>Obádélé Bakari Kambon</b>	-	Research Fellow
<i>BA (Georgia), MA, MA (Wisconsin-Madison)</i>		
<i>PhD (Ghana)</i>		

<b>Edem Adotey</b> <i>BA, MPhil, PhD (Ghana)</i>	-	Research Fellow
<b>Mjiba Frehiwot</b> <i>BA, MA (California), PhD (Washington DC)</i>	-	Research Fellow
<b>Peter Narh</b> <i>BA, MPhil (Ghana) PhD (Germany)</i>	-	Research Fellow
<b>Grace Sintim Adasi</b> <i>Dip., BA, MPhil, PhD (Ghana)</i>	-	Research Fellow
<b>Eric Obodai Torto</b> <i>BA (Ghana) MPhil (Cambridge), PhD</i>	-	Research Fellow
<b>Benjamin Obido Ayettey</b> <i>Dip. (Ghana), MFA (Arizona State)</i>	-	Tutor
<b>Zakariah Zablong Abdallah</b> <i>Dip, MA (Ghana)</i>	-	Tutor
<b>Theodosia Adanu</b> <i>BA, Dip (Ghana), MA (Liverpool)</i>	-	Senior Assistant Librarian
<b>Martin De Porres Maaseg</b> <i>BA, MA (Ghana)</i>	-	Senior Archivist
<b>Judith Opoku-Boateng</b> <i>BA, MA (Ghana)</i>	-	Archivist
<b>Beatrice S. Biney-Nyamekye</b> <i>BSc, MSc (KNUST) MPhil (Stellenbosch)</i>	-	Research Development Officer
<b>Mavis O. Addotey</b> <i>BA, Grad. Dip., MA (Comm. Studies) (Ghana) Grad. Dip. Ed (Cape Coast)</i>	-	Senior Assistant Registrar/ Administrator

## LANGUAGE CENTRE

The Language Centre was founded in 1970 as a Centre for research in language use in Ghana, having the status of a department in the Faculty of Arts. For the first ten years of its existence, it was supported by a grant from the Carnegie Corporation, which funded the building it occupies. The focus of the Centre is on research and teaching related to the improvement of performance in the languages used in Ghana as vectors of education, culture and community interaction – English, the official language, and various Ghanaian languages. Besides running courses in English for Academic Purposes for students of the university, the Centre offers a one-year Certificate in English Proficiency Course for students from non-English speaking countries and further provides opportunities for the general public to improve their English as well as Ghanaian language skills.

## FACULTY

<b>Gordon Senanu Kwame Adika</b> <i>BA, PhD (Ghana), MPhil (Cantab)</i>	-	Associate Professor/Director
<b>David Ako Odoi</b> <i>BA, MPhil (Cape Coast), PhD (Ghana)</i>	-	Senior Lecturer (Coordinator, Academic Writing)
<b>Sika Jacobs-Quashie</b> <i>BA, MPhil (Ghana), PhD (Birmingham)</i>	-	Lecturer
<b>Charles Cofie Asante</b> <i>BA (Ghana), MA (UCLA), PhD (Ulster)</i>	-	Lecturer (Post-Retirement Contract)

<b>Nana Ama Agyeman</b> <i>BA (Ghana), MPhil PhD(Trondheim)</i>	-	Lecturer
<b>Elijah Alimsiwem Ayaawan</b> <i>BA MPhil (Cape Coast)</i>	-	Assistant Lecturer
<b>Seth Nii Moi Allotey</b> <i>BA, MA (Ghana)</i>	-	Tutor

## CERTIFICATE IN ENGLISH PROFICIENCY

### **LANG 001: WRITING SKILLS I (3 Credits)**

This is a basic writing skills course designed to gradually introduce the students to continuous or paragraph writing in the English language. The dominant technique employed in the course is guided writing, which is intended to boost the confidence of the students, particularly those who have no previous experience of writing in English. By the end of this course, the students should have improved their paragraph-writing ability in English, developed the ability to construct paragraphs on the basis of topic, unity, coherence and cohesion, and developed the ability to recognize incorrect grammar and word choice in sentences and paragraphs.

### **LANG 002: WRITING SKILLS II (3 Credits)**

This course is intended to introduce the students to the practice of academic writing in the English language. Students will be taught to write thematically beyond the paragraph level, and be able to handle descriptive and analytical writing for academic purposes. By the end of this course, the student should have acquired a heightened sense of awareness of the special demands of academic writing, developed a better understanding of the application of various rhetorical functions in English, including description, definition, exemplification and classification, be better able to produce coherently written paragraphs, and should have been exposed to a variety of samples of academic writing.

### **LANG 003: READING & COMPREHENSION SKILLS I (3 Credits)**

This course is designed to encourage critical thinking and reading, and to promote vocabulary building by teaching essential vocabulary in context. The students also benefit from extensive reading activities. By the end of this course, the students should have improved their ability to independently read and understand general English texts, developed the ability to make appropriate inferences and deductions from texts, improved their ability to read and analyze academic and general texts in a critical manner, acquired the ability to work out the meanings of unfamiliar words through the use of context clues, and increased their overall reading speed.

### **LANG 004: READING & COMPREHENSION SKILLS II (3 Credits)**

This higher-level reading comprehension component of the Proficiency Programme aims to develop the reading and comprehension speed of the students up to an intermediate level through the combined use of skimming, scanning and detailed reading of authentic English texts. Note-taking and summarizing techniques will also be taught as a means of developing reading and comprehension abilities. By the end of this course, the students should have the ability to skim the main ideas of a text as a pre-reading technique, scan a text for specific information, make informed guesses of the meanings of unfamiliar words with the help of context, take notes of the salient points of relevant paragraphs in a text as a means of achieving comprehension, and demonstrate comprehension of a text by correctly summarizing the main ideas.

**LANG 005: LISTENING & SPEAKING SKILLS I (3 Credits)**

This course is designed to fill gaps in the listening and speaking competence of the students and provide the necessary finish to any rough edges in their pronunciation and improve their familiarity with a variety of English accents. The course will provide ample opportunities for the trainees for debates, role-play and dialogue practice in the language laboratory. By the end of this course, the trainees should have improved their fluency and ability to engage in social conversations in English, improved their ability to engage in English conversations with native speakers of English, improved the accuracy of their English pronunciation, and acquired the basics of using persuasive arguments in English in support of a position they have taken in a discussion or debate.

**LANG 006: LISTENING & SPEAKING SKILLS II (3 Credits)**

This course aims to raise the listening and speaking competence of the students from intermediate to a higher intermediate level. By the end of this course, the students should have the ability to engage in conversations in English dealing with problem-solving, understand and respond appropriately to English speakers with different accents, deliver short presentations, and use higher-level persuasive arguments in English in support of a position they have taken in a discussion or debate.

**LANG 007: STRUCTURE OF THE ENGLISH LANGUAGE I (2 Credits)**

This component of the Certificate of English Proficiency programme is a basic grammar course designed to build upon and develop the existing grammar skills of the students. It is designed to concentrate on the functions of the English verb in its three basic tense forms. By the end of this course, the students should have generally improved the grammatical accuracy of their spoken and written sentences, grasped the correct use of English articles; the simple, continuous, perfect and future tenses; sentence patterns and pronouns, including the interrogative, negative, wh-questions; the use of prepositions of place, movement and time; the modal system in English; passive sentences; and relative clauses.

**LANG 008: STRUCTURE OF THE ENGLISH LANGUAGE II (2 Credits)**

This is an English grammar course designed to consolidate the students' existing grammar skills, and also to raise their awareness of possible pitfalls in grammatical usage in conversation and writing. By the end of this course, the students should have developed the ability to recognize incorrect grammar and word choice in sentences and paragraphs, improved the grammatical accuracy of their spoken and written sentences, developed an awareness of the functions and correct use of modals, interrogatives, negation and passive structures in the English language.

**LANG 009: LITERATURE IN ENGLISH I (4 Credits)**

This course is designed to enable the students to appreciate literature in the English language. The three branches of literature, namely drama, poetry and prose, are explored through private reading, class discussion and performance. By the end of this course, the students should have acquired enough appreciation of drama, poetry and prose in the English language to motivate them to read for pleasure, built up their English vocabulary and stock of English expressions to a degree that should make them become independent readers, developed ways to apply the rules learned in grammar lessons in their reading and vice versa, gained some exposure to the cultures of English speakers, as represented in their writing.

**LANG 012: LITERATURE IN ENGLISH II (4 Credits)**

This is a higher-level course designed to build upon and consolidate the skills taught in the companion literature course of the preceding semester. It should help the students to experience more appreciation of literature in the English language. Three new titles of drama, poetry and prose are explored through private reading, class discussion and performance. By the end of this course, the students should have significantly increased their English vocabulary and knowledge of English idioms to make them more confident users of the language, significantly improved their strategies in applying the rules learned in grammar lessons in their reading and vice versa, learned to apply the skills acquired in the Reading and Comprehension course in their reading of literature, and gained further exposure to the cultures of English speakers, as represented in their writing.

### **SPORTS FOR ACADEMIC CREDIT**

The University has, beginning from the 2011/2012 academic year, introduced a sports for academic credit programme.

The introduction of the programme is based on the recognition that there is the need to integrate sports into the academic programme of the University, which would enable students earn credits for sports and sport-related courses, which would count towards their total credits earned. The reason for awarding credits for sports participation is to encourage and reward students who spend their time, energy and resources to train and compete for honours to the University and the nation.

Students can be considered for sports credit from their second year based on their previous sports performance in the University. Enrollment is on the basis of application to and recommendation from the Sports Directorate and approved by the appropriate Dean. Sports performers can earn a maximum of three credits per year on the programme, with a maximum of six credits during their course of study in the University.

Courses under the programme will be graded in accordance with the University of Ghana grading system. Practical and theory sections will take 50% each of the final grade.

### **COURSE OUTLINES (THEORY)**

**SPAC 210: BASIC ANATOMY (2 credits)**

The course introduces students to the study of the human body in stand and in motion.

**Course Objectives**

- To define the anatomic parts in 3-dimensional space.
- To describe the human body and how it works in motion and in stand.

**Course Content**

Introduction to the history of Anatomy. General constitution of the human body and its shape. Anatomical positions. Locomotor system. Muscular system. Nervous system. Respiratory system. Digestive system. Reproductive system. Excretory system. Cardiovascular system. Endocrine system. Blood system and immunity. Metabolism.

**SPAC 220: SOCIOLOGY OF SPORTS (2 credits)**

The course analyzes human interaction and studies the application of scientific methods in the observation and analysis of social phenomenon in sports.

**Course Objectives**

- To provide candidates with opportunities to learn the basic elements of sociology as an analytical behavioral science. It also assists students in developing an awareness of the processes involved in human interaction.
- To define the basic knowledge of sociology and theories of social life.

**Course Content**

Theories in sociology, Theories about sports and society. Sports and socialization. Current status of sociology of sports. Sports and aggression among spectators. Sports and global political processes.

**SPAC 230: SPORTS THEORY (2 credits)**

This course focuses on the theory behind the practice of sports such as skill analysis and coaching philosophies.

**Course Objectives**

To familiarize students with the knowledge of the theories in sports coaching, organization and management.

**Course Content**

Skill analysis and acquisition. Motivation techniques. Teaching progression. Coaching methods. Game Management. Ethical behavior and qualities of professionals in the field of sports.

**SPAC 240: SPORTS PHYSIOLOGY (2 credits)**

This course provides basic principles of physiology of exercise, and the physiological effects on the human organism under different intensities, duration and environment.

**Course Objectives**

- To acquaint students with the knowledge of how the body systems function in athletes during both wellness and illness/injury. Students will then apply their knowledge in understanding and recognizing injury and illness in athletes in order to assist in the prevention and care of athletic injuries and illnesses.
- To familiarize students with the knowledge of the organ systems and how each functions in the physically active individual.

**Course Content**

Introduction to physiology. Organ systems - organs that make up each system, functions of each system. Types of body tissues. Body composition. Effect of exercise on body systems. Common sports injuries pertaining to the body systems. Energy expenditure and fatigue. Measuring energy expenditure. Energy expenditure at rest and during exercise. Fatigue and its causes. Exercise in hot and cold environment: Thermoregulation. Physiological response to exercise in the heat and in the cold. Acclimatization: Prolonged exposure to altitude.

**SPAC 250: HISTORY AND PHILOSOPHY OF SPORTS (2 credits)**

The course covers the history of contemporary sports and physical activity. The subject provides students with reasoning mechanisms, the evolution of sports and the analysis of present realities.

**Course Objectives**

Students should be able:

- To define the general streams in the history of sports and physical activity, to understand the current realities of sports and its social and cultural dynamics.

- To appreciate the main actors of modern sport and physical activity, in their social and cultural context.
- To evaluate and analyze behaviours, habits and values of sport and physical activity in different social contexts.

**Course Content**

Genesis of modern sport and physical activity. Medieval and pre-industrial leisure, game and physical activity. The transition to modern game, culture, performance and education. Theoretical models of sport. The German example. The French example. The Swedish example. Organization, dissemination and social discrimination at the turn of the century. Sports and ideology: interpretation. Basic philosophical issues and sports evolution from local, national and international events. History of Sports in Ghana, All African Games, Commonwealth Games and Olympic Games.

**SPAC 260: ELEMENTS OF SPORTS FITNESS (2 credits)**

This course introduces students to the concept of fitness and wellness and how they relate to quality of life.

**Course Objectives**

To familiarize students with basic knowledge of diet, exercise, stress management, health and other areas

of total wellness and their impact on maintaining healthy lifestyle.

**Course Content**

The concept of fitness and health. The meaning of physical fitness. Component of physical fitness. The development of the components of physical fitness. Selected lifetime fitness activities. The concept of wellness. The relationship of fitness to wellness. Exercise and fitness. Principles of physical activities. Body systems and physical fitness. Weight management. Fitness assessment and exercise testing for cardio-respiratory fitness, body composition, muscle flexibility. Substance abuse and sexually transmitted diseases and stress management.

**SPAC 310: SPORTS INJURIES (2 credits)**

This course introduces students to the basic injuries associated with the physical activities and the methods to prevent them and manage them if they should occur.

**Course Objectives**

- This course is intended to provide students with the basic injuries in sports participation; how to assess them, prevent them and manage them.
- To identify the causes of sports injuries and how they can be avoided.
- To define knowledge about the general principles of initial treatment of injuries.

**Course Content**

Common Fitness/Sports injuries. Prevention of injuries. Treatment and management of injuries. Muscle soreness.

Tendonitis. Lower back pain. Injuries to lower extremities. Heat stress. Exercise in the cold.

**SPAC 320: SPORTS PSYCHOLOGY (2 credits)**

This course leads students to understand how personality, self conceit, self-esteem, self efficacy and other psychological characteristics relate to participation and performance in sport and physical activity. It also helps students analyze and understand motivational bases for sports as well as barriers to participation and special motivational issues in competitive sports.

**Course Objectives**

- To explore core issues and related intervention strategies in working with athletes

and recreational exercisers to enhance performance and participation.

- To define motivational bases for sports as well as barriers to participation and special motivational issues in competitive sports.

**Course Content**

Motivation in Sports and Exercise. Attention, Concentration and Cognitive styles. Psychological benefits of Sports and Exercise. Group Dynamics and Leadership. Strategies for managing arousal and anxiety in athletic performance.

Principles of goal setting as applied to physical activity participation and performance. Values of imagery training and how it can be applied in sports and exercise.

**SPAC 330: ECONOMICS OF SPORTS (2 credits)**

Investigates what economics has to say about sports as an economic activity: what tools of economic analysis apply to sports. Economics of sports focuses on professional and college sports.

**Course Objective**

- To give students the theoretical knowledge of the emergence and growth of commercial sports and the general characteristics of commercial sports.

**Course Content**

Economic motives and the globalization of commercial sports. Media coverage and spectator interest. The use of sports for global expansion. Owners, sponsors and promoters in commercial sports.

**SPAC 340: SPORTS: LAW AND PRACTICE (2 credits)**

This course examines some of the most common legal problems encountered both on and off the playing field. It will concentrate on practical issues and will be presented by legal practitioners, academics and professionals with rich experience in sports management and administration.

**Course Objective**

This course is intended to familiarize students with the important areas that provide the foundational principles that drive the outcome of most legal disputes arising in the sports industry.

**Course Content**

The Governance of Sports. Contractual relations in sports. Athlete employment contracts. The role of the agent in professional sports. Legal aspects of sports injuries. Sports marketing, sponsorship and ambush marketing. Appearance contracts. Constitutional and policy issues in sports. The legal regulations of doping. Alternative dispute resolution in sport. The legal regulation of sports Governing Bodies. Antitrust.

**SPAC 350: SPORTS NUTRITION (2 credits)**

An introduction to nutrients and sources, digestive and metabolic processes and the health impact of nutrient deficiencies and excesses.

**Course Objectives**

- To familiarize students with the fundamentals of sports nutrition as it relates to the physically active. Students will gain an understanding of the importance of sustaining the body with adequate nutrition through food and dietary supplements.
- Students will also discover the sports nutrition products available to fulfill the requirements of the physically active, ranging from the everyday exercise enthusiast to the serious athlete.

**Course Content**

An Introduction to sports nutrition. Basic nutrition essentials for sportsmen/sportswomen. Preparing the body nutritionally for exercise. Injury and recovery – what happens to the body during exercise and how to feed it for recovery. Strength and Speed - Nutrition for top athletes.

**SPAC 360: PRINCIPLES OF SPORTS PERFORMANCE (2 credits)**

This course is designed to study issues relating to causes of human performance and motor behavior over the lifespan.

**Course Objectives**

- To familiarize students with the principles underpinning human performances at the same time as improving their own performances in all spheres of life
- To acquaint students with lifestyle management issues and their impact on performance.

**Course Contents**

Definition of principles. Components of Sports Performance. Internal and External factors of performance. Principles of human performance. Principles of goal setting. Principles of coaching. Test and Measurement of motor abilities. Selection in sports. Strategies and Tactics in sports performance. Psychological and sociological principles in sport performance.

**SPAC 370: SPORTS MANAGEMENT (2 credits)**

This course is designed to provide students with an overview of the basic organizational, and business principles and structure of sport, fitness and leisure industries.

**Course Objective**

- Students will acquire knowledge necessary to successfully manage any governmental/non-governmental sports institution.

**Course Content**

The evolution of Sport Management. Scope of Sports Management. Sports Marketing: Strategies and Tactics. Factors involved in Sports Marketing. Sponsorship of sports events. Strategic planning and management in sports. Planning, Funding and Managing sports events. Sports facility management. Leadership in sports organizations.

**SPAC 380: SPORTS COMMUNICATION (2 credits)**

This course introduces students to communication skills necessary for adjustment and success in sports.

The course provides an opportunity for students to learning principles of effective behavior in sports to reinforce these skills to develop confidence in both spoken and written communications.

**Course Objectives**

- Define communication and identify the elements of a communication system
- List the various communication media
- Identify barriers to effective communication in sports
- Explain basic technical jargons in sports
- Describe the various communication contexts in sports
- Communicate nonverbally in sports
- Explain the ethics of sports communication.

**Course Content**

The concept of communication & communication theory. Communication media. Barriers to effective communication in sports. Basic communication skills in sports. (Communication and the Self, Interpersonal communication (two-persons), Group communication (speaking &

leading discussions), Fundamentals of public speaking, Intercultural communication).  
Nonverbal communication in sports. Communications ethic in sports

**SPAC 281 – 295: SPORTS SPECIFIC EVENTS/DISCIPLINES (PRACTICALS)**

Students will receive instructions in the basic skills, tactics and techniques of the sport.

**Course Objectives**

Students will acquire skills and knowledge necessary for participation as a competitive, fitness or leisure time activity.

**Course Content**

History and development of the game. Basic rules and regulations. Basic Skills. Governing bodies at local, regional, national and international levels. Organizing sport events

SPAC 281	Athletics	1 credit
SPAC 282	Badminton	1 credit
SPAC 283	Basketball	1 credit
SPAC 284	Boxing	1 credit
SPAC 285	Cricket	1 credit
SPAC 286	Goalball	1 credit
SPAC 287	Handball	1 credit
SPAC 288	Hockey	1 credit
SPAC 289	Martial Arts	1 credit
SPAC 291	Soccer	1 credit
SPAC 292	Swimming	1 credit
SPAC 293	Table Tennis	1 credit
SPAC 294	Tennis	1 credit
SPAC 295	Volleyball	1 credit

## COLLEGE OF HEALTH SCIENCES

Medical Sciences became part of the University of Ghana's educational programmes in 1962 when the first batch students was admitted to pursue courses for a degree in medicine. The plan then was to have American government funding for buildings for the Medical School. The proposed medical school was also to be staffed mainly by expatriates. For political and other reasons, this plan was aborted in 1964. The government of Ghana with Dr. Kwame Nkrumah as President, rather decided to have a Medical School fully owned by Ghana and with Ghanaian management and teaching staff. In 1964, Professor C.O. Easmon was appointed first Dean of the Ghana Medical School. The Basic Sciences were located in temporary buildings at the Korle Bu Hospital, which was made a teaching hospital to provide clinical training for medical students. The first batch of 39 doctors graduated from the School in 1969. Their performance, academically and soon thereafter in practice, attracted early recognition of the School by the General Medical Council of Great Britain in 1970.

In 1974, the UGMS initiated the development of a Dental School. The Basic Dental Science courses were offered at the Medical School; the dentistry students pursued clinical programmes at the University of Lagos, Nigeria, the University of Manchester and the University of London, UK. In 1992, the clinical courses became fully localized. The University therefore granted dentistry a faculty status. The first batch of locally produced dental surgeons graduated in 1997.

In 1979, the Noguchi Memorial Institute for Medical Research (NMIMR) was established with sponsor-ship from the Japan government through the Ministry of Finance and Economic Planning. This Research Institute was sited on the plot of the University of Ghana earmarked for the permanent medical school. To date, NMIMR is the permanent structure of the medical complex to have been developed at this site.

In 1994, the University of Ghana, in collaboration with the Ministry of Health, brought into being the School of Public Health for graduate courses leading to the award of MPH, MPhil and PhD degrees. This School is currently located in rooms of the Institute of Statistical, Social and Economic Research and in the Department of Statistics. Permanent building for the School have started with the construction of the Bill Gates Centre for Malaria Research and Control at the site for the medical complex at the main University. The School has six departments and these offer various courses at the postgraduate level.

The Ministry of Health, in 1998, initiated the establishment of a School of Allied Health Sciences to produce medical and dental technical graduates through the Medical School. Programmes for this school included physiotherapy, medical laboratory science, radiography and therapy radiography. Academic Board and the University Council approved this proposal in 1999. In the year 2001, this School came into being. An earlier Diploma in Medical Laboratory Technology also sponsored by the Ministry of Health in 1994 was phased out, with the birth of the School of Allied Health Sciences.

On December 13, 1997, the Academic Board recommended to Council for its approval, the establishment of a College of Health Sciences in the University, to serve as an umbrella organization for all the Schools/Institutes classified under the healing arts of the University. The objectives of the College were clearly stated, as follows:

- *to provide a central administration for the constituent schools/institutes;*

- *to harmonize academic work of the constituent schools/institutes;*
- *to foster active interaction of Faculty, Administration and other Staff of the constituent school/institutes;*
- *to facilitate and promote maximum utilization of human and other resource;*
- *to assist constituent schools/institutes achieve academic excellence in health education by actively supporting the development of their teaching and research programmes leading to the award of higher degree;*
- *to ensure the development of sustainable health education and programmes.*

The College has the following as foundation Schools and Institutions:

- *The University of Ghana Medical School*
- *The University of Ghana Dental School*
- *The School of Public Health*
- *The School of Allied Health Sciences*
- *The School of Nursing*
- *The Noguchi Memorial Institute for Medical Research*
- *The School of Pharmacy*

The College is headed by a Provost who is appointed by the University Council on the recommendation of the Appointments Board. Each School/Institute is headed by a Dean or Director who is appointed on the recommendation of the Appointments Board.

### **COLLEGE ADMINISTRATION**

<b>Patrick Ferdinand Ayeh-Kumi</b> <i>PhD (Ghana)</i>	-	Provost
<b>Michael Opare Atuah</b> <i>BA (Hons) (Ghana) MPhil (Norway)</i>	-	College Secretary
<b>Samuel Nkrumah</b> <i>FCCA, ICA, MBA (Ghana)</i>	-	Ag. Finance Officer
<b>E. Poku-Sarkodee</b> <i>BA (Hons), (MPA Thesis option) (Ghana), IPMA (UK), CIAMC (Ghana)</i>	-	Senior Assistant Registrar
<b>Yvonne Lartey</b> <i>BA (Hons), (Ghana), MPhil (Trondheim)</i>	-	Assistant Registrar
<b>Peter Osei-Fosu</b> <i>BA (Ghana) PGDE, (Cape Coast) MPA (Ghana)</i>	-	Senior Assistant Registrar
<b>Kwaku Amponsah</b> <i>BA (Hons), (Ghana) MPA (Ghana)</i>	-	Assistant Registrar
<b>Augustine Amissare</b> <i>BA (Ghana) MPhil (W'ba), APR (IPR, Ghana)</i>	-	Assistant Registrar
<b>Israel Agbo</b> <i>CA (Ghana), MBA (Finance)</i>	-	Financial Accountant
<b>Alex Asante-Atuobi</b>	-	Management Accountant
<b>Gladys Agyemang-Serebour</b> <i>BSc. (Admin) Accounting, EMBA (Finance)</i>	-	Projects Accountant

## SCHOOL OF BIOMEDICAL AND ALLIED HEALTH SCIENCES

### ADMINISTRATION

<b>Solomon Fiifi Ofori-Acquah</b>	-	Professor/Dean
<b>Richard Daah</b>	-	School Officer/ Snr Assistant Registrar
<i>BA (Hons), MPA (Ghana)</i>		
<b>Alex Nii Than Crabbe</b>	-	School Accountant

### CURRICULUM FOR BIOMEDICAL SCIENCES: LEVEL 100, 200 AND 300 COURSES

#### FACULTY

#### BASIC SCIENCES AND PARACLINICAL DEPARTMENTS

<b>Clifford Nii Boi Tagoe</b>	-	Professor
<i>MB ChB (Ghana), PhD (Leicester)</i>		
<b>Aaron Nii Lante Lawson</b>	-	Professor
<i>MB ChB (Ghana), PhD (Leicester)</i>		
<b>Yao Tettey</b>	-	Professor
<i>MB ChB (Ghana), DCP (London), FWACP</i>		
<b>Albert George Baidoo Amoah</b>	-	Professor
<i>MB ChB (Ghana) PhD (Surrey), MRCP (UK), FRCP, FWACP</i>		
<b>T. D. Osafo</b>	-	Professor
<i>MB ChB, DCP, DPath, MRCPPath, FRCPath</i>		
<b>Jehoram Tei Anim</b>	-	Professor
<i>MB ChB, FWACP</i>		
<b>Agyeman Badu Akosa</b>	-	Professor
<i>MB ChB, DCP, FWACP</i>		
<b>Edwin K. Wiredu</b>	-	Professor
<i>MB ChB (Ghana), MRCPPath, MIAC, FWACP</i>		
<b>Julius Abraham Addo Mingle</b>	-	Professor
<i>B.Pharm (UST), Dip.Bact (Tor), MSc, PhD (Conn)</i>		
<b>George Lutterodt</b>	-	Professor
<i>BSc. MSc. PhD</i>		
<b>Andrew A. Adjei</b>	-	Professor
<i>MSc (Japan), PhD (Japan)</i>		
<b>Patrick Ferdinand Ayeh-Kumi</b>	-	Professor/Provost
<i>Dip. (Denmark), B.Sc., M.Phil. PhD. (Ghana)</i>		
<b>Frederick Kwaku Addai</b>	-	Associate Professor
<i>BSc (Ghana), PhD (Leicester)</i>		
<b>Mercy Jemima Newman</b>	-	<b>Head of Department</b> Associate Professor
<i>MB ChB (Ghana), MSc (Lond), FWACP</i>		
<b>IFA Hesse</b>	-	Associate Professor
<i>BSc. MB ChB, PhD, MRCP, FGCP</i>		
<b>Richard K. Gyasi</b>	-	Associate Professor
<i>MB ChB (Ghana), DCP, FWACP</i>		
<b>Joseph Kpakpo Acquaye</b>	-	<b>Head of Department</b> Associate Professor
<i>MB ChB (Lond), Dip. Clinical Path (Lond), Dip. RC Pathology (UK), FWACP</i>		
<b>Stephen Asante-Poku</b>	-	Associate Professor
<i>BSc (K'si), PhD (Windsor)</i>		
<b>Eric Sampane- Donkor</b>	-	Associate Professor
<i>BSc. (Hons.), M.Phil. (Ghana.), PhD</i>		

<b>Yaw Afrane</b> <i>PhD</i>	-	Associate Professor
<b>Kwesi Agyei Bugyei</b> <i>BVSc VMD, MSc PhD (Guelph)</i>	-	Associate Professor
<b>Festus Komla Adzaku</b> <i>MB ChB (Ghana), PhD (London)</i>	-	Associate Professor
<b>Henry Asare-Anane</b> <i>BSc., M.Phil. . (Ghana) PhD</i>	-	Associate Professor <b>Head of Department</b>
<b>Kwamena Wilberforce Sagoe</b> <i>BSc (Ghana), MSc (Sweden) PhD (Ghana)</i>	-	Associate Professor <b>Head of Department</b>
<b>Paul Kwesi Buamah</b> <i>BSc. (Hons.), MSc. DIC, MBBS, C.Chem. MRSC. MD (London), MB Ch.</i>	-	Senior Lecturer
<b>Edeghonghon Olayemi</b> <i>MBBS, FWACP</i>	-	Senior Lecturer
<b>Abeyie B. Atonsah Prempeh</b> <i>BSc (Lond), MB ChB (Ghana), PhD (Lond)</i>	-	Senior Lecturer
<b>Esther Dennis</b> <i>BSc, MSc M.Phil. PhD (Ghana)</i>	-	Senior Lecturer
<b>Sylvester Yaw Oppong</b> <i>MB ChB (Ghana) PhD (Leeds)</i>	-	Senior Lecturer
<b>Bartholomew Dzudzor</b> <i>BSc, M.Phil., PhD (Ghana)</i>	-	Senior Lecturer <b>Head of Department</b>
<b>Nii Ayite Aryee</b> <i>BSc, M.Phil. . (Ghana) PhD (Japan)</i>	-	Senior Lecturer <b>Head of Department</b>
<b>Charles Antwi-Biosiako</b> <i>BSc. (Hons.) (Zoology) M.Phil., PhD (Ghana)</i>	-	Senior Lecturer <b>Head of Department</b>
<b>Patience Tetteh-Quarcoo</b> <i>BSc, M.Phil. (Ghana), PhD</i>	-	Senior Lecturer
<b>Simon K Attah</b> <i>BSc. MSc, PhD</i>	-	Senior Lecturer
<b>Elizabeth S. Bannerman</b> <i>BSc. PhD</i>	-	Senior Lecturer
<b>Nicholas Dzifa Dayie</b> <i>BSc (Hons.) M.Phil, PhD</i>	-	Senior Lecturer
<b>Daniel Ansong Antwi</b> <i>BSc Dip Ed(UCC) PhD (USC)</i>	-	Senior Lecturer
<b>John Ahenkorah</b> <i>BSc. (Hons.), Dip. Educ. (UCC), M.Phil.(Ghana.) PhD(Leicester)</i>	-	Senior Lecturer
<b>Yvonne Dei-Adomankoh</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Saviour Kwaku Adjenti</b> <i>BSc. (Hons.) UST, M.Phil. (Ghana.), PhD</i>	-	Lecturer
<b>Kevin Kofi Adutwum-Ofosu</b> <i>BSc. (Hons.) Dip. Educ. (UCC), M.Phil. (Ghana), PhD</i>	-	Lecturer
<b>Bismark Afedo Hottor</b> <i>MB ChB (Ghana), PhD (Leicester)</i>	-	Lecturer
<b>Seth Amanquah</b> <i>BSc.), M Phil, PhD (Ghana)</i>	-	Lecturer
<b>Grace Ababio</b> <i>PhD</i>	-	Research Fellow

<b>Micheal Blay</b> <i>BSc.(Hons.) M.Phil. (Ghana)</i>	-	Lecturer
<b>Seth Kwabena Amposah</b> <i>BSc M Phil. PhD (Ghana)</i>	-	Lecturer
<b>Charles Awortwe</b> <i>M Phil</i>	-	Assistant Lecturer

1.0 **GENERAL REGULATIONS**

As pertains in the University Handbook

2.0 **ADMISSION TO THE SCHOOL OF BIOMEDICAL AND ALLIED HEALTH SCIENCES:**

2.1 **THE PRE-CLINICAL PROGRAM**

Further to the General Regulations regarding admission into the University of Ghana, admission to the School of Biomedical and Allied Health Sciences for the Pre-Clinical Programme and MB ChB Programme shall follow a written entrance examination and an interview of eligible candidates to be based on Senior High School performance (WASSCE results). However, all GCE A' Level, International Baccalaureate and its equivalent applicants would be considered, and admitted to Level 100.

3.0 **ACADEMIC YEAR/STRUCTURE**

3.1 **THE ACADEMIC SESSION**

This shall comprise two semesters.

Semesters 1 & 2 (in the Faculty of Sciences) shall be used to upgrade the level of science of the WASSCE and other candidates. During this first year of the programme a semester shall be of 16 weeks duration, which will be structured as follows:

- 13 weeks of Teaching
- 1 week of Revision
- 2 weeks of Examinations.

3.2 **PROGRESSION**

To progress to Level 200 a candidate shall be required to make a minimum Cumulative Grade Point Average (CGPA) of 2.0 that is Grade C, which is equivalent to mark of 60 – 64% (interpreted as *average* by the new Student Handbook for College of Health Sciences).

3.3 **SEMESTERS 3, 4, 5 & 6 (PRE-CLINICAL PROGRAMME)**

A semester shall be of 18 weeks duration and be structured as follows:

- 15 weeks of Teaching
- 2 weeks of Revision
- 1 week of Examinations

4.0 **LEVELS 200 & 300 MODULES**

Students shall be taken through the following Modules: Cell Biology, Genes in Health and Disease, Muscle-skeletal System, Cardiovascular and Respiratory Systems, Nutrition and Metabolism, Urinary System, Body Fluids and Acid Base Regulation, Gastrointestinal System, Mechanism of Disease, Infection and Immunity, Reproductive and Endocrine System, Neuroscience, Head and Neck, Haemopoietic

and Lymphoreticular Systems, and Clinical Pharmacology, Emergency Medicine and Clinical Seminars

**5.0 DEFINITION OF MODULE**

- i) A module shall be defined as a course run for one day (six/seven hours) per week per semester
- ii) Two/Three- hour Team Based Learning = 1 session
- iii) Two/Three-hour Practical = 1 session

**6.0 GRADING SYSTEM FOR MODULES**

6.1 STUDENTS PERFORMANCE IN A MODULE SHALL BE GRADED AS FOLLOW:

LETTER GRADE	MARKS	GRADE POINT	INTERPRETATION
A	80-100	4.0	OUTSTANDING
B+	75 - 79	3.5	Very Good
B	70 – 74	3.0	Good
C+	65 – 69	2.5	Fairly Good
C	60 - 64	2.0	Average
D+	55 - 59	1.5	Below Average
D	50 - 54	1.0	Marginal Pass
*E	45 - 49	0.5	Unsatisfactory
F	0 - 44	0	Fail

Other Grades include:

GRADE	INTERPRETATION	Grade Point
X	Fail	0
Z	Disqualification	0
I	Incomplete	0
Y	Continuing	0
AUDI	Audit	0

**6.2 DEFINITION OF GRADES**

PASS GRADE: Grade A- C constitute Pass grades

FAILURE GRADES: Grade D, F, X, Z constitute failure grades

CONTINUING: A grade Y (for Continuing) shall be awarded at the end of a semester to any student who is taking a module which continues into the next semester.

AUDIT: A grade AUDI shall be awarded for attendance at lectures but where no examination is taken, or where an examination is taken, but no mark can be returned, for good reasons.

**6.3 NON- COMPLETION OF MODULE:**

- i) A grade I (for incomplete) shall be awarded to a student who is unable to complete a module for reasons adjudged by the Board of Examiners as satisfactory. Such a student shall be expected to complete the Module the very next time the module is available.
- ii) A grade X shall be awarded to a student who is unable to complete a

module for reasons adjudged by the Board of Examiners as unsatisfactory.

#### **7.0 DISQUALIFICATION**

- i) A grade Z denotes Disqualification from an examination as a result of an examination malpractice or offense, and shall be awarded whenever it is established that a candidate had attempted to gain an unfair advantage in an examination, be it in a principal subject or an Ancillary or any other paper.
- ii) A candidate awarded a grade Z may be debarred from taking a University Examination for a stated period, or indefinitely, or may be expelled from the University altogether.
- iii) A grade Z may be awarded only by the Board of Examiners.

#### **8.0 PROBATION AND WITHDRAWAL**

A student who obtains a grade less than Grade C (60%) in a module shall be eligible for the Supplementary Examinations.

A student who fails to obtain the requisite passes in all modules after the Supplementary Examinations shall be asked by the School Officer to repeat the year and the modules.

A student who fails to obtain the requisite pass in all the modules after repeating the year shall be asked by the School Officer to withdraw from the School of Biomedical and Allied Health Sciences.

A student can proceed to the next stage of the programme if and only if he/she has passed all the modules of the preceding level.

#### **9.0 DURATION OF PROGRAMME**

The minimum period for the Pre-Clinical Sciences programme shall be 4 semesters and the maximum period shall be 8 semesters.

A candidate who is unable to complete his/her programme within the maximum period allowed shall lose all credits accumulated. Such a candidate shall not be allowed to re-apply for admission into the Pre-Clinical Sciences/ MBChB degree programme.

#### **10.0 INTERRUPTON OF STUDY PROGRAMME**

A student may break his/her study programme but may not break for more than 4 continuous semesters, so however that the maximum period allowable for the completion of the programme is not exceeded. Such a student shall be allowed to continue the programme from where he/she had left off.

A student who wishes to interrupt his/her course of study shall apply in advance to the Dean of the School of Biomedical and Allied Health Sciences, stating reasons why he/she wants to interrupt his/her study programme, and permission duly granted before he/she leaves the University. The decision of the Dean shall be communicated to the applicant by the School Officer before he/she leaves the University.

A student who breaks his/her studies for more that 4 continuous semesters shall be deemed to have lost any accumulated credits. Such a student may be allowed to re-apply for admission to the School of Biomedical and Allied Health Sciences.

Where the ground for interruption of studies is medical, the Head of Medical School Clinic/University Hospital shall be required to advise the Dean on the propriety and

length of period of interruption. The Dean shall cause the Head of Medical School Clinic/ University Hospital to investigate any medical report reaching his office from any health delivery facility outside the Medical School Clinic/University Hospital and advice accordingly.

**11.0 SCHEME OF EXAMINATION FOR THE PRE-CLINICAL PROGRAMME**

A final (end-of-semester) examination shall normally be required as a part of every module. An examination schedule showing time and place of examination for each module shall be published each semester.

The marks obtained in the end-of-semester examination shall contribute 60% of the grade for the module while continuous assessment shall contribute the remaining 40% (except for practicals or other modules which may be assessed entirely by continuous assessment).

**12.0 ELIGIBILITY FOR EXAMINATIONS**

A student shall attend all such lectures, tutorials, seminars and practicals and undertake all other assignments as approved by the University.

Each Department shall, with the approval of the Academic Board, determine the requirements for the subjects/modules they offer.

Further to 12.1 above, a student shall attend lectures, tutorials, practicals and other activities prescribed for the modules for which he/she has registered, and to execute all assignments given.

A student who does not fulfil the requirements for any module /subject shall not be allowed to take the examination for that module.

In any case, a student who is absent for a cumulative period of 21 days from all lectures, tutorials, and other activities prescribed for any module in any semester shall be deemed to have withdrawn from the module. Such a student shall not be permitted to sit for the semester examination.

**13.0 REGISTRATION FOR EXAMINATION**

Registration for a School of Biomedical and Allied Health Sciences Examination shall require endorsement of the Registration Form by the Head of Department/ Module Leader to the effect that the candidate has pursued satisfactorily the approved course(s) of study being offered over the prescribed period, and has attended at least 85% of lectures, tutorials, practicals and other activities prescribed for the module(s). A candidate's registration shall not be valid unless it is so endorsed.

Endorsed as in (13.1) above shall be withheld if a candidate is not deemed to have followed satisfactorily the approved module of study (as in section 12).

In any event of the withholding of an endorsement, the Head of Department/Module Leader shall request the confirmation by the Board of the School of Biomedical and Allied Health Sciences.

**14.0 SUPPLEMENTARY EXAMINATIONS**

The Examinations' Board shall decide whether a student who fails in any module shall be allowed to re-write the examination in the failed module as a Supplementary Examination (to be held in the Long Vacation). If he/she passes the supplementary Examination he/she shall be awarded a grade not higher than C ( ie 60 - 64%). For allied health related courses, a student who fails in any course shall be allowed to re-write the examination in the failed course as a Supplementary Examination. If he/she passes the supplementary examination, he/she shall be awarded a mark no exceeding

50%.

Supplementary Examination shall not include continuous assessment marks.

Supplementary Examination shall be held six weeks after the main examination.

A student shall be allowed to re-write Supplementary Examinations in not more than **3 modules** at any time. A student who at any time would be required to re-write Supplementary Examinations in more than **3 modules** shall repeat the year.

For allied health related courses a student shall not be allowed to take more than 5 courses in all subject areas at any one time as supplementary examinations. Allied Health Students who at any time would be required to re-write Supplementary Examinations in more than **5 subject areas** shall repeat the year.

#### **15.0 DEFERMENT OF EXAMINATION**

**On Grounds of Ill- Health:** A student has satisfied all the requirements as specified in Section 14, but if unable to take the main (end of semester) examination on the grounds of Ill- health, shall, on application to the School Officer, and on provision of a Medical Certificate issued or endorsed by the Head of the Medical School Clinic/ University Hospital be allowed to take supplementary examination as his/her main examination. He /she shall be credited with the grade obtained in the supplementary examination. Subsequent application for deferment, on grounds of ill- health, shall be subject to a Medical Certificate issued by a properly constituted Medical Board.

**On Grounds other than Ill-health:** In cases of deferment on grounds other than ill-health, the Dean of the School of Biomedical and Allied Health Sciences shall invite the applicant for interview. It shall be the students' responsibility to satisfy the School of Biomedical and Allied Health Sciences beyond reasonable doubt why he/she wishes to defer the examinations.

In all cases of deferment of examinations, the applicant(s) shall obtain written responses from the School Officer before leaving the School of Biomedical and Allied Health Sciences.

#### **16.0 EXAMINERS' BOARD**

As pertains under the New Collegiate System

#### **17.0 DECLARATION OF RESULTS**

Results of semester examinations, taken at the end of each semester shall normally be published by the College Secretary. A result slip indicating the student's performance in the examination shall be made available to the student.

#### **18.0 FACULTY REQUIRED COURSES**

- i) Psychology
- ii) Medical Sociology
- iv) Medical Computer Literacy

Students are required to take the following courses in the Departments of Sociology and Psychology at the University of Ghana:

- PSYC 201: Introduction to General Psychology (3 Credits)
- SOCI 316: Medical Sociology (3 Credits)
- MEDS 301: Medical Computer Literacy (2 Credits). The course in the Medical Computer Literacy is run by the College Library.

### 18.1 COURSE OBJECTIVES

The main objective of the course is to equip students with the requisite skills and knowledge to reflect the rapid changes in technology and the increasing availability of electronic sources that are changing library services. The course also would equip the student with skills that will enable them to be in a better position to be more independent in information seeking. At the end of the course the student will:

- 1) be able to appreciate the various strategies of information retrieval and the wide range of information sources available.
- 2) be knowledgeable in the use of the computer as an electronic resource.

### 19.0 ORGANIZATION OF CURRICULUM

The curriculum organization is modular and the instructional design is outcome-driven. In addition, the two-year pre-clinical programme is divided into four semesters of eighteen weeks per semester.

The following indicates the structure of the curriculum:

- Programme will be run on semester basis.
- Each module will deal with the topic or system of the body in an integrated and interdisciplinary way.
- Four modules will/should be completed in each of semesters three to five, and three modules in semester 6.
- Teaching methodologies will be as follows:
  - Didactic expert presentation (Lecture)
  - Facilitated and Team-based/problem-based/case-based learning
  - Laboratory practicals and simulations.
  - Tutorials/seminars and small group discussions

### 20.0 ASSESSMENT

Assessment of students will be in the form of Formative and Summative. Attendance at *all* scheduled events is compulsory; attendance will be monitored and will form part of the assessment

- Formative Assessment( In-course Assessment)  
Students will be assessed through:
  - MCQ
  - Short essays
  - Objective Structured Clinical Examination (OSCE)
  - Objective Structured Practical Examination (OSPE)
  - Orals
  - Team- based Learning
- Summative assessment (End of Semester Assessment)  
At the end of each semester students will be assessed through:
  - MCQ
  - Long/short essays
  - Objective Structured Clinical Examination (OSCE)
  - Objective Structured Practical Examination (OSPE)
  - Orals
- Weighting of component:
  - Formative Assessment- 30%
  - Summative Assessment- 70%

In the summative assessment, there should be standardization in the methods of

assessments of the various modules. Clinical Seminars will be formally assessed as part of Module BAHS 336: Clinical Pharmacology, Emergency Medicine, Transfusion Medicine and Clinico-Pathological Conferences/Seminars at the end of semester six and will be graded as pass or fail. In order to proceed to the clinical phase of the training a student will have to obtain a pass (pass mark is 60 %) in all modules.

**21.0 STUDENT IN GOOD STANDING**

A student in good standing shall be one whose Cumulative Grade Point Average (CGPA) is at least 2.00 (Grade C)

**22.0 MODULE CODE**

The letter code for the programme is **BAHS** (Biomedical Allied Health Sciences)

**22.1 MODULE LEADER**

A Module Leader will be the person responsible for coordinating all the activities within a module and should be teaching a topic(s) in the module. A Module Leader in conjunction with members of the module team will be responsible for the day to day management of the module within the programme including the design, teaching and learning approaches. The module leader shall be a faculty member of School of Biomedical and Allied Health Sciences and shall be appointed by the Dean.

The Module Leader will also ensure that:

- a. Content and learning outcomes for each module are written.
- b. Assessment procedures are adhered to.
- c. The coordination and monitoring of assignments are done.
- d. Questions for modules are collated.
- e. Evaluation for the module for subsequent improvement is carried out.
- f. The module team meets at least twice every semester

**23.0 PROGRAMME ORGANIZATION**

Modules BAHS 231, 233, 235, 237 would be studied during semester three; modules BAHS 232, 234, 236, 238 in semester four; modules BAHS 331, 333, 335, 337 in semester five and modules BAHS 332, 334, 336 in semester six. Each module will run on the same day each week for 15 consecutive weeks. Attendance at all scheduled events is compulsory.

*Semesters 1 and 2 (in the Faculty of Science) shall be used to upgrade the level of science of the SSSCE candidates to levels currently prevailing at the GCE Advanced Level in the Sciences. During this first year of the programme a semester shall be of 16 weeks duration, which will be structured as follows:*

13 weeks of Teaching

1 week of Revision

2 weeks of Examinations.

**Levels 100 Biological Sciences Option:** All the courses in Level 100 are compulsory.

**SEMESTER ONE**

<b>COURSE CODE</b>	<b>TITLE</b>	<b>CREDITS</b>
UGRC 150	Critical Thinking and Practical Reasoning*	3
ABCS 101	Introduction to Animal Biology	3
CHEM 111	General Chemistry I	3
CHEM 110	Practical Chemistry	1
PHYS 101	Practical Physics I	1
PHYS 113	Mechanics and Thermal Physics	2
MATH 101	General Mathematics	3
UGRC 110	Academic Writing*	3
	<b>TOTAL CREDITS</b>	<b>19</b>
*University required course		

**SEMESTER TWO**

<b>COURSE CODE</b>	<b>TITLE</b>	<b>CREDITS</b>
UGRC 110	Academic Writing II*	3
UGRC 130	Understanding Human Societies*	3
BOTN 104	Growth of Flowering Plants	3
CHEM 112	General Chemistry II	3
CHEM 110	Practical Chemistry	1
PHYS 102	Practical Physics II	1
PHYS 114	Electricity and Magnetism	2
UGRC 220-238	Introduction to African Studies*	3
	<b>TOTAL CREDITS</b>	<b>19</b>
*University required courses		

**SEMESTER THREE**

<b>MODULE CODE</b>	<b>MODULE TITLE</b>	<b>CONTRIBUTING DEPARTMENTS</b>
BAHS 231	Cell Biology	Anatomy, Medical Biochemistry, pharmacology and Physiology
BAHS 233	Genes in Health and Disease	Medical Biochemistry, Pathology, Pharmacology and Haematology
BAHS 235	Musculo-Skeletal System	Anatomy, Pharmacology, Chemical Pathology, Physiology, and Radiology
BAHS 237	Cardiovascular and Respiratory Systems I	Physiology, Pathology, Anatomy, Pharmacology, Microbiology Medicine and Child Health

**SEMESTER FOUR**

<b>MODULE CODE</b>	<b>MODULE TITLE</b>	<b>CONTRIBUTING DEPARTMENTS</b>
BAHS 232	Gastrointestinal System	Pharmacology, Anatomy, Chemical Pathology, Physiology, Pathology, Microbiology Child Health, Medicine, and Surgery
BAHS 234	Mechanism of Disease	Pathology, Chemical Pathology, Internal Medicine and Child Health
BAHS 236	Head and Neck	Anatomy, Maxillofacial Surgery, ENT, Basic Dental Science and Ophthalmology
BAHS 238	Cardiovascular and Respiratory Systems II	Pharmacology, Physiology, Pathology, Anatomy, Medicine, Child Health and Microbiology

**SEMESTER FIVE**

<b>MODULE CODE</b>	<b>MODULE TITLE</b>	<b>CONTRIBUTING DEPARTMENTS</b>
BAHS 331	Nutrition and Metabolism	Medical Biochemistry, Chemical Pathology, Physiology, Medicine, Child Health, Haematology, Pharmacology, Dietetics and Psychology/ Psychiatry
BAHS 333	Urinary System, Body Fluids and Acid Base Regulation	Chemical Pathology, Surgery, Physiology, Internal Medicine, Anatomy, Pharmacology, Anesthesia, Microbiology and Pathology.
BAHS 335	Infection and Immunity	Microbiology, Community Health, Child Health, Internal Medicine, Obst. & Gynae., Pathology and Pharmacology
BAHS 337	Reproductive and Endocrine System	Pathology, Obst.&Gynae., Anatomy, Physiology, Chemical Pathology, Internal Medicine, Pharmacology and Microbiology.

**SEMESTER SIX**

<b>MODULE CODE</b>	<b>MODULE TITLE</b>	<b>CONTRIBUTING DEPARTMENTS</b>
BAHS 332	Neuroscience	Anatomy, Physiology, Pathology, Pharmacology, Neurosurgery, Internal Medicine and Child Health
BAHS 334	Haemopoietic and Lymphoreticular Systems	Haematology, Pathology, and Anatomy
BAHS 336	Clinical Pharmacology, Emergency Medicine, Transfusion Medicine and Clinico-Pathological Conferences/Seminars	Internal Medicine, Pharmacology, Child Health, Surgery, Obst. & Gynae., Pathology, Haematology, Chemical Pathology and Psychiatry.

**Details of Modules****BAHS 231: Cell Biology**

The module aims at helping students explain the concept of the cell as the basic functional unit of life, its embryological derivations, and formation of tissue types, general relationship between cell and tissue function, and the effects of drugs on cell function. The content of the course will include: Cell Structure, embryologic development and tissue types; Cell physiology, General and Autonomic Pharmacology; Integumentary System; Structure of macromolecules; Enzymes: catalysis, kinetics, regulation, clinical enzymology.

**BAHS 232: Gastrointestinal System**

The module aims at helping the student understand the normal structure and variations, function, and development of the human gastrointestinal and hepatobiliary systems and how their structure and functions are altered in common diseases. The pharmacology of drugs used in the treatment and management of common diseases of the systems will be discussed. Other topics to be covered include histology and gross anatomy of organs of the gastro-intestinal system as well as diseases and infections of the gastrointestinal and hepatobiliary tracts. Pharmacologic properties of drugs used to treat and manage gastrointestinal disorders.

**BAHS 233: Genes in Health and Disease**

To enable students to understand the fundamental processes of the flow of biological information, inheritance, mutation and how these relate to disease causation and response to treatment. Principles of gene and chromosomal analysis, the issues concerning genetic screening, gene therapy and appreciation of the central nature of genetics to modern medicine shall be explained. The course content will cover areas such as: Nucleotides and nucleosides structure and metabolism, nucleic acids structure and function, Chromosomes and gene structure and regulation, Processes of gene expression and its associated mutations and disorders.

**BAHS 234: Mechanism of Disease**

The aim of this module is to introduce students to the scientific basis of disease and help them to understand how a variety of agents and factors cause different basic pathological processes, the underlying mechanisms of these processes and how these subvert morphology and/or function of tissues, organs, systems and the whole human body and result in disease. Topics to be treated include: Characteristic and nomenclature of disease; cellular basis of disease;

cellular response to injury. Disorders of blood flow; Tumors and tumor markers.

**BAHS 235: Musculo-Skeletal System**

The module is designed to equip students with knowledge of the structure and functions of the musculoskeletal system, in order to understand the pathophysiological manifestations, associated disease-causing microorganisms and the management of its disorders. Course content will include: Osteology of upper and lower limbs; Brachial and lumbo-sacral plexuses; Appendicular muscles; Interpretation of normal radiological images; Electrochemical events at the neuromuscular junction; Joint infections; Diseases of bones and joints; Hormonal regulation and drug treatment of musculoskeletal disorders

**BAHS 236: Head and Neck**

This module will equip students with adequate knowledge of the anatomy and function of the head and neck region and apply it to physical examination of patients with pathologies of the region. Students will also be able to, interpret normal and pathological radiological images and understand the principles of surgery of the region. Course content will include: Introduction to head & neck; Functional anatomy of the cranial; Cranial nerve palsies; The scalp; Triangles of the neck; The ear; The orbit & contents; Development of the face and palate and associated anomalies.

**BAHS 237: Cardiovascular and Respiratory Systems I**

The aim of this module is to study the basic concepts of anatomy, physiology, microbiology and pharmacology that are essential for understanding the structural and functional disturbances caused by cardiovascular and respiratory diseases. Topics to be covered include: The thoracic cage; Pleurae and lungs; Mechanics of respiration and pulmonary circulation; Mediastinum including the heart and the great vessels; Electrical activity of the heart and the principles of electrocardiography; Pulmonary gas exchange and transport; Common cold viruses and myxoviruses, causative agents of pneumonia including pulmonary tuberculosis.

**BAHS 238: Cardiovascular and Respiratory Systems II**

This module focuses on relating the causes, structural changes and pathophysiological mechanisms underlying the clinical manifestations of cardiovascular and respiratory diseases. The pharmacological properties of drugs used in the treatment and management of cardiovascular and respiratory diseases will also be covered. Course content will cover: Control of tissue blood flow; Transport of gases in blood; control of breathing; and cardiovascular-respiratory adjustments in health; Pharmacology of drugs used in the treatment and management of hypertension, ischaemia and heart failure; Pharmacology of anti-asthmatic drugs, mucolytics and respiratory stimulants.

**BAHS 331: Nutrition and Metabolism**

This module aims at helping students acquire knowledge about the sources and utilization of nutrients, energy balance, tissue metabolism and its control by the endocrine system; sufficient for them to understand the metabolic basis and treatment of diseases as well as appropriate dietary modifications in the prevention and management of pathological conditions. Topics to be treated include: Dietetics and the role of dieticians in the healthcare process; Sources of nutrients, macro-and micronutrients and antioxidants. Energy balance and obesity; Estimation of energy and nutrition and dietary management of some selected medical disorders.

**BAHS 332: Neuroscience**

This module will equip students with knowledge of the structure and functions of the nervous

system including the central, autonomic and peripheral nervous system in normal states. Students would understand the common microbial infections and pathological diseases of the nervous system and how these impact function and appreciate the effect of drugs on function of the nervous system in health and disease. Course content will cover the following areas: Internal and external features of the brainstem; Ascending and descending pathways; Ventricular system and CSF; Embryology of the Central Nervous System.

**BAHS 333: Urinary System, Body Fluids and Acid Base Regulation**

This module is designed to help students correlate structure to functions of the kidney, as well as the pathophysiology and microbial infections of the urinary system, and the need for the regulation of body fluids and acid-base balance of the body. Topics to be covered include: Water and electrolyte regulation, Acid-base disorders, Disorders of renal function, Urinalysis, Biology and microbial causes of urinary tract infection, diagnosis and treatment, Diuretic agents, Development of the urinary system and congenital abnormalities and Gross anatomy and histology of the urinary system

**BAHS 334: Haemopoietic and Lymphoreticular Systems**

The aim of this module is to outline the structure and function of the haemopoietic, lymphoreticular and haemostatic systems; the pathophysiology of diseases which arise from them and how they are affected by diseases from other systems. The course content will cover the following areas: Introduction to Haematology and Haematopoiesis. Haemolytic Anaemias. Primary and secondary lymphoid organs. White Blood Cells and their benign disorders. Haemostasis and Thrombosis. Haematological Malignancies and Oncogenesis. Haematology in systemic diseases: haematological changes in HIV.

**BAHS 335: Infection and Immunity**

This module is designed to introduce students to basic knowledge of the characteristics of infectious agents of medical importance and the interactions between them and humans as well as the environment that results in disease. Investigation, treatment, prevention and control of microbial diseases caused will be emphasized. Other topics to be treated include: General characteristics, structure and classification of bacteria, parasites, fungi, viruses, Chlamydiae, mycoplasma and rickettsiae; treatment, Host parasite relationships. Innate and acquired immunity; mechanism of immune response; tolerance and autoimmunity; immunodeficiency; transplantation; immunosuppressants, immunostimulants; chemotherapeutic agents.

**BAHS 336: Clinical Pharmacology, Emergency Medicine, Transfusion Medicine and Clinico-Pathological Conferences/Seminars**

The module aims to integrate preclinical science concepts, social, behavioural and pharmacological sciences in the context of their application to clinical medicine with emphasis on deeper understanding of patient care in the emergency setting. Toxicology: Principles of toxicology, Environmental toxicology, Occupational toxicology, Agents of domestic poisoning, Therapeutic drugs commonly involved in poisoning in man. Stem cell transplant: HLA and Blood groups; Stem cell transplant Clinical Blood transfusion: Donor selection, blood testing and grouping and blood components, Concept of safe blood transfusion, hazards of transfusion therapy

**Clinico-Pathological Conferences/ Seminars:**

<b>Seminar Topic</b>	<b>Time</b>	<b>Competencies: At the end of the seminar, the student should be able to:</b>	<b>Departments responsible</b>
CNS: Cerebrovascular disease (Stroke)	3 hour duration	Describe the underlying pathophysiological processes involved in cerebrovascular diseases and relate them to their emergency presentation and initial management	Medicine, Pathology, Clinical Pharmacology, Surgery, Microbiology
Renal: Acute Kidney Injury	3 hour duration	Describe the underlying pathophysiological and biochemical processes involved in acute kidney injury and relate them to their emergency presentation and initial management	Medicine, Pathology, Chemical Pathology and Surgery
Musculoskeletal: Sickle Cell Crises	3 hour duration	Describe the underlying pathophysiological processes involved in acute presentation of Sickle cell disease and relate it to its management	Haematology, Medicine and Pathology
Endocrine: Diabetic	3 hour duration	Describe the underlying pathophysiological processes involved in acute presentation of Sickle cell disease and relate it to its management	Haematology, Medicine and Pathology
Emergencies	3 hour duration	Pathophysiological and biochemical basis of diabetic emergencies and relate them to their management	Pathology, Chemical Pathology and Medicine
Infectious Diseases: HIV/AIDS; T.B.	3 hour duration	Recognise these conditions in acutely ill patients and direct them to the appropriate departments	Medicine, Pathology and Microbiology

**BAHS 337: Reproductive and Endocrine System**

This module aims at developing student's understanding of the processes of human reproduction and subsequent development through puberty to adulthood. It focuses on relating genetic changes and environmental agents including micro-organisms to development of patho-physiological changes that result in reproductive and endocrine disorders, the laboratory investigations and diagnoses and effects of drugs used in ameliorating these disorders. Pubertal changes in male and female; menstrual disorders and menopause; contraception; infertility; maternal physiology; lactation will also be treated.

## CURRICULUM FOR ALLIED HEALTH SCIENCE RELATED PROGRAMMES

### FACULTY ALLIED HEALTH SCIENCES

<b>George Awuku Asare</b>	-	Associate Professor
<i>B.Sc., M.Sc. (KNUST), PhD. (South Africa)</i>		<b>Head of Department</b>
<b>Ajediran Idowu Bello</b>	-	Senior Lecturer
<i>B.Sc., M.Sc. PhD (Ibadan)</i>		<b>Head of Department</b>
<b>Samuel Yaw Opoku</b>	-	Senior Lecturer
<i>B.Sc. (Howard), PhD (Lond)</i>		
<b>Richard Harry Asmah</b>	-	Senior Lecturer
<i>B.Sc. M.Phil (Ghana) PGD (Jap)</i>		
<b>Michael Mark Addae</b>	-	Senior Lecturer
<i>Cert in Med. Lab Tech., (Lond), M.Phil (Ghana), PhD</i>		
<b>Samuel S. Antwi-Baffour</b>	-	Senior Lecturer
<i>B.Sc., MSc., PhD. (Lond), PhD</i>		
<b>Samuel Anim-Sampong</b>	-	Senior Lecturer
<i>B.Sc., M.Phil. (Ghana) PhD. (KNUST)</i>		<b>Head of Department</b>
<b>A. Afrifa</b>	-	Senior Lecturer
<i>PhD</i>		
<b>Matilda Asante</b>	-	Senior Lecturer
<i>B.Sc. (Ghana), PhD (Lond)</i>		<b>Head of Department</b>
<b>Mahmood Abdulai Seidu</b>	-	Senior Lecturer
<i>B.Sc. (Bristol) M.Phil.,(Ghana), PhD</i>		
<b>Esther Brobbey</b>	-	Lecturer/Ag. Coordinator
<i>BSc. MSc. PhD (Lond)</i>		
<b>C.A. Brown</b>	-	Lecturer
<i>B.Sc., M.Phil., PhD. (Ghana)</i>		
<b>Isaac Anim-Baidoo</b>	-	Lecturer
<i>B.Sc., M.Phil. (Ghana), PhD</i>		
<b>A. Martin-Odoom</b>	-	Lecturer
<i>B.Sc., MSc. (KNUST), PhD</i>		
<b>Enid Owusu</b>	-	Lecturer
<i>Dip Lab Tech, BSc.(UCC), M.Phil. (Ghana), PhD</i>		
<b>George Antepim Pesewu</b>	-	Lecturer
<i>B.Sc. (UG.) MSc. (KNUST), PhD. (Lond)</i>		
<b>Joana Ainuson-Quampah</b>	-	Lecturer
<i>PhD</i>		
<b>Akua Serwaa Obeng-Folson</b>	-	Lecturer
<i>PhD</i>		
<b>Neal Boafo</b>	-	Lecturer
<i>PhD</i>		
<b>S. F. Cudjoe</b>	-	Lecturer
<i>Dip in MLT M.Phil. (Gh) MSc (Lond), PhD</i>		
<b>William Kwadwo Antwi</b>	-	Lecturer
<i>M.Sc, PhD</i>		
<b>Benjamin Arko-Boham</b>	-	Lecturer
<i>PhD</i>		
<b>Joel Yarney</b>	-	Lecturer
<i>MB.Ch.B FWACP</i>		
<b>Verna Vanderpuye</b>	-	Lecturer
<i>MB.Ch.,B FWACP</i>		

<b>Vincent Kwaku Hewlett</b> <i>MBCh.B.(Ghana),FWACS, FGCP, ExMBA</i>	-	Lecturer
<b>Adwoa Adjei Nkansah</b> <i>MB.Ch.B, FWACP</i>	-	Lecturer
<b>Anna Dedei Kuevi</b> <i>B.Sc. M.Phil (Ghana)</i>	-	Lecturer
<b>Freda Intiful</b> <i>BSc., MPhil (Ghana)</i>	-	Lecturer
<b>Laurene Boateng</b> <i>B.Sc. (KNUST), PGDE (UCC), M.Phil (Ghana)</i>	-	Lecturer
<b>N. I. Nii-Trebi</b> <i>B.Sc., M.Phil. (Ghana)</i>	-	Lecturer
<b>Lawrence Arthur</b> <i>Dip in Rad. (Lond), PGCE (UCC), MSc. (Kingston)</i>	-	Lecturer
<b>Jonathan Quartey</b> <i>Cert. Med. Lab. Tech.(Ghana), B.Sc. (Amsterdam) M.Sc. (Ibadan, MHPE (Maas), PhD</i>	-	Lecturer
<b>Gifty G. Nyante</b> <i>B.Sc. (Armstd), MSc. (Cape Town), PhD</i>	-	Lecturer
<b>James N. Kwadzo Gawugah</b> <i>B.Sc. (Ghana) M.Sc. (Kingston) PhD</i>	-	Clinical Tutor
<b>Noah Obeng-Nkrumah</b> <i>M.Phil, PhD (Ghana)</i>	-	Research Fellow
<b>Rebecca Steele-Dadzie</b> <i>B.Sc. M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Frank Hayford</b> <i>MPhil</i>	-	Assistant Lecturer
<b>Samuel Nii Adu Tagoe</b> <i>B.Sc. (KNUST), M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Emmanuel Bonney</b> <i>MPhil</i>	-	Assistant Lecturer
<b>David Nana Adjei</b> <i>B.Sc. (KNUST), M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Ampadu Ewurama Dede</b> <i>B.Sc., M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Nii Koney-Kwaku Koney</b> <i>B.Sc., M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Ransford Kyeremeh</b> <i>B.Sc. (KNUST), M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Peter O. Ndaah</b> <i>MSc, (UK)</i>	-	Assistant Lecturer
<b>Emmanuel Ayittey Tagoe</b> <i>B.Sc., M.Phil. (Ghana)</i>	-	Assistant Lecturer
<b>Broderick Y. Amoah</b> <i>M.Phil</i>	-	Assistant Lecturer
<b>Kennedy Bentum</b> <i>M.Phil</i>	-	Assistant Lecturer
<b>K. O. Appiah Kubi</b> <i>B.Sc. (Gh), M.Sc. (Cardiff)</i>	-	Assistant Lecturer
<b>Bertha Oppong-Yeboah.</b> <i>MSc</i>	-	Assistant Lecturer
<b>Josephine Ahenkorah</b> <i>MSc</i>	-	Assistant Lecturer
<b>Harriet Abbey</b> <i>M.Sc</i>	-	Assistant Lecturer

<b>Georgina Awuah-Mensah</b> <i>M.Phil</i>	-	Assistant Research Fellow
<b>Samuel K.W. Otoo</b> <i>MSc.</i>	-	Clinical Tutor
<b>Anna Hughton</b> <i>MCSP, MScPT (Alberta)</i>	-	Clinical Tutor
<b>Gloria Amegatcher</b> <i>M.Sc</i>	-	Clinical Tutor
<b>Kofi Kyei-Adesi</b> <i>MSc</i>	-	Clinical Tutor
<b>Derrick Seyram Sule</b> <i>Cert. in Radiologic Tech., B.Sc. (Gh), MSc. (U.K)</i>	-	Clinical Tutor
<b>Nana Akua Victoria Owusu</b> <i>MSc</i>	-	Clinical Tutor
<b>Clement Amponsah</b> <i>MSc</i>	-	Clinical Tutor
<b>Bernard Botwe</b> <i>MSc</i>	-	Clinical Tutor
<b>Josephine Ohenewaa Bamfo</b> <i>MSc</i>	-	Clinical Tutor
<b>Richard Appiah</b> <i>MPhil</i>	-	Clinical Tutor
<b>Ellen Serwaa Adomako</b> <i>UK; BSc (Psychology), Ghana. MSc (Occup. Therapy)</i>	-	Assistant Lecturer
<b>Rodger Godson Okpara</b> <i>Diploma, Grad. Dip. (Aarhus) MSc. (Aarhus)</i>	-	Assistant Lecturer
<b>Wisdom Senyo Kofi Gley</b> <i>HND, Grad. Dip. (Aarhus) MSc. (Aarhus)</i>	-	Assistant Lecturer

## BSC DENTAL LABORATORY SCIENCE

### PROGRAMME OBJECTIVES

- a. The Bachelor of Science in Dental Laboratory Sciences [B.Sc. (DLS)] programme is to provide opportunities for students, to develop and demonstrate knowledge and understanding; with intellectual abilities, professional, practical and key skills necessary to consider the human body as a mechanical system; together with the theoretical basis of engineering materials needed in designing health and safety requirements.
- b. In addition, the application of design principles; understanding human tissue reactions; as well as the need to apply research, are all very important in the programme. At the end of the B.Sc. (DLS) programme the students should gain a solid grounding, sound knowledge and understanding of the:

Fundamental construction and technical design factors relevant to dental laboratory sciences; Relevant physical and scientific concepts and principles applied to fabricating dental appliances, prostheses and the materials associated with them; Anatomy and physiology of the head and neck; Professional and ethical responsibilities of the dental laboratory scientist; Health and safety issues, including legislation; Dental team, its function and values, the roles and responsibilities; Biomaterials,

behavioural and biomedical sciences; Relevance and role of continual professional development; Application and relevance of research to the practice of dental laboratory sciences; and Clinical significance of dental laboratory sciences.

### LEVEL 100 COURSES

(All the Courses at Level 100 are Compulsory)

#### SEMESTER 1

Course Code	Course Title	Credit(s)
STAT 101	Introduction to Statistics	3
BAHS 103	Introduction to Microbiology	3
CHEM 111	General Chemistry I	3
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
BAHS 113	Introduction to Computer Studies	1
UGRC 150	Critical Thinking and Practical Reasoning	3
UGRC 110	Academic Writing I	3
<b>TOTAL CREDITS:</b>		<b>22</b>

#### SECOND SEMESTER

Course Code	Course Title	Credit(s)
SAHS 102	Human Anatomy	3
SAHS 104	Human Anatomy Practical	1
SAHS 106	Basic Physiology	3
SAHS 108	Basic Physiology Practical	1
SAHS 112	Introductory Psychology for Allied Health Sciences	2
SAHS 122	Introductory Biochemistry	2
GSPH 214	Writing for Public Health	3
UGRC 220	Liberal and African Studies	3
DLAB 102	Introduction to Dental Laboratory Sciences	1
DLAB 104	Basic Dental Material Science	1
DLAB 106	Introduction to Dental Morphology	1
<b>TOTAL CREDITS:</b>		<b>21</b>

#### DLAB 100 VOCATIONAL TRAINING I 3

This is a 4-week inter-semester Dental Laboratory training period at the end of Semester 2 to allow students to obtain practical hands-on experience. Students shall be evaluated at the end of the Vocational Training. The course is a pre-requisite for all Level 200 courses in Dental Laboratory Sciences.

## LEVEL 200 COURSES

*All the Courses at Level 200 are Compulsory*

### SEMESTER 3

Course Code	Course Title	Credit(s)
SAHS 205	Basic Computer Applications	3
SAHS 211	Statistics	2
PSCY 307	Human Growth and Development I	3
SOCI 316	Medical Sociology	3
DLAB 201	Dental Material Science I	2
DLAB 203	Dental Morphology	2
DLAB 205	Dental Morphology Practicals	1
DLAB 207	Dental Anatomy	1
DLAB 209	Complete Dentures I	1
DLAB 211	Complete Dentures Practicals I	1
DLAB 213	Removable Orthodontics I	1
DLAB 215	Removable Orthodontic Practicals I	1
<b>TOTAL CREDITS:</b>		<b>21</b>

### SEMESTER 4

Course Code	Course Title	Credit(s)
DLAB 202	Oral Pathology	3
DLAB 204	Oral Radiology	3
DLAB 206	Dental Materials Science II	2
DLAB 208	Complete Dentures II	1
DLAB 212	Complete Dentures Practicals II	1
DLAB 214	Removable Orthodontics II	1
DLAB 216	Removable Orthodontic Practicals II	1
DLAB 218	Removable Partial Dentures I	2
DLAB 222	Removable Partial Dentures Practicals I	1
DLAB 224	Fixed Prosthodontics I	2
DLAB 226	Fixed Prosthodontic Practicals I	1
<b>TOTAL CREDITS:</b>		<b>18</b>

### **DLAB 200 VOCATIONAL TRAINING II 3**

This is a 6-week inter-semester Dental Laboratory training period at the end of Semester 4 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake Dental Laboratory training in an accredited Dental Laboratory. Students shall be evaluated at the end of the vocational training. The course is a pre-requisite for all Level 400 courses in Dental Laboratory Science.

### LEVEL 300 COURSES

*All the Courses at Level 300 are Compulsory*

#### SEMESTER 5

Course Code	Course Title	Credit(s)
SAHS 301	Research Methodology	2
DLAB 301	Maxillofacial Prosthesis I	3
DLAB 303	Complete Dentures III	2
DLAB 305	Complete Dentures Practicals III	1
DLAB 307	Fixed and Functional Orthodontics	3
DLAB 309	Fixed and Functional Orthodontics Practicals	1
DLAB 311	Removable Partial Dentures II	2
DLAB 313	Removable Partial Dentures Practicals II	1
DLAB 315	Fixed Prosthodontics II	2
DLAB 317	Fixed Prosthodontics Practicals II	1
<b>TOTAL CREDITS:</b>		<b>18</b>

#### SEMESTER 6

Course Code	Course Title	Credit(s)
SAHS 302	Health Law and Ethics	2
DLAB 302	Maxillofacial Prosthesis II	2
DLAB 304	Introduction to Dental Implant Prosthesis	2
DLAB 306	Complete Dentures IV	2
DLAB 308	Complete Dentures Practicals IV	1
DLAB 312	Fixed Prosthodontics III	2
DLAB 314	Fixed Prosthodontics Practicals III	1
DLAB 316	Removable Partial Dentures III	2
DLAB 318	Removable Partial Dentures Practicals III	1
SLAB 306	Clinical Observation	3
<b>TOTAL CREDITS:</b>		<b>18</b>

#### **DLAB 300 Vocational Training III 3**

This is a 6-week inter-semester Dental Laboratory training period at the end of Semester 6 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake Dental Laboratory training in an accredited Dental Laboratory. Students shall be evaluated at the end of the Vocational Training. The course is a pre-requisite for all Level 400 courses in Dental Laboratory Science.

## LEVEL 400 COURSES

*All the Courses at Level 400 are Compulsory*

### SEMESTER 7

Course Code	Course Title	Credit(s)
SAHS 401	Principles of Management	3
DLAB 401	Dental Laboratory attachment in Fixed Prosthodontic	3
DLAB 403	Dental Laboratory attachment in Removable Partial Dentures	3
DLAB 405	Dental Laboratory attachment in Complete Dentures	3
DLAB 407	Dental Laboratory attachment in Removable Orthodontics	3
DLAB 420	Research Project	4
<b>TOTAL CREDITS:</b>		<b>19</b>

### SEMESTER 8

Course Code	Course Title	Credit(s)
SAHS 402	Applied Health Sciences Management	3
DLAB 402	Applied Fixed Prosthodontics	3
DLAB 404	Applied Removable Partial Dentures	3
DLAB 406	Applied Complete Dentures	3
DLAB 408	Applied Removable Orthodontics	3
DLAB 420	Research Project	4
<b>TOTAL CREDITS:</b>		<b>19</b>

#### **DLAB 102: Introduction to Dental Laboratory Sciences**

The aims of this Course are to introduce students to skills required for the successful and safe manipulation of materials and to the techniques required to construct dental prosthesis; to develop skills in relation to time management required to complete the various exercises within the Course; to develop basic skills to produce simple dental appliances; and to develop knowledge and understanding of requirements of simple dental appliances. Course content includes dental laboratory safety procedures and precautions including cross-infection decontamination and health and safety legislation. Concepts and techniques associated with the construction of dental casts in dental stone, dental articulators, semi-adjustable and fully adjustable, special trays in shellac, acrylic and metal, occlusal rims in wax, direct and indirect relining repairs, tissue protectors and orthodontic base plates.

#### **DLAB 104: Basic Dental Material Science**

This Course aims at developing an understanding of the general requirements of materials for both intra-oral and dental laboratory use; to foster an understanding of the structure of dental materials – their advantages and limitations. Areas to be covered include: Selection, evaluation and properties of dental materials. Impression materials, their classifications, constituents and functions. Dental plasters, manufacturing properties, classifications and uses. Dental waxes, base plate materials and their constituents, properties, classifications and uses. Dental separating materials, their classifications and uses. Dental abrading and polishing materials, their classifications and uses. Dental polymers, their manufacturing properties and handling characteristics.

#### **DLAB 106: Introduction to Dental Morphology**

The aim of this Course is to describe and understand important anatomic features, normal

morphology and various nomenclature systems of the human dentition. The following areas will also be covered; Dental morphology nomenclature and usage; Crown morphology; Root morphology; Roots in upper anterior and lower anterior; Deciduous and permanent teeth; and anatomical classification of teeth and names of surfaces.

**DLAB 201: Dental Material Science I**

The aims of this Course are to develop an understanding of the general requirements of materials for both intra-oral and dental laboratory use; to foster an understanding of the structure of dental materials and their advantages and limitations. Course content will include: Materials for intra-oral and dental laboratory use; Materials used for safe construction of dental appliances and restorations; Basic principles underlying materials technology, including the properties, processing and safe manipulation of dental materials; Current basic laboratory practices and performances and the properties and preparation of dental materials; Classification of dental materials according to structure and physical properties; Evaluation of the suitability of dental materials in relation to structure, physical and chemical properties.

**DLAB 203: Dental Morphology**

The aim of this Course is to describe anatomic features, normal morphology and understand the occlusal relationship of human dentition. Course content will include; Description of the unique anatomic features for all teeth in human dentition; identification of occlusal problems: Common clinical dental restorative procedures; Embrasures, contact points, and their relation to disease, anatomic changes due to age, developmental pits and grooves, accurate recording, documentation, contours and relationships, tooth eruption and exfoliation.

**DLAB 205: Dental Morphology Practicals**

The aim of this Course is to draw and carve important anatomic features, normal morphology and appreciate the occlusal relationship of human dentition. By the end of the Course, students should be able to draw and carve different views of all the teeth by their contours and anatomic features; appreciate the unique anatomic features for all the teeth in human dentition; and identify occlusal problems and record their presence. Carving in plaster/pumice and wax blocks of crown and root of permanent teeth, embrasures and contact points, developmental pits and grooves, contours and relationships, and anatomic changes due to age.

**DLAB 207: Dental Anatomy**

The aim of this Course is to appreciate anatomic factors affecting the design of prostheses, restorations and orthodontic appliances and to facilitate communication within the dental team. By the end of the Course, students should be able to illustrate a detailed knowledge and demonstrate an understanding of: Temporomandibular joint; Muscles of mastication, depression, tongue, facial expression, soft and hard palates, and pharynx; Facial and cranial skeleton; Teeth and surrounding structures, the oral cavity and other relevant surrounding structures of the head and neck; Oral environment and common disorders of the oral cavity; relate the above to the construction of dental restorations and appliances; and communicate clearly and accurately in oral and written forms within the dental team, Skeletal anatomy of the human head and neck. The anatomy of the orofacial musculature; Anatomy of the masticatory system and its effects on the oral environment. Patterns of tooth loss and eruption; and an outline of disorders and diseases, which affect the oral cavity.

**DLAB 209: Complete Dentures I**

The aims of this course are to introduce students to the use of dental articulators, clinical records and the principles of tooth arrangement; and to develop an understanding of the

conditions needed to maximise the function of dentures. By the end of the course, students should be able to make models from different types of impression materials; demonstrate an understanding of the suitability of types of material used to construct special trays; recognise the types and functions of dental articulators; recognise the types and functions of occlusal rims in the construction of dentures; select the correct mould and shade of acrylic teeth for set up; and demonstrate an understanding of single arch restoration in the construction of upper and lower complete dentures for class 1 skeletal jaw relationships in balanced articulation; Impression casting and Model making. Special trays. Occlusal rims. Types of dental articulators; Types of dental facebows. Mounting of models on different types of dental articulators.

**DLAB 211: Complete Dentures Practicals I**

The aim of this Course is to introduce students to the different types of impression materials and approaches of making models from each. By the end of the Course, students should be able to make models from different types of impression materials; construct occlusal rims using modelling wax; mount models on different types of dental articulators with/without facebow; fabricate acrylic teeth in the dental laboratory; set up full upper and lower complete dentures in class 1 skeletal jaw relationships; wax up, festoon and process complete acrylic dentures. Making models from different impression materials. Construction of special trays using various materials. Construction of occlusal rims. Mounting of models on different type of articulators.

**DLAB 213: Removable Orthodontics I**

The aim of this Course is to design and construct removable orthodontic appliances. By the end of the Course, students should be able to demonstrate a realisation of the aims and objectives of removable appliances in orthodontic treatment; demonstrate an understanding and recognition of the aetiology of malocclusion; demonstrate an understanding and application of the principles of design and construction of removable appliance components; apply knowledge gained to construct removable orthodontic appliances; and realise and evaluate the physiological changes that take place during tooth movements. Concept of normal occlusion. Study models and cephalometric radiographs: their roles in treatment planning and record keeping. Aetiology of malocclusion: soft tissue, hard tissue, local factors. Design of removable active orthodontic appliances.

**DLAB 215: Removable Orthodontic Practicals I**

The aims of this Course are to design and construct removable orthodontic appliances. By the end of the Course, the student should be able to construct a standard study model using orthodontic stone; construct various retainers used in orthodontic appliances; and construct different removable appliances in orthodontic treatment. Orthodontic trimming of study models and wire bending. Design of removable active orthodontic appliances.

**DLAB 202: Oral Pathology**

The aim of this Course is to expose the dental laboratory scientist to basic knowledge of oral pathology relative to their area of specialization in health care. Course content will include: Definitions, cellular alterations, cellular specialization, the fluid system of the body and description of oral lesions. Developmental diseases of soft tissue and bone. Developmental diseases of the teeth. Inflammation, healing, repair and regeneration. Infections with oral implications and required treatment alterations. Infections of the teeth. Autoimmune diseases with oral implications and required treatment alterations. Oral reactions to injury. Neoplasia. Diseases related to aging. Periodontal diseases and diseases of the dental pulp. Diseases of the

blood with oral implications and required possible treatment alterations.

**DLAB 204: Oral Radiology**

This course will enable students to demonstrate basic understanding of conventional and digital radiography in dentistry; assist in producing dental radiographs in the dental X-ray department; and demonstrate basic understanding of CT and MRI in dental and maxillofacial imaging. The production of X-rays, properties and interaction of X-rays with matter. Dental imaging modalities, types of dental films. Dental and Maxillofacial radiographic procedures. Radiographic Baselines and Planes used in imaging of the teeth. Angulations for dental imaging. Intra- and extra-oral imaging: periapicals, bitewings; occlusals and oblique dental imaging. OPG (Orthopantomography). Cephalometric radiography. Cone beam computer tomography (CBCT). Processing of dental images. Radiobiology and radiation protection in dental radiography.

**DLAB 206: Dental Material Science II**

This course will provide students with the knowledge needed to demonstrate an understanding of the suitability of materials, with regard to their use in oral and laboratory environments; understand the general requirements of materials for intra-oral and dental laboratory use; display a detailed knowledge of the materials used within the oral cavity and the dental laboratory, which are essential for the safe construction of dental appliances and restorations; demonstrate a thorough knowledge of the basic principles underlying materials technology, including the properties, processing and safe manipulation of dental materials; demonstrate an understanding of current basic laboratory practices and performances and the properties and preparation of dental materials; demonstrate an understanding of the classification of dental materials according to structure and physical properties; evaluate the suitability of dental materials in relation to structure, physical and chemical properties; and recognise and interpret numeric values from various sources.

**DLAB 208: Complete Dentures II**

This Course aims at introducing students to the use of dental articulators, clinical records and the principles of tooth arrangement; and developing an understanding of the conditions needed to maximise the function of dentures. By the end of the Course, students should be able to make models from different types of impression materials; demonstrate an understanding of the suitability of different types of materials used to construct special trays; recognise the types and functions of dental articulators; and recognise the types and functions of occlusal rims in the construction of dentures.

This Course is a continuation of **Complete Dentures I**. Types of dental facebows. Mounting of models on different types of dental articulators. Mounting of models on different types of dental articulators using face bows. Factors affecting the functions of upper and lower complete dentures. Selection and fabrication of acrylic teeth. Principles of occlusion. Introduction to balanced articulation.

**DLAB 212: Complete Dentures Practicals II**

The aim of this Course is to introduce students to the different types of impression materials and approaches of making models from each. By the end of the Course, students should be able to construct occlusal rims; mount models on different types of dental articulators with/without dental facebow; fabricate acrylic teeth in the dental laboratory; set up full upper and lower complete dentures in class 1 skeletal jaw relationships; and wax up, festoon and process complete acrylic dentures. This course is a continuation of **Complete Dentures Practicals I**. How to mount a model on different types of dental articulators using the facebow. Fabrication

of acrylic teeth. Setting up of full upper and lower complete dentures in class 1 skeletal jaw relationships. Wax up and festooning. Processing of complete acrylic dentures (flasking and finishing). Construction of full dentures to opposing natural and artificial dentitions.

**DLAB 214: Removable Orthodontics II**

This Course aims at designing and constructing removable orthodontic appliances. By the end of the Course, the student should be able to demonstrate a realisation of the aims and objectives of removable appliances in orthodontic treatment; demonstrate an understanding and recognition of the aetiology of malocclusion; demonstrate an understanding and application of the principles of design and construction of removable appliance components; apply knowledge gained to construct removable orthodontic appliances; and realise and evaluate the physiological changes that take place during tooth movements. This Course is a continuation of **Removable Orthodontics I**. Design of removable passive orthodontic appliances. Construction of appliances for orthodontic treatment. Effects of application of force to teeth and their supporting structures. Fitting and adjusting of appliances on the model. Clinical and dental team roles.

**DLAB 216: Removable Orthodontic Practicals II**

This Course aims at designing and constructing removable orthodontic appliances. By the end of the Course, the student should be able to construct a standard study model using orthodontic stone; construct various retainers used in orthodontic appliances; and construct different removable appliances in orthodontic treatment. This Course is a continuation of Removable Orthodontic Practicals I. Designing of removable passive orthodontic appliances. Construction of appliances for orthodontic treatment. Fitting and adjusting of appliances on the model.

**DLAB 218: Removable Partial Dentures I**

By the end of the Course, students should be able to synthesise the technical procedures needed to construct complex upper and lower partial dentures to acceptable clinical standards; advise on technical aspects during treatment planning; present partial dentures with modified palatal/lingual aesthetic or reinforced inclusions; create natural tissue colour and contour utilising denture base toning materials. Semi-adjustable dental articulators, e.g. 'Dentatus' and use of the dental facebows and associated clinical records. The relationship of the above to the physiology of the temporomandibular joint and mandible. The principles of tooth arrangement for class II and class III partial dentures.

**DLAB 222: Removable Partial Dentures Practicals I**

This course will enable students to construct complex upper and lower acrylic partial dentures to acceptable clinical standards; construct acrylic partial dentures with modified palatal/lingual aesthetic or reinforced inclusions; and create natural tissue colour and contour utilising denture base toning materials. It will cover topics such as articulation of models on semi-adjustable dental articulators (e.g. 'Dentatus'). The uses of dental facebows and associated clinical records and the arrangement of acrylic teeth for class II cases in acrylic partial dentures.

**DLAB 224: Fixed Prosthodontics I**

This Course aims at providing a firm basis for the construction of accurate fixed prosthesis required for conservative restorations. By the end of the Course, students should be able to develop conceptual and practical competencies in the construction of dies for fixed prosthesis; demonstrate an understanding of the principles involved in their design and construction; demonstrate an understanding of the various treatments for damaged teeth; relate the effect of occlusal forces to restorative design; and analyse the indications and techniques used to

construct a wide range of conservative restorations. Interpretation of prescriptions. Principles of occlusion and tooth preparation. Die Preparation and Model Making. Types of margins. Temporary Acrylic Jacket Crowns. Post and Core. Metallic Crowns. Metallic Crowns with Acrylic Facing.

**DLAB 226: Fixed Prosthodontic Practicals I**

The aim of this Course is to provide a firm basis for the construction of accurate fixed prosthesis required for conservative restorations. By the end of the Course, students should be able to produce dies for the construction of fixed prosthesis; fabricate acrylic jacket crowns; fabricate post and core; and fabricate metal crowns; Interpretation of prescription. Die Preparation and Model Making. Acrylic Jacket Crowns. Types of margins. Post and Core. Metallic Crowns. Metallic Crowns with Acrylic Facing.

**DLAB 301: Maxillofacial Prosthesis I**

The aim of this Course is to introduce students to the principles of maxillofacial prosthesis and the methods of construction. By the end of the Course, students should be able to demonstrate an understanding of the principles of intra and extra oral maxillofacial prosthetics; demonstrate an understanding of the occlusal principles in maxillofacial prosthetics; and list the different types of obturators. Introduction to maxillofacial prosthodontics. Types of maxillofacial defects. Types of maxillofacial prosthesis. The occlusal principles in maxillofacial prosthetics. Occlusal principles in maxillary defect prosthesis. Complete dentures in maxillofacial prosthetics. Removable partial dentures in maxillofacial prosthetics.

**DLAB 303: Complete Dentures III**

This Course aims at building on the introductory principles of treatment of the upper and lower arches and single arch edentulous patient and extending these to class II and class III skeletal jaw relationships; and developing an understanding of the concepts and construction processes of copy dentures. By the end of the Course, students should be able to relate knowledge of the upper and lower arches and single arch restoration to the construction of upper and lower complete dentures for class II and class III skeletal jaw relationships in balanced articulation and occlusion; and produce copy dentures and soft linings. Introduction to balanced articulation and occlusion. Principles of upper and lower complete tooth arrangement in class II and class III skeletal jaw relationship.

**DLAB 305: Complete Dentures Practicals III**

The aim of this Course is to build on the introductory principles of treatment of the upper and lower arches and single arch edentulous patient and extend these to class II skeletal jaw relationships. By the end of the Course, students should be able to construct an upper and lower complete dentures for class II skeletal jaw relationships in balanced articulation and occlusion; and produce copy dentures, relining, and rebasing, remaking and soft lining. Introduction to balanced articulation and occlusion. Principles of upper and lower complete denture tooth arrangement in class II. Relining, rebasing, remaking and soft lining.

**DLAB 307: Fixed and Functional Orthodontics**

The aim of this Course is to give the student a comprehensive understanding of fixed orthodontic and functional appliance techniques. By the end of the Course, students should be able to realise the objectives of fixed orthodontic treatment; demonstrate an understanding and application of the principles of design and construction of fixed appliance components; possess an applicable knowledge of the construction of fixed orthodontic appliances; evaluate the tooth movements and physiological changes which take place between the orthodontic treatment

modalities; differentiate between treatment modalities; and recognise the role of the Dental Laboratory Scientist within orthodontic treatment modalities. Fixed Appliance techniques. Design and construction of fixed appliances. Use of attachments and their designs. Anchorage. Principles, design and uses of functional appliances. Modes of action of functional appliances. Role of dental laboratory scientists in fixed and functional orthodontic treatment.

**DLAB 309: Fixed and Functional Orthodontic Practicals**

The aim of this Course is to enable students construct a range of fixed and functional orthodontic appliances. By the end of the Course, the students should be able to construct fixed appliances used in orthodontic treatment; and construct the different types of functional appliances used in orthodontic treatment. Fixed Appliance techniques. Principles, design and construction of fixed appliances. Use of attachments and their designs. Anchorage. Principles, design and uses of functional appliances. Modes of action of functional appliances. Use of attachments and their designs.

**DLAB 311: Removable Partial Dentures II**

This Course aims at applying the principles of tooth arrangement learnt in Complete Dentures to the construction of prostheses for patients requiring partial restorations. Further develop experience of arranging teeth in class II and class III skeletal jaw relationships. The use of semi adjustable dental articulators will be delivered, as well as Immediate Denture construction. Students will also develop a critical awareness of aesthetic and functional requirements of a combination of complete and partial dentures for individual patients. New methods of tooth arrangement will be learnt. By the end of the Course, students should be able to synthesise the technical procedures needed to construct complex upper and lower partial dentures to acceptable clinical standards; advise on technical aspects during treatment planning; present partial dentures with modified palatal/lingual aesthetic or reinforced inclusions; and create natural tissue colour and contour utilising denture base toning materials.

**DLAB 313: Removable Partial Dentures Practicals II**

The Course aims at training students to be able to construct complex upper and lower acrylic partial dentures to acceptable clinical standards; construct acrylic partial dentures with modified palatal/lingual aesthetic or reinforced inclusions; and create natural tissue colour and contour utilising denture base toning materials. The arrangement of acrylic teeth for class II and III cases in acrylic partial dentures. Alternative palatal/lingual design. Natural "set ups", negative or positive spaces. Colour tone for tissue naturalisation.

**DLAB 315: Fixed Prosthodontics II**

The aim of this Course is to provide a firm basis for the construction of accurate fixed prosthesis required for conservative restorations. By the end of this Course, the students should be able to demonstrate an understanding of all aspects of fixed Prosthodontics. Principles of fixed prosthodontics. Types of fixed prosthodontics. Types of pontics. Waxing of fixed prosthodontics. Metal ceramic crowns.

**DLAB 317: Fixed Prosthodontic Practicals II**

The aim this Course is to provide a firm basis for the construction of accurate fixed prosthesis required for conservative restorations. By the end of the Course, students should be able to fabricate inlays, onlays, porcelain fused to metal crowns (PFM), all ceramic crowns and bridges. Porcelain fused to metal crowns and bridges e.g. conventional and resin bonded bridges. All ceramic crowns. Inlay, onlay and pinlay restorations.

**DLAB 302: Maxillofacial Prosthesis II**

The aim of this Course is to enable students understand the principles of maxillofacial prosthesis and the methods of construction. By the end of the Course, students should be able to demonstrate an understanding of the principles of intra and extra oral maxillofacial prosthetics; demonstrate an understanding of the occlusal principles in maxillofacial prosthetics; and identify the different types of obturators. Occlusal principles in maxillofacial prosthetics. Occlusal principles in maxillary defect prosthesis. Fixed partial dentures in maxillofacial prosthetics. Fabrication of obturators. Fabrication of extra-orbital prosthesis. Fabrication of nose and ear episthesis. Fabrication of orbital prosthesis. Implants in maxillofacial prosthesis.

**DLAB 304: Introduction to Dental Implants Prosthesis**

Introduction and terminology. Occlusal considerations for implant-supported prostheses. Provisional prostheses. Single-tooth prosthetics. Partial edentulous implant prosthetics. Treatment planning for total edentulous mouth. Design of frameworks for complete prostheses. Treatment planning for the edentulous mandible with removable prostheses. Treatment planning for the edentulous mandible with fixed prostheses. Treatment planning for the edentulous maxilla with removable prostheses. Treatment planning for the edentulous maxilla with fixed prostheses. Implant supported overdentures. Interocclusal registration and remount procedures. Complications and solutions.

**DLAB 306: Complete Dentures IV**

This Course aims at building on the introductory principles of treatment of the upper and lower arches and single arch edentulous patient and to extend these to class II and class III skeletal jaw relationships; and developing an understanding of the concepts and construction processes of copy dentures. By the end of the Course, students should be able to relate knowledge of the upper and lower arches and single arch restoration to the construction of upper and lower complete dentures for class II and class III skeletal jaw relationships in balanced articulation and occlusion; and produce copy dentures and soft linings. This Course is a continuation of Complete Dentures III. Relining, rebasing, remaking and soft lining. Denture repair. Copy dentures.

**DLAB 308: Complete Dentures Practicals IV**

The aims of this Course are to build on the introductory principles of treatment of the upper and lower arches and single arch edentulous patient and extend these to class III skeletal jaw relationships; and to develop an understanding of the concepts and construction processes of copy dentures. By the end of the Course, students should be able to construct an upper and lower complete dentures for class III skeletal jaw relationships in balanced articulation and occlusion; and produce copy dentures, relining, and rebasing, remaking and soft lining. This Course is a continuation of Complete Dentures Practicals III. Complete tooth arrangement in class III skeletal jaw relationship. Denture repair. Copy dentures.

**DLAB 312: Fixed Prosthodontics III**

The aim of this Course is to provide a firm basis for the construction of accurate fixed prosthesis required for conservative restorations. By the end of this Course, the students should be able to demonstrate an understanding in all aspects of fixed Prosthodontics. This Course is a continuation of Fixed Prosthodontics II. Methods of casting dental alloys. Inlay, onlay and pinlay restorations. All-ceramic systems in fixed prosthodontics. Soldering of dental alloys, comparison of soldering techniques. Veneers. CAD-CAM systems.

**DLAB 314: Fixed Prosthodontic Practicals III**

The aim of this Course is to provide a firm basis for the construction of accurate fixed prosthesis

required for conservative restorations. By the end of the Course, the students should be able to fabricate inlays, onlays, porcelain fused to metal crowns (PFM), veneers, all ceramic crowns and bridges. This Course is a continuation of Fixed Prosthodontic Practicals II. Methods of casting dental alloys. Soldering of dental alloys, comparison of soldering techniques. Veneers. CAD-CAM.

**DLAB 316: Removable Partial Dentures III**

The aim of this Course is to enable students understand the principles and construction of cast removable partial dentures. By the end of this Course, the students should be able to list Kennedy's classification of cast partial dentures; and demonstrate an understanding of the principles and construction of cast partial denture. This Course is a continuation of Removable Partial Dentures II. Introduction to cast removable partial dentures. Survey and design. Mandibular major connectors. Maxillary major connectors. Minor connectors. Retention and retainers. Types of cast clasps.

**DLAB 318: Removable Partial Dentures Practicals III**

This Course is a continuation of Removable Partial Denture Practicals II. Laboratory procedures for framework: Retripping; Blockout and relief; Duplication; Waxing the framework; Spruing the framework; Investing the refractory cast; Casting recovery; Finishing the framework; Final polishing. Laboratory procedures for completing the cast removable partial dentures: Waxing denture base contours; Setting of artificial teeth; Investment process; Deflasking; Finishing and polishing.

**DLAB 322: Clinical Observation**

At the end of this Course, students should be able to appreciate the processes involved in the development of functional teams; consolidate skills and knowledge acquired during the course and observe applications to clinical situations; demonstrate an understanding of the importance of patients' attitudes, beliefs and their confidentiality; develop methods of comparative observation; develop individual maturity, self-awareness and confidence; and compare various concepts which promote the development of teamwork. Observe and compare the effective operation and problem solving of dental teams. Record and evaluate any noticeable technical/system differences and analyse treatment planning and organisation of a work situation. Appraise different uses of materials and techniques. Appraise communication and group dynamics within the dental team.

**DLAB 401: Dental Laboratory Attachment in Fixed Prosthodontics**

This is a 4-week, whole day, laboratory training in Semester 7. Students will undertake dental laboratory training involving direct observation and dental laboratory experience to allow them to obtain practical hands-on experience. The attachment will be undertaken in accredited health facilities. Students will complete a logbook and will be assessed at the end of the course using the logbook and an oral examination.

**DLAB 403: Dental Laboratory Attachment in Removable Partial Dentures**

This is a 4-week, whole day, laboratory training in Semester 7. Students will undertake dental laboratory training involving direct observation and dental laboratory experience to allow them to obtain practical hands-on experience. The attachment will be undertaken in accredited health facilities. Students will complete a logbook and will be assessed at the end of the course using the logbook and an oral examination.

**DLAB 405: Dental Laboratory Attachment in Complete Dentures**

This is a 4-week, whole day, laboratory training in Semester 7. Students will undertake dental laboratory training involving direct observation and dental laboratory experience to allow them to obtain practical hands-on experience. The attachment will be undertaken in accredited health facilities. Students will complete a logbook and will be assessed at the end of the course using the logbook and an oral examination.

**DLAB 407: Dental Laboratory Attachment in Removable Orthodontics**

This is a 4-week, whole day, laboratory training in Semester 7. Students will undertake dental laboratory training involving direct observation and dental laboratory experience to allow them to obtain practical hands-on experience. The attachment will be undertaken in accredited health facilities. Students will complete a logbook and will be assessed at the end of the course using the logbook and an oral examination.

**DLAB 402: Applied Fixed Prosthodontics**

Students will be required to construct prosthesis meant for patients in Semester 8. Each student will be evaluated based on the aesthetics, accuracy and functional purposes of the prosthesis fitted in the patient mouth.

**DLAB 404: Applied Removable Partial Dentures**

Students will be required to construct prosthesis meant for patients in Semester 8. Each student will be evaluated based on the aesthetics, accuracy and functional purposes of the prosthesis fitted in the patient mouth.

**DLAB 406: Applied Complete Dentures**

Students will be required to construct prosthesis meant for patients in Semester 8. Each student will be evaluated based on the aesthetics, accuracy and functional purposes of the prosthesis fitted in the patient mouth.

**DLAB 408: Applied Removable Orthodontics**

Students will be required to construct prosthesis meant for patients in Semester 8. Each student will be evaluated based on the aesthetics, accuracy and the functional purposes of the appliance in the patient mouth.

## **BSC DIETETICS**

### **OVERVIEW**

Dietetics is the interpretation and communication of the science of nutrition to enable people make informed and practical choices about food and lifestyle, in both health and disease.

The study of Dietetics is deeply rooted in the physiological, biochemical and behavioural sciences as well as social, environmental, cultural and psychological factors affecting food accessibility and dietary intake. Aside addressing nutritional needs of patients, dieticians prevent and treat illnesses by promoting healthy eating habits.

Specialty areas in dietetics include clinical dietetics, community dietetics, management dietetics, consultant dietetics and research/teaching dietetics.

### **OBJECTIVES OF THE PROGRAMME**

At the end of the programme, graduates are expected to:

- Be able to translate the most up to date public health and scientific research information on food, health and disease into practical advice to facilitate behaviour change and enable people make appropriate lifestyle and food choices.
- Show awareness of his/her role and sphere of influence within the organisation and demonstrate the ability to work in a collaborative manner with a range of health care professionals and other staff in enabling safe and effective dietetic service delivery.
- Show familiarity with government policies for the provision of health care as they impinge on the dietetic service and understanding of policy issues concerned with public health nutrition in Ghana.
- Demonstrate familiarity with the current systems for the provision of health care, education and social sciences and recognise opportunities to influence health and social policy and practices.
- Demonstrate a systematic understanding of the key aspects of the range of disciplines underpinning dietetics and ability to critically evaluate and synthesize these key aspects into dietetic care.

### **INDUSTRY/GLOBAL TRENDS**

Never in the history of modern health care has dietetics been highly appreciated than today. Dietetics focuses on wellness and prevention of future illness as well as treating diet-related disease conditions. In many parts of the globe, dieticians are in high demand to manage food services systems for institutions, promote sound eating habits through education, and conduct research. Due to aging population and a growing number of diabetics, many dieticians are positioning themselves to address these challenges by specializing in renal, diabetic and cardiovascular nutrition.

### **ASSESSMENT**

Students will be assessed on the basis of completed assignment, examinations, work place learning and projects or other methods as outlined in specific outlines.

### **CAREER PROSPECTS**

Graduates of dietetics work in a variety of areas including hospitals or in communities as nutrition educators or managers. Others work in the food industry, sports and wellness industry education, research, charities and media institutions.

## **ENTRY REQUIREMENT**

### **SSSCE/WASSCE**

#### **Core Subjects**

Passes in the following three subjects; English, Mathematics and Integrated Science.

#### **ELECTIVE SUBJECTS**

Passes in the following three subjects: Chemistry, Biology and either Physics or Mathematics.

ii. An applicant with a bachelor's degree in biological or physical sciences from a recognised university may be considered for admission on the recommendation of a special committee appointed by the Dean. The special committee shall vet the transcript of the candidate as well as course contents of the degrees, with the view to determining suitability of degrees of previous training and make appropriate recommendations that shall include the level of admission to the Dean. Admission under this section may be subject to such conditions as may be approved by the admissions board.

## **TUTION METHODS**

Group discussion, practical sessions, seminars and didactic lectures.

### **Graduate Programmes**

MSc Dietetics - 2 years

PhD Dietetics - 4 years

## **LEVEL 100 COURSES**

*All Level 100 courses are compulsory*

<b>SEMESTER 1</b>	<b>Course Title</b>	<b>Credit Hours</b>
STAT 101	Introduction to Statistics	3
CHEM 111	General Chemistry 1	3
CHEM 110	Practical Chemistry	1
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
BAHS 113	Introduction to Computer Studies	1
UGRC 150	Critical Thinking and Practical Reasoning	3
UGRC 110	Academic writing II	3
<b>Total</b>		<b>20</b>
<b>SEMESTER 2</b>	<b>Course Title</b>	<b>Credit Hours</b>
BAHS 102	Human Anatomy	3
BAHS 104	Human Anatomy Practical	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practical	1
BAHS 122	Introductory Biochemistry	2
DIET 102	Introduction to Professional Practice	2
BAHS 112	Introductory Psychology for Allied Health Sciences	2
GSPH 214	Writing for Public Health	3
UGRC 220	Liberal and African Studies	3
<b>Total</b>		<b>20</b>

### **DIET 200 Clinical Attachment I**

This is a 6-week, whole day, inter-semester clinical training period at the end of semester 2

(i.e. during the long vacation). Students undertake introductory clinical training involving directed observation and clinical experience to allow them obtain practical hands-on experience. The attachment is undertaken in Korle-Bu Teaching Hospital, Ridge Hospital, 37 Military Hospital, Princess Marie Louise Hospital, Tema General Hospital KomfoAnokye Teaching Hospital, Ho Regional Hospital, Cape Coast Regional Hospital, Koforidua Regional Hospital, Tanale Hospital and Trust Hospital. Students are assessed at the end of course using log books. The course is a pre-requisite for level 300 courses in Dietetics.

### LEVEL 200 COURSES

*All the courses at Level 200 are compulsory*

<b>SEMESTER 3</b>	<b>Course Title</b>	<b>Credit Hours</b>
DIET 201	Communication Skills and Nutrition Education	3
DIET 203	Basic Concepts in Nutrition	2
SAHS 201	Computer Applications	3
SAHS 203	Statistics	2
MLAB 205	Introductory Biochemistry II	2
PSYC 307	Human Growth and Development I	3
SOCI 316	Medical Sociology	3
<b>Total</b>		<b>18</b>

<b>SEMESTER 4</b>	<b>Course Title</b>	<b>Credit Hours</b>
SAHS 202	Immunology	2
SAHS 204	General Pathology	3
DIET 202	Nutrition Assessment	2
DIET 204	Nutritional Biochemistry	3
DIET 206	General Anatomy for Dietitians	2
DIET 208	Microbiology	2
DIET 210	Microbiology (Practical)	1
DIET 212	Food Analysis (Practical)	1
PSYC 308	Human Growth and Development (II)	3
<b>Total</b>		<b>19</b>

### DIET 300 Professional PracticeII

This is a 6-week, whole day, inter-semester clinical training period at the end of semester 4 (i.e. during the long vacation) during which students work independently but under supervision of faculty and/or experienced dietitians to obtain practical hands-on experience in patient assessment, diagnosis, counselling and dietary management. The training is undertaken in Korle-Bu Teaching Hospital, Ridge Hospital, 37 Military Hospital, Princess Marie Louise Hospital, and Tema General Hospital, KomfoAnokye Teaching Hospital, Ho Regional Hospital, Cape Coast Regional Hospital and Koforidua Regional Hospital, Tamale Teaching Hospital and Trust Hospital. Students are assessed at the end of the course using the logbook. The course is a pre-requisite for level 400 courses in Dietetic.

### LEVEL 300 COURSES

*All the courses at Level 300 are compulsory*

<b>SEMESTER 5</b>	<b>Course Title</b>	<b>Credit Hours</b>
SAHS 301	Research Methodology	2
DIET 303	Food Service and Catering Management (Theory)	2
DIET 305	Food Service and Catering Management (Practical)	1

DIET 307	Nutrition in the Life Cycle	2
DIET 309	Genetics and Nutrition	2
DIET 310	Dietetic Practicum I	3
DIET 311	Co-ordinated Course in Physiology and Biochemistry	3
DIET 313	Food Safety	2
DIET 315	Pharmacology in Diet Therapy	2
<b>Total</b>		<b>19</b>

<b>SEMESTER 6</b>	<b>Course Title</b>	<b>Credit Hours</b>
SAHS 302	Health Law and Ethics	2
DIET 302	Food Quality, Processing and Preservation	3
DIET 304	Food Quality, Processing and Preservation (Practical)	1
DIET 306	Diet and Diseases I	3
DIET 308	Diet Therapy I	3
DIET 310	Dietetic Practicum I	3
DIET 314	Community Nutrition	2
DIET 316	Food Habits	2
<b>Total</b>		<b>19</b>

#### **DIET 400 Professional Practice III**

This is the third and last segment and takes place at the end of semester 6. It is a 6 week, whole day, inter-semester clinical training (i.e. during the long vacation) during which students work independently but under supervision of faculty and/or experienced dietitians to obtain practical hands-on experience in patient assessment, diagnosis, counselling and dietary management. The training is undertaken in Korle-Bu Teaching Hospital, Ridge Hospital, 37 Military Hospital, Princess Marie Louise Hospital, Tema General Hospital, KomfoAnokye Teaching Hospital, Ho Regional Hospital, Cape Coast Regional Hospital, Koforidua Regional Hospital, Trust Hospital and Police Hospital. Students are assessed at the end of the course using the logbook.

#### **LEVEL 400 COURSES**

*All the courses at Level 400 are compulsory*

<b>SEMESTER 7</b>	<b>Course Title</b>	<b>Credit Hours</b>
DIET 420	Dietetic Practicum II	4
SAHS 401	Principles of Management	2
DIET 403	Diet and Disease II	3
DIET 405	Diet Therapy II	3
DIET 407	Nutrition and Health Promotion	2
DIET 410	Project Work	4
<b>Total</b>		<b>18</b>

<b>SEMESTER 8</b>	<b>Course Title</b>	<b>Credit Hours</b>
SAHS 402	Applied Health Service Management	3
DIET 404	Diet and Disease III	3
DIET 406	Diet Therapy III	3
DIET 408	Special Topics in Nutrition and Dietetics	2
DIET 410	Project	4
DIET 420	Dietetic Practicum II	4
<b>Total</b>		<b>19</b>
<b>TOTAL CLINICAL HOURS</b>		<b>1302</b>

## Course Description

### **STATS 101: Introductory Statistics**

Types of data, descriptive statistics and plots, theoretical distributions, probability, estimation, hypothesis testing, and one-way analysis of variance. A brief introduction to correlation and univariate linear regression. Basic statistical methods for both continuous and dichotomous data

### **CHEM 111: General Chemistry 1**

Introduction to the principles of chemistry including physical and chemical changes, energetic, atomic structure, bonding, nomenclature, chemical calculations, chemical reactions (including solubility, neutralization, and oxidation-reduction) gas laws, solutions, acids and bases, pH, equilibrium, and nuclear chemistry.

### **PHYS 143: Mechanics and Thermal Physics**

Conceptual view of physics, Newtonian mechanics, wave motion, heat and thermodynamics, fluids, Wave motion, electricity and magnetism, geometrical and physical optics, Introduction to concepts of relativity, quantum theory, atomic and nuclear physics. Application of physical principles to related scientific disciplines including life sciences.

### **ABCS 101: Introductory Animal Biology**

Introduction, Anatomical terminology and nomenclature, Structure and organisation of the cell, Basic tissues, Musculoskeletal system, Digestive System, Renal System, Integumentary System and Appendages, Reproductive System, Endocrine System, Special sensory organs

### **BAHS 103: Introduction to Computer Studies**

The course is to provide the students with basic understanding of the historical evolution of the computer, types of computers and the classification of computers. Components of the computer including the hardware and software are covered. It will also the students to Identify the different categories of computer software and their uses and appreciate the areas of application of computers in society, thereby stimulating their thought to regard the computer as a tool for human use rather than a master.

### **UGRC 150: Critical Thinking and Practical Reasoning**

An essential element in the training of social studies and humanities students is providing a

corrective and diagnostic skill set that enables students to discriminate logically between: rhetorical ploys that give *motives* vs. arguments providing *good logical reasons* for believing an assertion. Students need to recognize the contrast between *inductive* and *deductive* reasoning and the different types of support yielded by each, to evaluate the quality of evidence confirming an empirical hypothesis about human conduct, to maintain individual professional and scholarly discretion in the face of peer pressure and mob mentality. These enrolled in this course will be provided the vocabulary and techniques to employ critical thought and practice within the academic arena and beyond.

### **UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be

introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments

**BAHS 101: Introduction to Microbiology**

History of Microbiology; Microbiology Laboratory equipment; Laboratory safety measures; Types and preparation of glassware and specimen containers; principles of specimen collection and documentation; Transportation, receipt and handling of specimen ; Normal flora and transmission of microbial agents; Introduction to Parasitology and parasitism; Host-parasites interrelationships; introduction to microscopy; Colonial morphology; Diagnostic techniques for staining of detection of parasites; Basic Parasitological staining techniques (negative and tissue staining); Introduction to Virology; Viral structure and classification; Replication of viruses; DNA and RNA viruses of medical importance ; Ultra structure of bacteria; classification of bacteria Anaerobes and facultative anaerobes Rickettsia and Chlamydia; Aerobic and microaerophilic rods and cocci; Pathogenic factors, Bacterial Genetics; Bacterial Genetics; Bacterial physiology, nutrition and biochemical characteristic

**Level 100 Semester 2**

**BAHS 102: Human Anatomy**

The course aims to help students appreciate the normal structure of the human body and apply this knowledge in the health sciences. By the end of the course students should be able to describe the basic structure of the cell and explain cell division; describe the embryological development of the organs of the body and possible deviations; describe the anatomical structures of the respiratory, digestive, nervous, lymphatic and circulatory system; and Outline the medical and nursing application of the organs (applied anatomy)

**BAHS 104: Human Anatomy Practical**

The course aims to help students to appreciate the relationship between structures in the human body which will support the lectures in the laboratory. By the end of the course students should be able to identify anatomical structures of the respiratory, digestive, nervous, lymphatic and circulatory system; draw a label simple anatomic structures like the male and female reproductive system; identification of parts of bones in the human body, identification of muscles, nerves and major blood vessels.

**BAHS 106: Basic Physiology**

This course is to provide the students with the knowledge and understanding of how the body maintains homeostasis by the feedback systems and describe the physiology of the cell and transport across the cell membrane. It will also cover the heart as a pump, hemodynamic and haemostasis in the cardiovascular system and explain the mechanism of breathing and transport of gases in the blood. Other areas to be covered include processes involved in the digestion of food and metabolic processes and body the body fluid compartments. The elements of renal function; the physiology of the special senses (sight, hearing, taste, and smell) and physiology of the musculoskeletal system as well as the mechanism of hormonal secretion and regulation of the glands of the endocrine system and functions of the male and female reproductive systems will be covered

**BAHS 108: Basic Physiology Practicals**

The laboratory sequence will support topics under BAHS 106 (Basic Physiology) to enable the demonstrate the use of instruments to measure some specific physiological parameters

**BAHS 112:      **Introductory Biochemistry****

Cell Theory; The Three Domains of Life; Prokaryotes and eukaryotes; subcellular organelles (compartmentalization of cellular processes); pH and buffer solutions; chemistry of water, definition of pH, the pH scale, buffer solutions and buffer capacity; the Henderson-Hasselbach equation in the preparation of buffer solutions. Chemistry and functions of biological molecules (biomolecules: monomers, polymers, macromolecules, Carbohydrates: mono-, di-, oligo- and polysaccharides, stereoisomerism. Lipids: different types (fatty acids, triacylglycerols, phospholipids, steroids, cholesterol). Amino acids and proteins: protein structure, classification. Nucleotides; nucleic acids. Formation of nucleic acids; Secondary, tertiary, and quaternary structures of DNA; Secondary, tertiary, and quaternary structures of RNA. Flow of genetic information. Replication, Transcription, Translation. Other aspects of nucleic acids and protein synthesis. Mutations. Anti-biotics. Vitamins and coenzymes. Enzymes, Properties and classification, cofactors and coenzymes, kinetics (effect of pH, temperature, [S], [E] on enzyme-catalyzed reactions, Michaelis-Menten equation); regulation (activation and inhibition). Membranes and Membrane Protein: General membrane function. Membrane composition. Phospholipid bilayer. Membrane structure. Posttranslational modification. Membrane fluidity. Diffusion in membranes. Movement of ions and molecules across membranes. Transport across membranes.

**RDGY 102:      **Introductory Radiography****

This course is designed to provide the basic skills and knowledge that the students will need to prepare them for their first experience of clinical work. It aims to provide them with an overview of the Imaging Department and a basic working knowledge of an X-ray room. Student will be required to take an active part in basic X-ray examinations of the appendicular skeleton.

**BAHS 112:      **Introductory Psychology for Allied Health Sciences****

This course is designed to introduce students to psychology as a discipline and a profession. The emphasis is on the scope of psychology and introductory topics in psychology like the history and subfields of psychology. The various major theories in psychology will also be discussed.

**GSPH 214:      **Writing for Public Health****

The course is to provide the students with the knowledge to communicate health messages in a clear and effective way It will include writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues

**UGRC 220:      **Liberal and African Studies****

This introduction aims to provide basic background knowledge of Africa, its histories, peoples and cultures. It serves as the spring board from which to launch the elective courses on African and Liberal Studies.

**BAHS 201:      **Computer Applications****

An introduction to computers and data processing. Historical and current status of data processing and electronics digital computer applications; foundation of computer programming; survey of programming language. Survey of World Wide Web applications and use including the browsers, search engine, e-mail, news groups, FTP, multimedia, etc. The computing security problem. Advanced features of microcomputers applications packages such

as word processors, spreadsheets, graphic presentation software, creation and use of macros, styles, and scripts etc.

**SOCI 316: Medical Sociology**

Current knowledge of health production emphasizes the need to perceive health as multidimensional in character. This is because of the critical nexus between the health status of an individual and the cultural, political, economic and the physical environment that influence his/her health/seeking behavior. The multidimensional character of health is even more relevant in view of the fact that the definition of the patient is no longer restricted to an individual; the concept now applies to a whole community. Medical Sociology thus offers a junction where biology and society meet. The pursuit of this course thus gives the student a wider horizon to appreciate the various intermediations in health production. At the end of this course, students should be able to critically assess the outcomes of various interventions in health care processes

**PSYC 307: Human Growth and Development I**

The meaning of development the domains of human development, themes in human development, Why study human development, human growth sequence, prenatal development, the neonate: prematurity, causes and consequences, physical development, psychological Implications of physical development, cognitive Development, personality and social development: psychoanalytic theories, socialization: social learning theories. Mechanisms of socialization, agents of socialization, moral development: psychoanalytic theories, cognitive theories, social learning theories, Culture, Gender and moral development, topical Issues: culture and development, child abuse, the difficult or the maladjusted Child, adolescent delinquency.

**PSYC 308: Human Growth Development II**

Adult development and Aging, Domains of Adult Development, Career in basics and Applied Gerontology. The concept of adulthood: psychological theories of adulthood, stages of adulthood, critique of stage theory, the concept of age. Adulthood physical development: changes in the sense organs, sex and reproduction, health and vitality. Adulthood: cognitive development: changes in intelligence, fluid and crystallized intelligence, factors responsible for developmental changes. Adulthood: Psychosocial development: stages of adult development: early adulthood, middle adulthood, critique of stage theory revisited, the social clock, affiliation needs, achievement needs. Late adulthood: physical development: the aging process, aging and disease, causes of the aging process, Late adulthood and cognitive development: learning in old age, dementia. Late adulthood: psychosocial development: theories: disengagement, activity, continuity and discontinuity, diversity, changes in achievement patterns, employment and retirement

**BAHS 204: General Pathology**

Characteristics and nomenclature of disease, cellular basis of disease – causes of cell injury; cellular response to stimuli including homeostasis and steady state, cellular adaptations, reversible and irreversible (cell death) cell injury ,tissue response to injury – acute and chronic inflammation including beneficial and harmful effects; healing including concept of regeneration & repair; wound healing (primary and secondary); healing of fracture and special tissues; factors affecting healing, circulatory disturbances - hyperaemia and congestion; shock; oedema; thrombosis; embolism; ischaemia and infarction, neoplasia - definition, classification and nomenclature; general characteristics of neoplasms (benign and malignant); staging and

grading of cancers (concept of tumour differentiation); metastases and routes of dissemination; carcinogenesis

**DIET 102: Introduction to Professional Practice**

This course will introduce students to the diversity of activities performed by dietitians in the health sector, to familiarize themselves with the professional practice and code of conduct of dietitians. The course will help students appreciate the strengths and limitations of dietitians, identify factors which hinder effective communication with patients and other professionals, understand and develop the skill of reflective practice and be aware of evidence based practice and medical terminologies abbreviations.

**DIET 201: Communication Skills and Nutrition Education**

The work of dietitians involves dealing with groups of people or individual clients. Good communication skill is a vital requirement to being a dietitian. This course will teach students the dynamics of communication, intellectual communication skills, and barriers to communication, interpersonal communication, counselling and counselling techniques, forms of Nutrition Education, and methods of delivery of nutrition information to the public, designing and use of Nutrition education materials.

**DIET 202: Nutrition Assessment**

This course will introduce students to the socio-economic factors affecting nutrition, anthropometric methods, dietary assessment methods, quantities of food intake, data collection, use of food composition tables or nutrient data bases and microcomputer dietary analysis software packages, Recommended nutrient intake tables, biochemical Assessment, clinical signs of deficiencies, Derivation of recommended nutrient intake value.

**DIET 203: Basic Concepts in Nutrition**

This course deals with food constituents and their properties, metabolism and effects of their deficiencies: protein, fat, carbohydrates, water, mineral, vitamins, flavour, pigments, anti-oxidants and oxidants, organic acids, food additives, natural toxicants and symptoms of toxicity. Food commodity.

**DIET 204: Nutritional Biochemistry**

In this course, the biochemical basis for mammalian nutritional requirements will be surveyed. The relationship between energy expenditure, energy uptake and weight loss or gain will be studied. Recent studies on gene expression and nutrients free – radicals, leptins and integration of metabolism will be discussed.

**DIET 206: General Anatomy for Dietitians**

This course is designed to give students the grounding in the structural and functional basis of certain systems in the human body. The course will focus on and study in detail, the gross anatomy and histology of oropharyngeal and post pharyngeal structures, structure and functions of accessory glands, mechanical processes of the GIS, the enteric nervous system, secretions of the GIS, Digestion and assimilation, disorders of the GIT, structure of the heart and blood vessels, blood circulation, basic concepts of electrical and mechanical activities of the heart, the lymphatic system, excretory system, endocrine system and metabolism and the reproductive system.

**DEIT 208: Microbiology**

This course is designed to equip students of the protective measures to prevent food-borne

diseases. This will include a knowledge of the history of microbes and their mode of transmission, common food borne microorganisms, principles of sanitation and sterilization, personal hygiene, mechanisms of food spoilage, prevention and control of food-borne diseases, methods of food preservation and post-harvest storage, insect and pest management.

**DIET 210: Microbiology Practicals**

This course will involve the demonstration and preparation of microbiological culture, an introduction and bacterial cultivation, aseptic techniques, isolating microorganisms from food substances, simple staining techniques and techniques in microscopy.

**DIET 212: Food Analysis (Practical)**

The aim of this course is to introduce students to analytical techniques in determining macro and micro nutrient component of food and formulated diet. The course will involve sampling in food in analysis, laboratory report writing, and principles of food analysis methods, determination of moisture, ash, crude fat, crude protein, energy value, vitamin C, iron, sodium and chloride.

**DIET 302: Food Quality, Processing and Preservation (Theory)**

The course provides an overview of food processing and preservation techniques, effects of processing on food quality, food fortification and food enrichments, types and use of food additives, food labelling, food quality characteristics – appearance factors, (colour, shape, size, gloss), consistency, textural factors, microbiological factors, nutritional factors, functional properties, methods of quality evaluation, food Quality Deterioration and factors Influencing deterioration.

**DIET 303: Food Service and Catering Management (Theory)**

The course aims to equip students with knowledge of basic food preparation methods, which is integrated with work on portion size and modification of diet to meet special dietary needs in some clinical conditions. This course will explore the range and relative cost of foods available to the general public including nutrient modified foods, commonly consumed foods, including fast foods and their nutrient content, menu planning, recipe development and standardization, meal planning, preparation and evaluation for infants, pre-school children, school age children, adolescents, adults, the aged, pregnant and lactating mothers and people of different cultural backgrounds. Food evaluation with respect to nutritional adequacy, sensory quality and portion size are key components of the course. The will also include food service organisation, management and menu planning exercises.

**DIET 304: Food Quality Processing and Preservation (Practical)**

The course provides students some analytical skills for the evaluation of food quality using laboratory exercises to determine some physical, chemical and microbiological characteristics of foods. Students are also equipped with practical skills related to preservation of food including the use of various techniques and additives for food preservation.

**DIET 305: Food Service And Catering Management (Practical)**

This course aims at equipping students with basic cooking skills, choice of foods for different groups of people and clinical conditions, portion size and nutrient estimation, recipe modification and development and standardization.

**DIET 306: Diet and Disease I**

This course aims at equipping students with the basic etiologic factors and pathogenetic

mechanisms involved in development of the diseases. It will also provide students with an understanding of the biochemical and pathological abnormalities underlying diseases, nutritional problems associated with the diseases, clinical features of diseases, appropriate medical terminology and the medical management of these conditions.

**DIET 307: Nutrition in the Life Cycle**

The course aims to equip students with knowledge of the relationship between nutrition and the various stages of the life cycle and the recommended nutrient intakes at each stage. This will include nutrition in: pregnancy, lactation infant growth and development, childhood – (Pre-school and school going), adolescence, adulthood and the elderly. Adequate nutrient intake levels for the various stages of the life cycle will be covered.

**DIET 308: Diet Therapy I**

This course aims at equipping students with the Nutrition Care Process. It also covers the principles underlying dietary modifications used in clinical management of the patient, devising and constructing appropriate dietary regimes for patients suffering from diseases addressed in Diet and Disease I, devising and constructing appropriate enteral and parenteral nutrition support when indicated in the clinical management of patients with the conditions covered in Diet and Disease I and also to translate the most up to date public health and scientific research on food, health and diseases into practical advice to facilitate behaviour change and enable people to make appropriate lifestyle and food choices.

**DIET 309: Genetics and Nutrition**

This course explores the pathogenesis of the genetic aberrations and how they affect bioavailability of food nutrients and the role of nutrients and other biologically active food components on gene expression. This course will cover the fundamentals of genetics, chromosomal aberrations, single gene defects with classical inheritance – Effects, mechanisms and modes of inheritance, single gene defects with non-classic inheritance, Nutrigenomics and Nutrigenetics.

**DIET 310: Dietetic Practicum I**

This is a clinical course that provides opportunities for the dietetics student to observe and gain experience dietetics practice. It involves application of knowledge gained in theoretical courses to patient management. Students will be introduced to art of history taking and the science of interpreting laboratory results.

**DIET 311: Co-ordinated Course in Physiology and Biochemistry**

This course seeks to develop a critical understanding of the biochemical nature of food molecules and their functional roles, an understanding of the mechanisms of the absorption of nutrients along the alimentary tract, metabolic rate and factors regulating the metabolic rate. It will also help students to appreciate the neuro-endocrine factors that regulate energy balance in the individual.

**DIET 313: Food Safety**

This course cover the issues relating food safety, hazards associated with contaminants, food borne carcinogens, food allergies and food intolerance, food additives, food labelling, Food Safety Risk Assessment, prevention and control of food safety risks, Hazard Analysis and Critical Points (HACCP), bioterrorism and Ghanaian food laws and regulation.

**DIET 314: Community Nutrition**

This course aims to identify nutritional problems in the community and offer appropriate interventions to the community nutrition problems by exploring the socio-cultural factors in nutrition, foods and the consumer, identifying and assessing community nutrition resource, community interactions that promote healthy life styles, national and international health and nutrition policies, school-based canteens, supplementary feeding programmes, food fortification programme and ecological factors affecting nutrition.

**DIET 315: Pharmacology in Diet**

This course provides a general overview of the definition and classification of drugs, pharmacodynamics, pharmacokinetics, principles and mechanisms of drug action, therapeutics of drugs, risk factors for food-drug interactions, effects of food on drug therapy, effects of drugs on food and nutrition, modification of drug action, effects of drugs on nutritional status.

**DIET 316: Food Habits**

This course is designed to create and awareness of the cultural, social, religious and economic factors that affect food choices, psychological aspects of eating in both normal and eating disorders, eating patterns of selected populations and stages in the nutrition transition.

**DIET 403: Diets and Disease II**

This course continues with Diet and Disease I. It covers the etiologic factors and pathogenetic mechanisms involved in development of the diseases, the biochemical and pathological abnormalities underlying diseases, nutritional problems associated with diseases, clinical features of these diseases, the appropriate medical terminology and the medical management of these conditions. Diseases to be covered are, respiratory diseases ,diabetes, cardiovascular disease, renal disorders – glomerular diseases, renal failure, renal stones, HIV/AIDS and complications, metabolic stress – infection and sepsis; trauma; burns and surgery.

**DIET 404: Diet and Disease III**

This course continues with Diet and Disease II. It covers the etiologic factors and pathogenetic mechanisms involved in development of the diseases, the biochemical and pathological abnormalities underlying diseases, nutritional problems associated with diseases, clinical features of these diseases, the appropriate medical terminology and the medical management of these conditions. Conditions to be covered include High risk new-borns, Neurological Disorders – Problems with Swallowing; Alzheimer’s disease; Parkinson’s disease; Multiple Sclerosis; Myasthenia Gravis; Endocrine Disorders, Cancer Prevention and Treatment, Metabolic Disorders – Gout, Inborn Errors of Metabolism, Rehabilitation Conditions – Stroke; Head and Spinal cord Injury.

**DIET 405: Diet Therapy II**

This course aims at equipping students with the principles underlying dietary modifications used in clinical management of the patient, devising and constructing appropriate dietary regimes for patients suffering from diseases addressed in Diet and Disease II, devising and constructing appropriate enteral and parenteral nutrition support when indicated in the clinical management of patients with the conditions covered in Diet and Disease I and also to translate the most up to date public health and scientific research on food, health and diseases into practical advice to facilitate behaviour change and enable people to make appropriate lifestyle and food choices.

**DIET 406: Diet Therapy III**

This course aims at equipping students with the principles underlying dietary modifications used in clinical management of the patient, devising and constructing appropriate dietary regimes for patients suffering from diseases addressed in Diet and Disease III, devising and constructing appropriate enteral and parenteral nutrition support when indicated in the clinical management of patients with the conditions covered in Diet and Disease I and also to translate the most up to date public health and scientific research on food, health and diseases into practical advice to facilitate behaviour change and enable people to make appropriate lifestyle and food choices.

**DIET 407: Nutrition and Health Promotion**

This course seeks to develop an understanding of the theory of health promotion, applying nutrition knowledge gained in other courses to the field of health promotion, analysing latest developments in health promotion in relation to nutrition (local foods, supplements, beverages, etc.), understanding of contemporary and controversial issues in nutrition health promotion, applying nutritional knowledge to address the nutritional needs of people and athletes, planning, implementing, monitoring and evaluating a health promoting programme. It covers the energy, nutrient and fluid needs of sports men, sports and weight monitoring, the ethics of health promotion, development of nutritional health promotion programmes, strategies for health promotion and lifestyle changes, politics of health promotion, health promotion programmes in Ghana, the principles of programme management, including assessment, planning, implementation and evaluation, role of diet and exercise in energy balance, role of the dietitian and the multidisciplinary team in health education and health promotion.

**DIET 408: Special Topics in Nutrition and Dietetics**

This course is designed to provide students with an insight into current issues in nutrition and dietetics. It provides students with knowledge of dietary supplements available on the Ghanaian market and understand their role in health and how to critically evaluate health claims of dietary supplements and nutritional claims of herbal products. Students will familiarise themselves with natural and artificial spices on the Ghanaian market and their health implications. Students will also be equipped with knowledge of functional foods and examine the concept of regenerative health and the blood type diet.

**DIET 410: Project Work**

The course is designed to teach students how to identify a problem of relevance in dietetics, the use of tools and methods to collect relevant information to address the problem, write up findings in an acceptable scientific format, use nutrition and dietetic research findings to support evidence-based practice in dietetics and exhibit good oral presentation style.

**DIET 412: Dietetic Practicum II**

The course provides practical experience for dietetic students to work with practicing dietitians in hospitals and elsewhere. It builds on the experiences obtained during clinical attachment II and dietetic practicum I and II. Students complete a logbook and are assessed at the end of the course using the logbook and clinical oral examinations. The logbook forms 30% of the final mark.

## **BSC PHYSIOTHERAPY**

### **PROGRAMME OBJECTIVES:**

At the end of the training, the physiotherapy graduands should be able to: Promote the health and well-being of the individual and the general public/society; Prevent impairments, functional limitations, and disabilities in individuals at risk of altered movement behaviours due to health or medically related factors, socio-economic stressors, and lifestyle factors; Provide interventions to restore integrity of body systems essential to movement, maximise function and recuperation, minimise incapacity, and enhance the quality of life in individuals, Promote research efforts and to share freely the results of such research and evaluation through a range of dissemination routes; Demonstrate duty and responsibility to use evidence to inform practice and to ensure that the care of clients, their careers and communities is based on the best available evidence.

The students will be expected to demonstrate adequate understanding of the role and function of the other disciplines, appreciating the core differences as well as the common features; Exhibit professional actions and conduct that are always within professional code of Ethics and Conduct; Develop effective working relationships with the colleagues and other health professionals through communication and improved understanding; Develop an attitude and responsibility for life-long learning and continuous professional growth and development and collaborate with other healthcare professionals in the care of clients as may be found applicable to physiotherapy.

### **LEVEL 100 COURSES SEMESTER 1**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
STAT 101	Introduction to Statistics	3
BAHS 101	Introduction to Microbiology	3
CHEM 111	General Chemistry 1	3
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
BAHS 113	Introduction to Computer Studies	1
UGRC 150	Critical Thinking and Practical Reasoning	3
UGRC110	Academic Writing I	3

## SEMESTER 2

Course Code	Course Title	Credit Hours
BAHS 102	Human Anatomy	3
BAHS 104	Human Anatomy Practical	1
CHEM 112	General Chemistry II	3
CHEM 110	Practical Chemistry	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practical	1
PSTR 104	Introduction to Physiotherapy	2
GSPH 214	Writing for Public Health	3
UGRC 220	Liberal and African Studies	3
BAHS 112	Introductory Psychology for Allied Health Sciences	2

**\*PSTR 100: Professional Practice Placement: Clinical Attachment I  
Introductory Clinical Practice (4 weeks, 120 hour)**

## LEVEL 200 COURSES

### SEMESTER 3

Course Code	Course Title	Credit Hours
BAHS 211	Basic Computer Application	3
BAHS 213	Statistics	2
BAHS 207	General Biochemistry	2
PSTR 201	Applied Anatomy	2
PSTR 203	Applied Anatomy Practical	1
SOCI 316	Medical Sociology	3
PSTR 209	Electrophysics	2
PSTR 211	Assessment Skill I	2

### SEMESTER 4

Course Code	Course Title	Credit Hour
BAHS 214	General Pathology	3
PSTR 212	Biomechanics	2
PSTR 214	Assessment Skills II	2
PSTR 204	Neuroscience	2
PSCY 308	Human Growth & Development	2
PSTR 206	Massage	2
PSTR 202	Clinical Measurement and Instrumentation	2
PSTR 208	Health promotion and disease prevention	2

**\*PSTR 200: Professional Practice Placement: Clinical Attachment II  
Clinical Practice (6 weeks, 180 hours)**

**LEVEL 300 COURSES**  
**SEMESTER 5**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BAHS 311	Research Methodology	2
PSTR 310	Clinical Rotation I	2
PSTR 301	Kinesiology	2
PSTR 303	Therapeutic Exercise	3
PSTR 305	Electrotherapy I	3
PSTR 307	Neurorehabilitation 1	2
PSTR 309	Rheumatology	2
PSTR 311	Systemic Pathology	3

**SEMESTER 6**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BAHS 302	Health Law and Ethics	2
PSTR 302	Traumatic and Skeletal Disorders	2
PSTR 304	Neurorehabilitation II	2
PSTR 306	Electrotherapy II	3
PSTR 308	Pathokinesiology	2
PSTR 310	Clinical Rotation I	2
PSTR 312	Therapeutic Modalities I	2
PSTR 314	Paediatrics	2
OTTR 312	Community Rehabilitation	2

**\*PSTR 300: Professional Practice Placement: Clinical Attachment III**  
**Clinical Practice (6 weeks, 240 hours)**

**LEVEL 400 COURSES**  
**SEMESTER 7**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BAHS 401	Principles of management	2
PSTR 410	Clinical Rotation II	2
PSTR 401	Obstetrics and Gynaecology	2
PSTR 403	Dermatology & Burns	2
PSTR 405	Health and Physical Fitness	2
PSTR 409	Therapeutic Modalities II	2
PSTR 411	Cardiopulmonary & Intensive Care	2
PSTR 420	Project (Dissertation)	2

**SEMESTER 8**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
MLAB 402	Applied Health Sciences Management	2
PSTR 404	Sports Physiotherapy	2
PSTR 406	Ergonomics & Industrial Physiotherapy	2
PSTR 408	Pharmacology in Physiotherapy	2
PSTR 410	Clinical Rotation II	2
PSTR 412	Geriatrics	2
PSTR 420	Project (Dissertation)	2

**N.B. PSTR 310 and PSTR 410 are 4 credit courses each but they are split into I & II because they run through both semesters per session. Examinations for the two courses take place at the end of the second semester for the respective academic sessions. Likewise, PSTR 420 is a 4-credit course which is split into I & II in the book. Completion and examination of the course takes place at the end of second semester.**

**UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments.

**UGRC 220: Liberal and African Studies**

This introduction aims to provide basic background knowledge of Africa, its histories, peoples and cultures. It serves as the spring board from which to launch the elective courses on African and Liberal Studies. It covers such essential aspects as gendered nature of African societies, leadership roles, gender and culture etc.

**STAT 101: Introductory Statistics**

The course provides basic understanding of statistics as pertain to types of data, descriptive statistics and plots, Theoretical distributions, probability, estimation, Hypothesis testing, and one-way analysis of variance. A brief introduction to correlation and univariate linear regression is also highlighted including basic statistical methods for both continuous and dichotomous data.

**BAHS 102: Human Anatomy**

The course provides background understanding of human bodily structures. Students will be introduced to anatomical terminology and nomenclature, structure and organisation of the cell, Basic tissues, musculoskeletal system, digestive System, renal system, integumentary system and appendages. It also covers reproductive system, endocrine system and special sensory organs.

**CHEM 111: Physical and Inorganic Chemistry**

Students are introduced to the principles of chemistry including physical and chemical changes, energetics, atomic structure, bonding, nomenclature, chemical calculations, chemical reactions (including solubility, neutralization, and oxidation-reduction). Theoretical framework for Gas laws, solutions, acids and bases, pH, equilibrium, and nuclear chemistry are highlighted.

**BAHS 104: Human Anatomy Practical**

The sequential laboratory work will support topics under BAHS 102 (General Anatomy) wherein students will be made to appreciate the anatomical structures through dissections of cadaver.

**CHEM 112: General Chemistry II**

The course will provide requisite knowledge from the following topics: Molecular composition and structure of organic compound; Determination and calculation of empirical and molecular formulae; Stereochemistry and isomerism; Hybridization; Nomenclature of polyfunctional organic compounds; Saturated Hydrocarbons (Alkanes and cycloalkanes); Unsaturated

Hydrocarbons (Alkenes, Alkynes, Aromatics); Alcohols, Phenols, Ethers, and Thioalcohols; Aldehydes and Ketones; Carboxylic Acids, Esters, and Related Compounds; Amines and Amides; Stereoisomerism; Synthetic polymers Plastics; Natural products (Alkaloids, terpenes, steroids. Pheromones).

**BAHS 106: Basic Physiology**

The course exposes students to functional status of human structural systems upon which deviations from normalcy can easily be detected. It covers the following topics: Functions of the cell organelles and the cell membrane; Basic concept of cell transport in biological systems; Excitable and non-excitable tissues; Neurotransmitters and synaptic transmission and their application in drug- receptor interaction; Electrical and mechanical activity of the heart; Formation, composition and functions of the blood, Haemodynamics; Mechanism of breathing, gaseous transport and exchange. Functions of GIT (peristaltic and mixing movements).

**BAHS 108: Basic Physiology Practical**

The course aims to demonstrate fundamental physiologic principles using standard instruments and practical laboratory methods and processes. By the end of the course students should be able to demonstrate cell osmometry using human blood; explain key haematological parameters; measure blood pressure, pulse, ECG, salivary secretion and lung volumes in man; demonstrate and explain normal and abnormal breathing patterns in man; assess nerve reflexes in man; and determine sex, assess integrity of sperm sample, and test for pregnancy using urine samples.

**CHEM 110: Practical Chemistry**

Students will be made to observe and undergo procedural laboratory work as a supplement to their theoretical knowledge. The task will include: Safety in the chemistry laboratory; Errors in the chemistry laboratory; The use of the analytical balance; Calibration of volumetric ware: Pipette, Burette and volumetric flask; Preparation of standard solutions; Acid-base titration (basic); Identification of functional groups in organic compounds; Quantitative determination; Colorimetric determination of concentration of substances in coloured solutions; Experimental determinations with ultraviolet/visible light.

**PHYS 143: Mechanics and Thermal Physics**

This course will afford students the opportunity to acquire knowledge about: Conceptual view of physics, Newtonian mechanics, wave motion; Heat and thermodynamics, fluids, Wave motion, electricity and magnetism; Geometrical and physical optics, Introduction to concepts of relativity, quantum theory, atomic and nuclear physics; and application of physical principles to related scientific disciplines including life sciences.

**ABCS 101: Introductory Animal Biology**

This is an introductory biology course with an emphasis on humans. Topics include fundamental concepts of cell biology, histology, microbiology, and genetics.

**BAHS 112: Introductory Psychology for Allied Health Sciences**

This course is designed to introduce students to psychology as a discipline and a profession. The emphasis is on the scope of psychology and introductory topics in psychology like the history and subfields of psychology. The various major theories in psychology will also be discussed.

**BAHS 113: Introduction to Computer Studies**

This course creates knowledge acquisition about computer application among the students. They will be made to understand the basic principles and mode of operation in computer. It will

demystify the following topics for profound understanding: What is a computer? History of computers; Computer types; Hardware and software; Basic operations; Data sizes and speeds; Inside a computer case (Motherboard, Processor, Memory, Disks); Peripherals (Input Devices, Output Devices, Future Peripherals); System software; Application software; Personal Networks; Security; Internet; Development; Databases

**UGCR 150: Critical Thinking and Practical Reasoning**

The essential components of the course will include: Health and health management information search and appraisal strategies; Socratic questioning; knowledge construction; reflective thinking; basis of clinical reasoning and scientific inquiry; creative/lateral thinking; Models of health and disability; application; academic and professional communication; scholarship/scientific writing; ethics; collaborative models.

**PSTR 104: Introduction to Physiotherapy**

This course informs students about the historical development and evolution of physiotherapy. It seeks to introduce students to the scope of practice of physiotherapy and create the awareness of the holistic roles of Physiotherapy in rehabilitation and health care delivery; and also the roles and contribution of other professionals within the healthcare team. i.e. Nurses, Doctors, Dieticians, Occupational Therapists. Students will also be introduced to available skills and techniques in physiotherapy practice.

**BAHS 101: Introduction to Microbiology**

To introduce the students to Medical Microbiology as a field of study. At the end of the course students should be able to describe the structure, general characteristics, classification, cultivation, methods of identification and modes of transmission of various microbial agents of medical importance and state their antigenic components; explain the pathogenic mechanisms, methods of prevention and control of the diseases caused by various disease causing organisms; state causes of nosocomial infection and principles of their prevention and control – sterilization and disinfection, isolation etc.

**GSPH 214: Writing for Public Health**

The course is to provide the students with the knowledge to communicate health messages in a clear and effective way It will include writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues

**BAHS 211: Basic Computer Application**

The course entails the following: An introduction to computers and data processing. Historical and current status of data processing and electronic digital computers; a survey of computer applications; foundations of computer programming; survey of programming languages. Survey of World Wide Web applications and use including browsers, search engines, e-mail, news groups, FTP, multimedia, etc. The computing security problem. Advanced features of microcomputer applications packages such as word processors, spread sheets, graphic presentation software, etc. Creation and use of macros, styles, and scripts etc.

**BAHS 213: Statistics**

This course provides students with an enduring understanding of, and appreciation for, the statistical processes most used in healthcare research. Emphasis is placed on development of a working knowledge of basic statistical processes sufficient for evaluation and interpretation of the statistical methods and findings in published reports of research.

**BAHS 214: General Pathology**

This course introduces students to current understanding of the basic scientific principles of causation, mechanisms and characteristics including manifestations of the major categories of diseases. The course will cover the processes and mechanisms and the structural and functional changes in cells, tissues, and organs that underlie human diseases.

**BAHS 207: General Biochemistry**

The core components of the course include: Hormones - General mechanisms of hormone action, Regulation of hormone level, Actions of specific hormones, Clinical correlations. Glycolysis, gluconeogenesis, TCA cycles - Schema of glycolysis -biomedical importance, Hormonal control of glycolysis, Irreversible reactions in glycolysis, Hormonal regulation of blood glucose, Citric acid cycle (schema of Krebs cycle). Metabolism of glycogen, Cori cycle - Glycogen: synthesis, branching enzymes. Glycogenolysis, debranching enzymes. Glycogen in the liver and muscle cells. Cori cycle. Pentose phosphate pathways (PPP) - Schema of PPP – relation between PPP and glycolysis, PPP in protection of erythrocytes. Metabolism of fructose and galactose. Conservation of chemical energy - Physical-chemical principles of cellular energy transformations.

**PSTR 201: Applied Anatomy**

Applied anatomy provides detailed insight into structures and their related functions in the different anatomical regions of the body; and associates them with clinical conditions encountered by the Physiotherapist.

**PSTR 203: Applied Anatomy Practical**

This course is the practical aspect of PSTR 201 Applied Anatomy. It involves the dissection of cadavers to observe and identify the structures found in the different regions of the body.

**PSTR 209: Electrophysics**

This course introduces students to applied electromagnetics, space physics, semi-conductor device, stimulation and imaging. The course will also provide understanding about the laws of electricity and electrostatics. Basic knowledge about capacitors, continuous charge distribution and dipoles will be comprehensively highlighted.

**PSTR 211: Assessment Skills 1**

The course introduces to students the theory and practice of basic physiotherapy skills and principles of a patient assessment and handling techniques in order to arrive at a definite impression, plan treatment and/or prescribe assistive devices accordingly

**PSTR 202: Clinical Measurements and Instrumentation**

This course educates and provides students with the skills, tools and instruments used in the assessment and evaluation of patients' clinical conditions. The course aims to expose students on the use of evidence based evaluation using standardized objective measurement tools.

**PSTR 206: Massage**

The course focuses on the acquisition of knowledge and skill in massage and myofascial release. Students will be made to understand the indications and contra-indications of massage therapy as well as the rationale for selection of massage techniques.

**PSTR 208: Health Promotion and Disease Prevention**

The course seeks to develop an understanding of the theory of health and disease prevention. It

will cover the following key topics: Health Promotion: Educational theories and models of health behaviour related to patient learning Developments of physiotherapy health promotion programmes; Ethics of health promotion; Strategies for health promotion and life style changes; Health promotion programmes in Ghana. Role of the physiotherapist and the multidisciplinary team in health education and health promotion; Preparation of a physiotherapy related health education material for use in a health education context. Principles of programme management, including assessment, planning, implementation and evaluation; Disease Prevention; Epidemiology – Definition, objectives and applications. Types of epidemiological studies. Dynamics of disease transmission – modes of transmission, natural history of disease, levels of disease prevention, definitions (endemic, epidemic, zoonotic, carrier, herd immunity, quarantine, isolation, active immunity, passive immunity, surveillance), Principles of disease control, Outbreak investigation. Measures of morbidity and mortality (incidence, prevalence, rates). Epidemiological methods, screening.

**PSTR 212: Biomechanics**

This course is designed to introduce students to the mechanical properties of the musculoskeletal system. Connective tissue and muscle mechanics, arthrology, anatomical design and statics will also be explored. The course will be specially tailored to introduce the theory and applications of biomechanics to Physiotherapy students.

**PSTR 214: Assessment Skills II**

This is a follow-up course to consolidate the theory and application of physiotherapy skills and principles of a patient assessment and handling techniques in order to arrive at a definite physical diagnosis/impression, plan treatment and set outcome measures

**PSTR 200: Clinical Attachment II**

This clinical course is to provide to students, exposure to clinical practice in in-patient, out-patient and community rehabilitation, to perform basic musculoskeletal assessments, to expand their knowledge of the role of the physiotherapist and other healthcare workers in accredited hospitals and to participate in assisting with basic patient treatments.

**PSTR 301: Kinesiology**

The course is to enable students appreciate the study of analysis of normal human movement and biomechanics of joints as basis for clinical intervention in rehabilitation of abnormal movements. Gait analysis and process of human walking will also be discussed

**PSTR 303: Therapeutic Exercise**

The course focuses on acquisition of knowledge base and skills in prescribing, planning, implementing and supervising therapeutic exercises. Different types of exercises will be highlighted.

**PSTR 305: Electrotherapy- I**

This course aims to impart to the students the basic principles of production and the use of electrical and thermal energy in pain modulation, inflammation and neuromuscular re-education.

**PSTR 307: Neurorehabilitation 1**

Students will be equipped with knowledge by which they will be able to relate basic neuro-anatomical knowledge to problem identification and evaluation of treatment of neurological conditions. Emphasis is placed on upper motor neuron lesions.

**PSTR 309: Rheumatology**

This course provides students with knowledge of the diseases of muscles, bones and joints and emphasizes the required physiotherapeutic intervention in ameliorating such conditions and their secondary effects. It focuses on principles of rehabilitation as a way of restoring meaningful health in the clients.

**PSTR 310: Clinical Rotation- I**

This clinic based course is to introduce the students to in-patient, out-patient and community contacts and to transfer the classroom theoretical principles to hands-on skill acquisition.

**PSTR 302: Traumatic Skeletal Disorders**

The course aims to provide the student with knowledge of traumatic disorders and injuries to bones and joints as well as physiotherapeutic intervention in ameliorating secondary conditions, treating and rehabilitating the sequelae of the disorders and injuries.

**PSTR 304: Neurorehabilitation II**

This course is meant to enable students relate the knowledge of neurological deficits to problem-solving approach, evaluation of disabilities and rehabilitation of neurological conditions.

**PSTR 306: Electrotherapy II**

The course aims to impart to the student the basic principles of production and the use of electrical and thermal energy in pain modulation, inflammation and neuromuscular re-education.

**PSTR 308: Pathokinesiology**

This course seeks to enable the student acquire the knowledge and skill of the causes, rehabilitation and prevention of abnormal human posture and movements.

**PSTR 312: Therapeutic Modalities 1**

This course is practical based and is to enable the students to demonstrate skills in the selection and the use of physiotherapeutic procedures and techniques.

**PSTR 314: Paediatrics**

The course is about the acquired and congenital problems of children (including neonates and infants) and the role of physiotherapy in the holistic management of paediatric problems.

**OTTR 312: Community Rehabilitation**

The unit examines further in-depth understanding of the influence of the environment on enabling occupation. The unit dwells on earlier knowledge on the concepts of community, societal structure and the importance of meaningful occupation. Emphasis is laid on WHO model of CBR and how the therapist could work with other MDT members to sustain this community rehabilitation model. The unit is aimed to making therapy services accessible, acceptable, and affordable in the community setting.

**PSTR 400: Clinical Attachment-II**

This clinical course is to enable the student reinforce the acquired hands-on experience in physiotherapy settings outside the institution of training.

**PSTR 401: Obstetrics and Gynaecology**

To enable the student acquire the knowledge and skill in providing safe and effective physiotherapy care to clients throughout pregnancy, labour and puerperium.

**PSTR 403: Dermatology and Burns**

The course is aimed at exposing students to the identification of various skin disorders and burns; and the role of physiotherapy in preventive, therapeutic and rehabilitative management.

**PSTR 405: Health and Physical Fitness**

The course focuses on the attainment and maintenance of physical fitness level in healthy individuals and the role of physiotherapy in health promotion and illness prevention.

**PSTR 407: Geriatrics**

The course seeks to create awareness about the problems of the elderly and the role of physiotherapy in the holistic management of geriatric problems.

**PSTR 409: Therapeutic Modalities II**

This course is practical based, and is to enable the students to demonstrate skills in the selection and the use electrical modalities and physiotherapeutic procedures and techniques.

**PSTR 411: Cardiopulmonary & Intensive Care**

This course aims to enable the students appreciate the role of physiotherapy in assessing, treating, evaluating and rehabilitating patients with cardio-pulmonary dysfunctions.

**PSTR 404: Sports Physiotherapy**

The course is designed to ensure knowledge and skill acquisition among the students in the prevention and management of sports injuries.

**PSTR 406: Ergonomics and Industrial Physiotherapy**

The course highlights the complimentary role of physiotherapy in the rehabilitation of injured workers. It stresses the principles of management and specific requirements for healthcare in industrial set up. It also ensures requisite knowledge about ergonomics which serves as necessary tools for prevention and management of work related musculoskeletal disorders.

**PSTR 410: Clinical Rotation- II**

This clinical course is to further expose the student to in-patient, out-patient and community contacts and to reinforce the transfer of the classroom theoretical principles to hands-on skill acquisition.

**PSTR 420: Project (Dissertation)**

To introduce the students to basic concepts of research and its importance in the discovery of current information and in the support of evidence based practice in physiotherapy. It affords students the opportunity of designing and carrying out independent research.

## BSC MEDICAL LABORATORY SCIENCES

### PROGRAMME OBJECTIVES

At the end of the programme, the students should be able to: Perform laboratory-based diagnosis and prognosis of diseases by providing accurate, precise and timely results; Monitor the effectiveness of disease treatment by laboratory methods; Apply medical laboratory procedures to research on health related problems and to the development of new technologies; Manage a medical laboratory at least at the level of a district hospital; Advise hospital management on medical laboratory issues; Acquire and apply new knowledge and skills in medical laboratory science on a continual basis, Work efficiently as part of a team of health professionals in providing good quality affordable health care; Employ quality assurance and quality control procedures in the performance of duty; Demonstrate respect for rights and dignity of all persons and maintain acceptable standards of professional conduct and ethical behaviour in dealing with colleagues and other health professionals, patients and the general public

### LEVEL 100 COURSES

#### SEMESTER 1

Course code	Course title	Credit hours
UGRC 110	Academic Writing I	3
STAT 101	Introduction to Statistics	3
CHEM 111	General Chemistry 1	3
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
BAHS 113	Introduction to Computer Studies	1
UGRC 150	Critical Thinking and Practical Reasoning	3
		<b>19</b>

#### SEMESTER 2

Course code	Course title	Credit hours
GSPH 214	Writing for Public Health	3
UGRC 220	Liberal and African Studies	3
BAHS 102	Human Anatomy	3
BAHS 104	Human Anatomy Practical	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practical I	1
BAHS 112	Introductory Psychology for Allied Health Sciences	2
CHEM 112	General Chemistry II	3
CHEM 110	Practical Chemistry	1
MLAB 106	Introduction to Medical Laboratory Sciences	2
		<b>22</b>

### LEVEL 200 COURSES

#### SEMESTER 3

Course code	Course Title	Credit hours
SOCI 316	Medical Sociology	3
BAHS 211	Basic Computer Application	3
BAHS 203	Statistics	2
MLAB 201	Functional Histology	2
MLAB 203	Functional Histology Practical	1

MLAB 205	Introductory Biochemistry II	2
MLAB 207	Cell Biology	2
MLAB 209	Cell Biology Practical	1
MLAB 211	Introduction to Molecular Biology	2
MLAB 213	Introduction to Molecular Biology Practical	1
		<b>19</b>

#### **SEMESTER 4**

<b>Course code</b>	<b>Course Title</b>	<b>Credit hours</b>
BAHS 202	Immunology	2
MLAB 202	Cellular Pathology	3
MLAB 204	Introduction to Haematology and Transfusion Science	3
MLAB 206	Introduction to Molecular Diagnostics	2
MLAB 208	Introduction to Clinical Chemistry	3
MLAB 212	Introduction to Microbiology	3
MLAB 214	Pathology Laboratory Practice and Tissue Processing Procedures	3
		<b>19</b>

### **LEVEL 300 COURSES**

#### **SEMESTER 5**

<b>Course code</b>	<b>Course Title</b>	<b>Credit hours</b>
BAHS 311	Research Methodology	2
MLAB 301	Cytopreparatory Techniques	2
MLAB 303	Basic Clinical and Laboratory Haematology	2
MLAB 305	Basic Clinical and Laboratory Haematology Practical	2
MLAB 307	Microbiology I	2
MLAB 309	Microbiology Practical I	2
MLAB 311	Clinical Chemistry I	2
MLAB 313	Clinical Chemistry Practical I	2
MLAB 315	Histotechnology I	2
MLAB 317	Histotechnology Practical I	1
MLAB 319	Cytopreparatory Techniques Practical	1
		<b>20</b>

#### **SEMESTER 6**

<b>Course code</b>	<b>Course Title</b>	<b>Credit hours</b>
MLAB 302	Gynaecologic Cytology	2
MLAB 304	Gynaecologic Cytology Practical	1
MLAB 306	Basic Blood Transfusion Science	2
MLAB 308	Basic Blood Transfusion Science Practical	2
MLAB 312	Microbiology II	3
MLAB 314	Microbiology Practical II	1
MLAB 316	Clinical Chemistry II	2
MLAB 318	Clinical Chemistry Practical II	2
MLAB 322	Histotechnology II	2
MLAB 324	Histotechnology Practical II	1
		<b>20</b>

## LEVEL 400 COURSES

### SEMESTER 7

Course code	Course Title	Credit hours
BAHS 411	Principles of Management	2
MLAB 401	Non-gynaecologic Cytology	2
MLAB 403	Non-gynaecologic Cytology Practical	1
MLAB 405	Coagulation and Haemostasis	2
MLAB 407	Coagulation and Haemostasis Practical	1
MLAB 409	Clinical Chemistry III	2
MLAB 411	Clinical Chemistry Practical III	1
MLAB 413	Microbiology III	2
MLAB 415	Microbiology Practical III	1
MLAB 417	Histotechnology III	2
MLAB 419	Histotechnology Practical III	1
MLAB 400	Project	4
		<b>21</b>

### SEMESTER 8

Course code	Course Title	Credit hours
BAHS 412	Applied Health Sciences Management	2
MLAB 400	Project	4
MLAB 402	Vocational Training in Haematology	3
MLAB 404	Vocational Training in Clinical Chemistry	3
MLAB 406	Vocational Training in Microbiology	3
MLAB 408	Vocational Training in Cytotechnology	3
MLAB 412	Vocational Training in Histotechnology	3
		<b>17</b>

#### UGRC 110: Academic Writing I

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments

#### GSPH 214: Writing for Public Health

Writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues.

#### UGRC 220-238: Introduction to African Studies

#### BAHS 102: Human Anatomy

The course aims to help students appreciate the normal structure of the human body and apply this knowledge in the health sciences. By the end of the course students should be able to describe the basic structure of the cell and explain cell division; describe the embryological development of the organs of the body and possible deviations; describe the anatomical

structures of the respiratory, digestive, nervous, lymphatic and circulatory system; and Outline the medical and nursing application of the organs (applied anatomy).

**BAHS 104: Human Anatomy Practical**

The course aims to help students to appreciate the relationship between structures in the human body which will support the lectures in the laboratory. By the end of the course students should be able to identify anatomical structures of the respiratory, digestive, nervous, lymphatic and circulatory system; draw a label simple anatomic structures like the male and female reproductive system; identification of parts of bones in the human body, identification of muscles, nerves and major blood vessels.

**BAHS 106: Basic Physiology**

The course aims to introduce the students to the normal function and physiological processes of the human body. Students will study the specific physiological properties of the cell, organs and systems outlined in the content. The students will also be required to learn the systems in relation to how they help maintain homeostasis in the body. Course contents include Introduction to Physiology, Homeostasis, Body Fluids and Electrolyte Balance, Cell Physiology, Cardiovascular and Respiratory Physiology, Physiology of the Nervous System, Physiology of the Muscles, Physiology of the Endocrine System, Reproductive System

**BAHS 108: Basic Physiology Practical**

The course aims to demonstrate fundamental physiologic principles using standard instruments and practical laboratory methods and processes. By the end of the course students should be able to demonstrate cell osmometry using human blood; explain key haematological parameters; measure blood pressure, pulse, ECG, salivary secretion and lung volumes in man; demonstrate and explain normal and abnormal breathing patterns in man; assess nerve reflexes in man; and determine sex, assess integrity of sperm sample, and test for pregnancy using urine samples.

**MLAB 106: Introduction to Medical Laboratory Sciences**

Description of SAHS MLS Program; MLS as a Profession, history, education, professional organization; Medical Terminology; Clinical Laboratory Structure and Departments; Dilutions and Phlebotomy; Health Professional Interview; Professional Ethics; Quality Assurance; Microbiology; Cytogenetics; Blood Bank; Clinical Chemistry; Haematology.

**SOCI 316: Medical Sociology**

Current knowledge of health production emphasizes the need to perceive health as multidimensional in character. This is because of the critical nexus between the health status of an individual and the cultural, political, economic and the physical environment that influence his/her health-seeking behaviour. The multidimensional character of health is even more relevant in view of the fact that the definition of the patient is no longer restricted to an individual; the concept now applies to a whole community. Medical Sociology thus offers a junction where biology and society meet. The pursuit of this course thus gives the student a wider horizon to appreciate the various intermediations in health production. At the end of this course, students should be able to critically assess the outcomes of various interventions in health care processes.

**BAHS 211: Basic Computer Application**

An introduction to computers and data processing. Historical and current status of data processing and electronic digital computers; a survey of computer applications; foundations of computer programming; survey of programming languages. Survey of World Wide Web applications and use including browsers, search engines, e-mail, news groups, FTP, multimedia,

etc. The computing security problem. Advanced features of microcomputer applications packages such as word processors, spreadsheets, graphic presentation software, etc. Creation and use of macros, styles, and scripts etc.

**BAHS 212: Immunology**

Theory and application of basic concepts in immunology, immunopathology, and immunologic testing methods. Cells, proteins and chemicals involved in the immune system. Immune disorders such as hypersensitivity, autoimmunity, immunodeficiency and protein abnormalities, transplant and tumor immunology, immunologic testing methods and flow cytometry.

**BAHS 213: Statistics**

This course provides the student with an enduring understanding of, and appreciation for, the statistical processes most used in healthcare research. Emphasis is placed on development of a working knowledge of basic statistical processes sufficient for evaluation and interpretation of the statistical methods and findings in published reports of research.

**MLAB 201: Functional Histology**

Introduction, Covering and Glandular Epithelia, Connective Tissues, Muscular Tissues, Nervous Tissues, Integument, Respiratory system, Alimentary system, Urinary system, Reproductive system, Endocrine glands.

**MLAB 202: Cellular Pathology**

Introduction to Pathology (Cellular Response to injury, Tissue response to injury: - Acute and chronic inflammation; Healing and repair, Haemodynamic Disorders); Genetic Disorders; Pathology of Bacterial Infections; Disorders of Growth and Neoplasia

**MLAB 203: Functional Histology Practical**

The laboratory sequence will support the above topics

**MLAB 204: Introduction to Haematology**

Introduction (Definition and importance of specimens required and mode of collection, Use of syringes and needles of different sizes, lancets and vacutainer); Glassware (Slides, cover slip, beakers, measuring cylinders and pipettes, different flasks both glass and plastic); Equipment (The light microscope water bath incubators, weighing balances, centrifuges, fridges, colorimeters/spectrophotometers, cell counters (electronic and manual), auto pipettes, uses and maintenance; introduction to flow cytometry); Chemicals and Reagents (anticoagulants and preservatives in haematology, transfusion science; uses and preparation); Stains and staining (Introduction to Romanowsky stains. Thick and thin films); Preparation of solutions (Saline, buffers, metabisulphite solution, stock and working solutions (dilutions from stock) Haemoglobin estimation, sickling test, total WBC counts, ESR, reticulocyte count to be used as basis to elucidate above through demonstration and actual performance; ABO grouping as basis for particle agglutination.

**MLAB 205: Introductory Biochemistry II**

Hormones - General mechanisms of hormone action, Regulation of hormone level, Actions of specific hormones, Clinical correlations. Glycolysis, gluconeogenesis, TCA cycles - Schema of glycolysis -biomedical importance., Hormonal control of glycolysis, Irreversible reactions in glycolysis, Hormonal regulation of blood glucose, Citric acid cycle (schema of Krebs cycle). Metabolism of glycogen, Cori cycle - Glycogen: synthesis, branching enzymes. Glycogenolysis, debranching enzymes. Glycogen in the liver and muscle cells. Cori cycle. Pentose phosphate

pathways (PPP) - Schema of PPP – relation between PPP and glycolysis, PPP in protection of erythrocytes. Metabolism of fructose and galactose. Conservation of chemical energy - Physical-chemical principles of cellular energy transformations. The ratio of ATP/ADP as a principal mean of energy storage. Organisation of metabolism. Metabolism of amino acids - Decarboxylation and deamination reactions, metabolism of amino acid (AA), skeleton (coordination with Krebs cycle), Some products of AA metabolism. Congenital AA disease - basic knowledge, Schema of urea cycle and relation to Krebs cycle. Oxidation of fatty acids, ketogenesis - Synthesis of fatty acid (FA) (condensation, reduction, elongation). Beta-oxidation schema. Production of FA, relation to ATP production and Krebs cycle, ketogenesis. Metabolism of cholesterol Metabolism of nucleic acids - Schema of urine and pyrimidine metabolism.

**MLAB 206: Introduction to Molecular Diagnostics**

Principles (Principles of Molecular Biology, Genomes and Nucleic Acid Alterations); Techniques and Instrumentation (Specimen Collection and Processing, Nucleic Acid Isolation, Nucleic Acid Techniques; Miniaturization: DNA Chips and Devices; Design and Operation of a Molecular Diagnostics Laboratory; Introduction to Evidence-Based Molecular Diagnostics); Applications (Inherited Diseases, Identity Assessment, Molecular Methods in Diagnosis and Monitoring of Infectious Diseases, Pharmacogenetics, Molecular Genetics in Diagnosis of Human Cancers)

**MLAB 207: Cell Biology**

Introduction, Comparison of Prokaryotic and Eukaryotic cells, Cell differentiation and types of specialisation, Cell structure and cellular organelles, Cell movements and transport, Cytoskeleton, Intercellular communication, Cell cycle and related cancers, Gene cloning and sequencing, Recombinant DNA technology, Oncogenes and Proto-oncogenes, Microscopy other Cell biology Tools.

**MLAB 208: Introduction to Clinical Chemistry**

To appreciate and prevent hazards in Clinical Chemistry Laboratory; Basic Equipment uses , calibration , units and Calculations in Clinical Chemistry; Function of Clinical Chemistry , study and alteration of steady state of biochemical nature; Body fluids such as water, urine biochemistry; Variation and sources as well as quality control in clinical chemistry; Carbohydrate metabolism and hypo/hyper – glycaemia.

**MLAB 209: Cell Biology Practical**

The laboratory sequence will support the above topics.

**MLAB 211: Introduction to Molecular Biology**

DNA Replication I; DNA Replication II; Transcription and RNA structure; Exon - intron splicing; tRNA structure and function; Genetic Code; Ribosomes and initiation of translation; Peptide Synthesis; Gene Expression (prokaryotes); Gene Expression (eukaryotes); Gene recombination (prokaryotes); Gene recombination (eukaryotes); Bacteriophages; Phage and plasmid growth; DNA amplification methods; DNA isolation and purification; Restriction enzymes; Recombinant DNA; DNA cloning; Genomic DNA cloning; DNA sequencing methods; DNA probes; RFLP and linkage analysis; Gene Mapping; Gene Transfer in animals. Introduction to RNA Technology. SNP analysis.

**MLAB 212: Introduction to Microbiology**

History of Microbiology; Microbiology Laboratory equipment; Laboratory safety measures; Types and preparation of glassware and specimen containers; Principles of specimen collection

and documentation; Transportation, receipt and handling of specimen; Normal flora and transmission of microbial agents; Introduction to Parasitology and parasitism; Host-parasite interrelationships; Introduction to microscopy; Colonial morphology; Diagnostic techniques for staining of detection of parasites; Basic Parasitological staining techniques (negative and tissue staining); Introduction to Virology; Viral structure and classification; Replication of viruses; DNA and RNA viruses of medical importance; Ultra-structure of bacteria; classification of bacteria; Anaerobes and facultative anaerobes; Rickettsia and Chlamydia; Aerobic & microaerophilic rods and cocci; Pathogenic factors; Bacterial Genetics; Bacterial physiology, nutrition and biochemical characteristics

**MLAB 213: Introduction to Molecular Biology Practical**

Extraction and quantitation of DNA and RNA; long term storage of nucleic acid; Restriction enzyme digestion; PCR; Agarose and polyacrylamide gel electrophoresis; Nucleic acid transfer to a membrane with subsequent prehybridization, hybridization, and stringency washes, probe labelling, autoradiography and sequencing. Basic bioinformatics applications. *In silico* analysis. DNA sequencing techniques. Cloning techniques. Introduction Micro array technology.

**MLAB 214: Pathology Laboratory Practice and Tissue Processing Procedures**

Laboratory Safety including fires and fire extinguishers; Histopathology Laboratory Administration; Cytopathology Laboratory Administration; Quality Assurance Practices in Pathology Laboratories; Principles of fixation and fixatives; Tissues processing for paraffin embedding

**BAHS 311: Research Methodology**

Research principles (the research process, strategies for obtaining facts); Research practice (experiments, ethnographic studies, surveys); Research presentation (critical appraisal of research, the research presentation, the research report); Formats and styles for reports and papers. The Nature of Research; Variety of Research Methods, Finding Research Problems, Literature Review; Ethics in Research; The research proposal; Causation; Internal Validity; Sampling; External Validity; Survey designs (Research, Activity); Descriptive Statistics; Measurement and Construct Validity; Reliability; TBA; Inferential Statistics; Research Designs; Analytic Epidemiological Study; Qualitative Research; Psychographic Techniques; Interviewing, Focus Groups; Action Research; Evaluation Research

**MLAB 301: Cytopreparatory Techniques**

Techniques for sample collection; Cytopreparatory and processing techniques; Smear preparation techniques; Fixation in cytology; Processing fluid samples; Special Preparatory Techniques: Cell Block Technique; Imprints ; Cytologic Staining Techniques: Pap and Romanowsky stains including Diff Quick; Advanced Staining Techniques: Destaining and Secondary Staining; Types of Slide-Coating Adhesives.

**MLAB 302: General and Gynaecologic Cytology**

Cytologic screening programmes; The Pap Smear; Cell Structure; Anatomy and histology of female genital tract; Cellular components of normal cervical smear; Hormonal Cytology; Cervical smear reporting; Evaluating the sample; Inflammation and benign reactions of the cervix; Microorganisms seen in the Pap smear; Terminology and nomenclature in cervical smear reporting; Human papilloma virus infection of the cervix; Histology and cytology of cervical pre-cancer; Cervical cancer; Risk factors; Role of HPV; Histology, grading and staging; Cytology; Automated cytology screening.

**MLAB 303: Basic Clinical and Laboratory Haematology**

Haemopoietic tissue and stem cells, haemoglobin formation from foetus to adults; Erythropoiesis, myelopoiesis, structure of red cell membrane, metabolism of red cell.; Function of red cells, white cell and platelets; Causes and effects of reduced and increased white cell and red cell count; Abnormalities of haemoglobin synthesis and catabolism.; Diagnosis and investigation of haemolytic anaemias. Parasitic infections in Haematology; The thick and thin peripheral blood film in diagnosis; Blood viscosity and erythrocyte sedimentation rate. Supravital staining; Granulopoiesis and lymphopoiesis, variations in the granulocyte and lymphocyte counts; The immune response; The immunology and biochemistry of phagocytosis; The structure and function of immunoglobulins; Lymphocyte subsets.; Principles of manual cell count and eosinophil count; Cell counting statistical applications SD, CV, Control chart Protein electrophoresis.; Hb electrophoresis and tests of function of red cell membrane. Study of HbS, HbF and Hg A2 Haem pigments. Assay of some red cell enzymes e.g. G6PD; Principles of assay of iron TIBC, ferritin, Vitamin B12, folic acid and the schilling test;

**MLAB 304: Gynaecologic Cytology Practical 1**

Study material will include Pap smears, which may be stained by the students. Each student will be required to examine 10 to 15 slides per practical session and be able to identify and mark (for inspection) abnormal cells and write reports using appropriate terminology. Projected photomicrographs will be used to illustrate abnormalities when stained slides are not available

**MLAB 305: Basic Clinical and Laboratory Haematology Practical**

Sample collection, transportation and storage. Anticoagulants dyes and stains used in Haematology. Preparation of glassware. Buffers. Manual and electronic cell counting techniques. Red cell indices. Basic haematological investigations e.g. Thick and thin film ESR reticulocyte count. Calibration of equipment. Investigation of deficiency anaemias e.g. Serum ferritin iron TIBC vitamin B12, Folic acid assay Schilling test. Investigation of haemolytic anaemias e.g. Sickling test; Hb electrophoresis, HbS, HbF, HbA2, Kleihauer test, osmotic fragility test, Ham's test, G6PD screen.

**MLAB 306: Basic Blood Transfusion**

History of blood transfusion. Basic ABO and Rhesus typing. Antigen-antibody reactions and complement. Blood donor and blood donation. Blood collection screening. Liquid phase, solid phase and microplate technology. Labeling, storage and distribution. Blood transfusion and its complications. Antenatal serology. Blood components. Inventory control and safety in the transfusion laboratory. Granulocyte specific antigens. Genetics and immunology of HLA antigens. Structure of the red cell membrane with reference to the organization of glycolipids, glycoproteins and proteins of known importance. The genetics and immunochemistry of blood group structures on red cell surfaces. Antigen-antibody reactions including solid phase. Blood component preparation. Investigation of haemolytic transfusion reactions, Haemolytic Disease of the Newborn and other immune haemolytic anaemias. Quality assurance.

**MLAB 307: Microbiology I**

Microbial pathogenesis; Opportunistic pathogens in health and disease conditions; Source transmission of microbial infections; Pathogenesis of viral, parasitic and bacterial diseases; Collection, transportation and storage of specimens for viral diagnosis; Diagnostic methods in Virology; Principles of Laboratory diagnosis of viral infections; Immunological basis of viral serological diagnosis; Immunological assays for viral diagnosis; Introduction to cell culture techniques; Quantitation of viruses; Arthropods and vectors of medical importance; Parasites oncology; Physiology and Biochemistry of Parasites; Routine urine preparation and examination;

Bacterial specimens collection, transportation and storage; Bacterial specimens collection, transportation and storage; Principles and Methods of Diagnosis in Bacteriology; Production of antibodies; Molecular techniques in Microbiology; Viral respiratory & CNS infections and their laboratory diagnosis; Blood-borne viruses and their lab. Diagnosis; Viruses in stool and their detection methods.

**MLAB 308: Basic Blood Transfusion Practical**

Various methods of blood grouping and screening-liquid phase, solid phase microplate technology. Compatibility tests, antibody screening. Screening of donor blood; storage and transportation. Blood disposal. Platelet concentrate.

**MLAB 309: Microbiology Practical I**

Parasites identification techniques; Media preparation for parasites identification; Routine stool examination techniques (emulsification, wet smears, iodine preparations); Concentration techniques (sedimentation, floatation methods) for stool examination; Microscopy and staining; Media preparation for cell, virus culture; Electron micrograph of DNA & RNA viruses; Cell culture techniques and CPE observation; Parasites oncology; Biochemical tests.

**MLAB 311: Clinical Chemistry I**

The concept of homeostasis, hydrogen ions and its disorders, renal function and abnormalities will be taught. Lipid metabolism will be introduced. Biochemical analyses related to dysfunctional organs will be discussed. Nutrition and micronutrients will be examined. HP axis / thyroid hormones will be examined.

**MLAB 312: Microbiology II**

Review of bacterial structure and classification; Antimicrobial agents and Sensitivity testing; Genetic systems as targets of antimicrobial agents; MIC & MBC; Sterilization and disinfection; Bacterial resistance mechanisms and resistance to antimicrobial agents; Assay of biological substances; Quality control of foods; Immunoprophylaxis; Biotechnology as applied to diagnosis of infections; Structure, morphology & classification of protozoan parasites; Life cycles of parasites (nematodes, cestodes); Parasite ecology (alimentary canal, blood and other tissues); Zoonotic parasitic infections; Vector borne diseases (Protozoa, nematodes); Infections of the gut, GIT; Trematodes, cestodes and other nematodes infections; Larval cestodes infections and Larval migrans.

**MLAB 313: Clinical Chemistry Practical I**

Demonstration of the effect of laboratory and extra laboratory factors affecting results, such as pipetting errors, sampling techniques and handling; including venous stasis, storage of samples and causes of errors. End-point, kinetic and differential methods of spectrophotometry and interpretation of biochemical results. The use of log books to monitor competencies will be emphasized.

**MLAB 314: Microbiology Practical II**

Specimens collection and storage (Bacteriological, Parasitological and Virological); Effects of physical and chemical agents on viruses; Immunological assays for viral diagnosis (Rapid tests for HIV, HBV, HCV); Molecular techniques in Microbiology; Urinary tract infections; Blood and CNS infection; Respiratory infections; Diagnosis of bacterial infections; Detection of bacterial pathogens by culture; Calibration, care and handling of Microscopes; Microscopy & Culture of blood, faecal and urine samples; Detection of parasites in blood, faecal and urine samples; Serology/other diagnostic techniques

**MLAB 315: Histotechnology I**

Special Techniques in Tissue processing; Double embedding; Resin embedding for light microscopy; Decalcification; Frozen sections; Mounting media; Overview of theory of Staining; Routine Haematoxylin and eosin staining; Instrumentation; Basic Microscopy; Microtomy and Paraffin section cutting; Tissue Processors; Embedding centres; Cryostat; Automatic stainers and coverlippers; Floatation baths; Faults and Remedies in Paraffin Wax Sectioning

**MLAB 316: Clinical Chemistry II**

Further complications of diabetes examinations will be introduced. protein and lipid biochemistry involving non-routine analyses such as plasma proteins, lipo-proteins will be examined. CSF and its biochemistry will be taught. The immune system and some disorders, as well as tumour marker will be introduced.

**MLAB 317: Histotechnology Practical I**

Preparation of fixatives; Tissue processing: dehydration, clearing, embedding using paraffin wax and alternatives; Microtomy; Staining: haematoxylin and eosin stain; Mounting

**MLAB 318: Clinical Chemistry Practical II**

Instrumentation, phlebotomy, demonstration of variations – preanalytical errors, Various tests relating to Plasma Glucose Estimation, Total Protein Estimation (plasma & urine), Biochemical Analysis of CSF, Kidney function, Liver function test, Lipid Profile and trace Trace Elements related to fluid and electrolyte balance will be undertaken to develop the necessary competencies.

**MLAB 319: Cytopreparatory Techniques Practical**

Papanicolaou stain for gynaecological specimens; Cytopreparation of fluid specimens: Includes sputum, urine, pleural effusion, ascitic fluid, CSF, joint effusions and pericardial effusions; Direct smears for sputum; Centrifugation; Cytocentrifugation; Filter methods; Fixation and pre-fixation; Wet alcohol fixation; Coating fixatives; Air-drying; Lysing fixatives; Papanicolaou and Romanowsky stains for fluid samples;

**MLAB 322: Histotechnology II**

Carbohydrates; Classification; Special Staining Techniques; Application in Pathology; Connective Tissue Proper, Basement Membrane and Muscle; Types and structure of connective fibres; Skeletal, cardiac and smooth; Techniques for differential demonstration of connective tissue fibres and muscle; Application in Pathology; Lipids; Classification; Staining Methods of identifying lipids; Application of Lipid Histochemistry in Pathology; Protein and Nucleic acids; Principles of methods of demonstration; Tissue Deposits - Pigments, Minerals, and Amyloid; Types of Pigments and Minerals and histochemical demonstration; Structure, classification and composition of amyloid; methods of demonstrating amyloid; Demonstration of Infective Agents in Tissue Sections

**MLAB 324: Histotechnology Practical II**

This course is intended to give practical knowledge of the demonstration of tissue components involve in diagnostic pathology. Students will acquire knowledge of various special staining techniques and identify factors that may give rise to faulty demonstrations

**BAHS 411: Principles of Management**

Principles, purpose and nature of management, overview of management, definitions, managerial efficiency/ effectiveness, management skills, role of a manager, functions of a manager, today's manager: skills and competencies, middle management, the purpose of management, definition of

a manager; Managerial activities, features of a good plan why we need to plan, nature of planning, significance of planning, requirements of a good plan, limitations of planning; Organizations, types of organizations, organization structures; Role of the supervisor within the laboratory, qualities of a good supervisor; Team building, team building-essence of team work, why teams don't work.

**BAHS 412: Applied Health Sciences Management**

The role of the supervisor, Leadership, Organization; Planning and the supervisor; Individual behaviour and social psychology; Recruitment and selection processes in health care settings; Induction and monitoring of staff in health care settings; Education and training; Controlling, counselling and discipline; Industrial relations: the supervisor and the trade unions; Health and safety; The law and supervisor – The Labour Act, 2003 Act 561; The supervisor and new technology; Critical thinking, problem-solving and strategic decision-making regarding health care organizations; Process and quality management; Communication, networking & continuous learning.

**MLAB 400: Project**

This course is designed to test students' ability to identify a health problem and design appropriate research into that problem. The course is aimed at testing the ability of students conduct scientific research, search for literature, collect quality data and produce a standard scientific project work. The student is expected to present the research problem for approval and carry out the research under the supervision of lecturers. All candidates shall be required to undertake an oral defence of their project work. At the end of the second semester, two copies of typed work will be presented for assessment.

**MLAB 401: Non-Gynaecologic Cytology**

Cytology of the Urinary Tract; Review Anatomy and histology; Sampling Techniques; Cellular components of urinary sediment; Pathology and cytology of non-neoplastic conditions; Urinary tract neoplasms – histology and cytology ; Cytology of Serous Cavities (Review Anatomy and histology, Types of effusions, Benign cells in effusions, Cytology of Benign Effusions, Cytology of Malignant Effusions) Cerebrospinal and Synovial Fluids (Anatomy and physiology); Normal cytology of and benign reactive cells in CSF; Cytology of benign reactive conditions and neoplasms in CSF; Normal cytology of and benign reactive cells in synovial fluid; Cytology of benign reactive conditions and neoplasms in synovial fluid.

**MLAB 404: Vocational Training in Clinical Chemistry**

The vocational training serves as a period of skills acquisition and perfection. It also offers students the opportunity of being abreast with current laboratory tests and methodologies in practice. Log books will be used by students and specific competencies must be demonstrated. At the end of the vocational training, students will be examined orally and graded

**MLAB 405: Haemostasis and Coagulation**

Thrombopoiesis, thrombocytosis and thrombocytopenia. Platelet function, role of endothelial cells, platelets, in the haemostatic process; Coagulation factors, inhibitors and fibrinolysis in the haemostatic process.; Acquired and congenital bleeding disorders.; Standardization of thromboplastins.; Investigation of acquired and congenital bleeding disorders, to include screening tests, factor assays.; Control of anticoagulant therapy.; Detection of inhibitors, tests of fibrinolytic activity; Quality control and standardization in the coagulation laboratory

**MLAB 406: Vocational Training in Microbiology**

The vocational training serves as a period of skills acquisition and perfection. It also offers students the opportunity of being abreast with current laboratory tests and methodologies in practice. Log books will be used by students and specific competencies must be demonstrated. At the end of the vocational training, students will be examined orally and graded.

**MLAB 407: Haemostasis and Coagulation Practical**

Bleeding Time, Whole blood clotting time,(WBCT), Prothrombin Time(PT), Partial Thromboplastin Time with Kaolin (PTTK),Standardization of thromboplastins, Thrombin time (TT). Mixing Tests using Aged and Adsorbed plasma. Reptilase time, Latex screening test for Fibrinogen/Fibrin Degradation Products (FDPs).Preparation of platelet rich plasma (PRP), platelet poor plasma (PPP).

**MLAB 408: Vocational Training in Cytotechnology**

The vocational training serves as a period of skills acquisition and perfection. It also offers students the opportunity of being abreast with current laboratory tests and methodologies in practice. Log books will be used by students and specific competencies must be demonstrated. At the end of the vocational training, students will be examined orally and graded.

**MLAB 409: Clinical Chemistry III**

Neonatal screening, Pre and post – natal biochemistry; hormones of the reproductive as well as adrenal systems will be examined, Acid/base biochemistry and toxicity of substances including metals will be dealt with.

**MLAB 411: Clinical Chemistry Practical III**

Qualitative and quantitative measurements based on principles of various chemical pathology tests – using dry chemistry/observational methods, dipsticks/strips. Wet chemistry – spectrophotometric (kinetic) techniques using reagents and chemicals and electrophoresis, Elisa and chromatographic techniques. Interpretation of results from practicals. Hormonal assays, peptide hormones and steroid hormones analysis.

**MLAB 412: Vocational Training in Histotechnology**

The vocational training serves as a period of skills acquisition and perfection. It also offers students the opportunity of being abreast with current laboratory tests and methodologies in practice. Log books will be used by students and specific competencies must be demonstrated. At the end of the vocational training, students will be examined orally and graded.

**MLAB 413: Parasitology, Mycology and Virology**

Structure and classification of fungi of medical importance; Environmental fungi; Dermatophytes; Fungal structure and classification; Investigation of superficial, subcutaneous and systemic fungal infections; Opportunistic fungi; Antifungal agents; Sensitivity testing of anti-fungal agents; Animal House management/ Cruelty to Animal Act (1986); Diseases and treatment of laboratory animals; Virus cultivation in eggs; Cell and virus culture and applications; Quantitation of viruses; Microscopy and staining methods for virus-infected tissues; Preservation /storage of cells and viruses; Public Health Virology (Viruses in water, sewerage, air and milk); DNA & RNA Viruses causing major diseases in humans; Diagnostic methods for detection of GIT parasites (Microscopy & Serology); Permanent staining techniques for detection of parasites (Concentration methods for R/E, for GIT parasites, blood parasites, etc); Routine examination of urine samples, expectorated sputum, aspirates and biopsy materials; Diagnosis of parasitic

infection in immunocompromised host; Procedures for permanent preparation of arthropods  
Common problems in organism identification; Maintenance of insectaria.

**MLAB 415: Parasitology, Mycology and Virology Practical**

Basic techniques in Mycology; Preparation/Routine microscopic examination of fungal specimens; Contaminants and opportunistic pathogens in Mycology; Dermatophytes; Identification of yeasts; Systemic dimorphic molds; Investigation of fungal infections; Reagent preparation for parasitological investigations; Routine microscopic examination of faecal specimens; Concentration methods for R/E; Permanent staining – Iron Haematoxylin & Modified Kinyoun's/ZN stains; Direct mount and stained preparations of sputum/aspirates; Giemsa/Leishman /

Fields staining techniques; Buffy coat /Knot concentration methods; Permanent preparation of arthropods; Staining for detection of Pneumocystis carinii; Virus/ Cell culture techniques /Preservation of cells and viruses; Cultivation of Polio/ Yellow fever vaccine strains and CPE observation; Cultivation of Polio/ Yellow fever vaccine strains and CPE observation; Vaccine potency testing; Immunofluorescence and immunological techniques in Virology

**MLAB 417: Histotechnology III**

Neurohistochemistry; Cellular Components of Nervous System; Nissl stains. Demonstration of Nerve Fibres; Demonstration of Myelin: Normal Myelin; degeneration products; combination techniques Demonstration of Neuroglial Cells; Demonstration of Nerve Endings; Immunohistochemistry; Definition of IHC; Paraffin sections and IHC; Unmasking Concealed Antigens; Reagents and antibodies for IHC (Labels: Enzymes, metals, radioactive materials); Chromogens and Substrates; Stability of Colour; Immunohistochemical methods; Reaction Product Intensification and Counterstains (Factors Influencing Immunohistochemistry Procedure, Application in Diagnostic Pathology); Immunofluorescence (Introduction, Fluorochromes, Staining Procedures: Direct and Indirect Staining;); Enzyme Histochemistry (Techniques for Demonstration of Enzymes).

**MLAB 419: Histotechnology Practical III**

Demonstration of Nerve Fibres; Demonstration of Myelin: Normal Myelin; degeneration products; combination techniques Demonstration of Neuroglial Cells; Demonstration of Nerve Endings; IHC on Paraffin sections, Direct and Indirect Staining (ABC, APA, APAAP, Enzyme Histochemistry).

**BSC RADIOGRAPHY  
DIAGNOSTIC AND THERAPY RADIOGRAPHY**

**PROGRAMME OBJECTIVES**

**DIAGNOSTIC RADIOGRAPHY**

At the end of training, the diagnostic radiography student should be able to: Accurately demonstrate anatomical structures on a radiograph or other image receptor; Determine exposure factors to achieve optimum radiographic techniques with minimum radiation exposure to the patient, self and others; Evaluate radiographic images for appropriate positioning and image quality; Recognize emergency patient conditions and initiate life-saving first aid and basic life support procedures; Exercise independent judgement and discretion in the technical performance of medical imaging procedures; Employ quality assurance and quality control procedures in the performance of duty; Provide patient care and comfort, show respect for patient's rights and dignity and act in acceptable professional manner at all times; Educate patients and the general public on radiographic procedures and radiation protection/safety; Participate in continued professional development programmes; and Manage a radiography department in at least a district hospital and advise hospital management on radiography issues

**THERAPY RADIOGRAPHY**

At the end of the training, the therapy radiography student should be able to: Assist the radiation oncologist in localizing tumors; Simulate treatment parameters; Verify and implement computer-generated treatment plans; Perform quality assurance procedures; Deliver radiation treatment as prescribed by the physician and monitor patient's physical condition and response to treatment; Provide patient care and comfort, show respect for patients' rights and dignity and act in acceptable professional manner at all times; Educate patients and the general public on radiotherapy procedures and radiation protection/safety; Participate in continued professional development programmes; Work with colleagues and other health professionals as a member of the health care team; Advise hospital management on radiotherapy issues

**CURRICULUM FOR DIAGNOSTIC AND THERAPY RADIOGRAPHY**

**Level 100**

**SEMESTER 1**

<b>Course Code</b>	<b>Course Detail</b>	<b>Total</b>
STAT 101	Introduction to Statistics	3
CHEM 111	General Chemistry 1	3
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
BAHS 113	Introduction to Computer Studies	1
UGRC 150	Critical Thinking and Practical Reasoning	3
UGRC 110	Academic Writing I	3
BAHS 101	Introduction to Microbiology	3
<b>Total</b>		<b>22</b>

**Semester 2**

Course Code	Course Detail	Total
BAHS 102	Human Anatomy	3
BAHS 104	Human Anatomy Practical	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practical	1
BAHS 122	Introductory Biochemistry	2
RDGY102	Introductory Radiography	2
BAHS 112	Introductory Psychology for Allied Health Sciences	2
GSPH 214	Writing for Public Health	3
UGRC 220	Liberal and African Studies	3
<b>Total</b>		<b>20</b>

**RDGY 200 Vocational Training I****3 Cr**

This is a 6-week inter-semester clinical training period at the end of semester 2 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake introductory clinical training in an accredited Diagnostic Imaging Department/Unit. Students shall be evaluated at the end of the vocational training. The course is a pre-requisite for all Level 200 courses in Diagnostic Radiography.

**Level 200****Semester 3**

Course Code	Course Detail	Total
RDGY 201	Radiography Physics I	2
RDGY 203	Patient Management I	2
RDGY 205	Radiographic Imaging Processes I	3
RDGY 207	Radiographic Anatomy I	3
BAHS 201	Computer Applications	3
BAHS 203	Statistics	2
SOCI 316	Medical Sociology	3
PSCY 307	Human Growth and Development I	3
<b>TOTAL</b>		<b>21</b>

**Semester 4**

Course Code	Course Detail	Total
BAHS 204	General Pathology	3
PSCY 308	Human Growth & Development II	3
RDGY 202	Radiography Physics II	2
RDGY 204	Patient Management II	3
RDGY 206	Radiographic Anatomy II	3
RDGY 208	Radiographic Imaging Processes II	3
RDGY 212	Equipment for Diagnostic Imaging I	3
RDGY 214	Medical Terminology I	1
<b>TOTAL</b>		<b>21</b>

## DIAGNOSTIC RADIOGRAPHY

### LEVEL 300

#### Semester 5

Course Code	Course Detail	Total
RDGY 301	Equipment in Diagnostic Imaging II	3
RDGY 303	Radiographic Technique I	3
RDGY 305	Radiobiology and Radiation Protection	3
RDGY 307	Radiation Physics	3
RDGY 310	Clinical Practice I	4
RDGY 309	Medical Terminology II	1
BAHS 311	Research Methodology	2
<b>TOTAL</b>		<b>19</b>

#### Semester 6

Course Code	Course Detail	Total
RDGY 302	Radiographic Technique II	3
RDGY 304	Specialized Imaging Modalities	3
RDGY 306	Specialized Imaging Equipment	3
RDGY 308	Introduction to Quality Assurance	2
RDGY 310	Clinical Practice II	5
BAHS 312	Health Law & Ethics	2
<b>TOTAL</b>		<b>18</b>

### RDGY400

#### Vocational Training III

3Cr

This is a 6-week inter-semester clinical training period at the end of semester 6 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will also undertake clinical attachment at a Diagnostic Imaging Department/Unit in an accredited Health Facility. There shall be an evaluation at the end of the clinical attachment. The course is a pre-requisite for all Level 400 courses in Diagnostic Radiography.

### LEVEL 400

#### Semester 7

Course Code	Course Detail	Total
RDGY 401	Radiographic Technique III	3
RDGY 403	Imaging Pathology and Pattern Recognition I	2
RDGY 405	Quality Management in Diagnostic Imaging	3
RDGY 410	Research Project	2
RDGY 420	Clinical Practice III	4
BAHS 411	Principles of Management	3
<b>TOTAL</b>		<b>21</b>

**Semester 8**

Course Code	Course Detail	Total
BAHS 412	Applied Health Sciences Management	3
RDGY 402	Radiographic Technique IV	4
RDGY 404	Imaging Pathology and Pattern Recognition II	3
RDGY 410	Research Project	5
RDGY 420	Clinical Practice IV	6
<b>Total</b>		<b>21</b>

**THERAPY RADIOGRAPHY****LEVEL 300****Semester 5**

Course Code	Course Detail	Total
RDGY 309	Medical Terminology II	1
RDGY 311	Radiotherapy Physics I: Radioactivity and Radiotherapy Equipment	3
RDGY 313	Radiation Oncology I: Principles	2
RDGY 315	Radiotherapy Technique I	4
RDGY 317	Radiobiology	3
RDGY 320	Clinical Practice I	4
BAHS 311	Research Methodology	2
<b>Total</b>		<b>19</b>

**Semester 6**

Course Code	Course Detail	Total
RDGY 314	Radiotherapy Physics II: Radiation Dosimetry & Principles of Treatment Planning	3
RDGY 316	Radiotherapy Technique II	3
RDGY 318	Treatment Planning I	2
RDGY 322	Radiation Oncology II: Treatment of Systems	2
RDGY 308	Introduction to Quality Assurance	3
RDGY 330	Clinical Practice I: Treatment Set up and Patient Management	3
RDGY 340	Clinical Practice I: Clinical Dosimetry & Treatment Planning	3
BAHS 312	Health Law and Ethics	2
<b>Total</b>		<b>21</b>

**RDGY 400 Vocational Training III****3 Cr**

This is a 6-week inter-semester clinical training period at the end of semester 6 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will also undertake clinical attachment at a Diagnostic Imaging Department/Unit in an accredited Health Facility. There shall be an evaluation at the end of the clinical attachment. The course is a prerequisite for all Level 400 courses in Therapy Radiography.

**LEVEL 400**  
**SEMESTER 7**

<b>Course Code</b>	<b>Course Detail</b>	<b>Total</b>
BAHS 411	Principles and Practice of Management	3
RDGY 407	Radiotherapy Physics III: Brachytherapy and Radiation Protection	3
RDGY 409	Treatment Planning II	2
RDGY 411	Quality Management in Radiotherapy	2
RDGY 430	Clinical Practice I: Treatment set up and Patient Management	3
RDGY 440	Clinical Practice II: Clinical Dosimetry and Treatment Planning	3
RDGY 410	Research Project	5
<b>Total</b>		<b>21</b>

**SEMESTER 8**

<b>Course Code</b>	<b>Course Detail</b>	<b>Total</b>
BAHS 412	Applied Health Sciences Management	3
RDGY 430	Clinical Practice I: Treatment set up and Patient Management	6
RDGY 440	Clinical Practice II: Clinical Dosimetry and Treatment Planning	6
RDGY 410	Research Project	5
<b>Total</b>		<b>20</b>

**Course Description and Contents**

**Level 100 Semester 1**

**STAT 101: Introductory Statistics**

Types of data, descriptive statistics and plots, theoretical distributions, probability, estimation, hypothesis testing, and one-way analysis of variance. A brief introduction to correlation and univariate linear regression. Basic statistical methods for both continuous and dichotomous data

**CHEM 111: General Chemistry I**

Introduction to the principles of chemistry including physical and chemical changes, energetic, atomic structure, bonding, nomenclature, chemical calculations, chemical reactions (including solubility, neutralization, and oxidation-reduction) gas laws, solutions, acids and bases, pH, equilibrium, and nuclear chemistry.

**PHYS 143: Mechanics and Thermal Physics**

Conceptual view of physics, Newtonian mechanics, wave motion, heat and thermodynamics, fluids, Wave motion, electricity and magnetism, geometrical and physical optics, Introduction to concepts of relativity, quantum theory, atomic and nuclear physics. Application of physical principles to related scientific disciplines including life sciences.

**ABCS 101: Introductory Animal Biology**

Introduction, Anatomical terminology and nomenclature, Structure and organisation of the cell, Basic tissues, Musculoskeletal system, Digestive System, Renal System, Integumentary System and Appendages, Reproductive System, Endocrine System, Special sensory organs

**BAHS 113: Introduction to Computer Studies**

The course is to provide the students with basic understanding of the historical evolution of the computer, types of computers and the classification of computers. Components of the computer including the hardware and software are covered. It will also the students to Identify the different categories of computer software and their uses and appreciate the areas of application of computers in society, thereby stimulating their thought to regard the computer as a tool for human use rather than a master.

**UGRC 150: Critical Thinking and Practical Reasoning**

An essential element in the training of social studies and humanities students is providing a corrective and diagnostic skill set that enables students to discriminate logically between: rhetorical ploys that give *motives* vs. arguments providing *good logical reasons* for believing an assertion. Students need to recognize the contrast between *inductive* and *deductive* reasoning and the different types of support yielded by each, to evaluate the quality of evidence confirming an empirical hypothesis about human conduct, to maintain individual professional and scholarly discretion in the face of peer pressure and mob mentality. These enrolled in this course will be provided the vocabulary and techniques to employ critical thought and practice within the academic arena and beyond.

**UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments

**BAHS 101: Introduction to Microbiology**

History of Microbiology; Microbiology Laboratory equipment; Laboratory safety measures; Types and preparation of glassware and specimen containers; principles of specimen collection and documentation; Transportation, receipt and handling of specimen ; Normal flora and transmission of microbial agents; Introduction to Parasitology and parasitism; Host-parasites interrelationships; introduction to microscopy; Colonial morphology; Diagnostic techniques for staining of detection of parasites; Basic Parasitological staining techniques (negative and tissue staining); Introduction to Virology; Viral structure and classification; Replication of viruses; DNA and RNA viruses of medical importance ; Ultra structure of bacteria; classification of bacteria Anaerobes and facultative anaerobes Rickettsia and Chlamydia; Aerobic and microaerophilic rods and cocci; Pathogenic factors, Bacterial Genetics; Bacterial Genetics; Bacterial physiology, nutrition and biochemical characteristic

**Level 100 Semester 2**

**ABCS 101: Introductory Animal Biology**

The course aims to help students appreciate the normal structure of the human body and apply this knowledge in the health sciences. By the end of the course students should be able to describe the basic structure of the cell and explain cell division; describe the embryological development of the organs of the body and possible deviations; describe the anatomical structures of the respiratory, digestive, nervous, lymphatic and circulatory system; and Outline the medical and nursing application of the organs (applied anatomy)

**BAHS 104: Human Biology Practical**

The course aims to help students to appreciate the relationship between structures in the human body which will support the lectures in the laboratory. By the end of the course students should be able to identify anatomical structures of the respiratory, digestive, nervous, lymphatic and circulatory system; draw a label simple anatomic structures like the male and female reproductive system; identification of parts of bones in the human body, identification of muscles, nerves and major blood vessels.

**BAHS 106: Basic Physiology**

This course is to provide the students with the knowledge and understanding of how the body maintains homeostasis by the feedback systems and describe the physiology of the cell and transport across the cell membrane. It will also cover the heart as a pump, hemodynamic and haemostasis in the cardiovascular system and explain the mechanism of breathing and transport of gases in the blood. Other areas to be covered include processes involved in the digestion of food and metabolic processes and body the body fluid compartments. The elements of renal function; the physiology of the special senses (sight, hearing, taste, and smell) and physiology of the musculoskeletal system as well as the mechanism of hormonal secretion and regulation of the glands of the endocrine system and functions of the male and female reproductive systems will be covered

**BAHS 108: Basic Physiology Practicals**

The laboratory sequence will support topics under BAHS 106 (Basic Physiology) to enable the demonstrate the use of instruments to measure some specific physiological parameters

**BAHS 112: Introductory Biochemistry**

Cell Theory; The Three Domains of Life; Prokaryotes and eukaryotes; subcellular organelles (compartmentalization of cellular processes); pH and buffer solutions; chemistry of water, definition of pH, the pH scale, buffer solutions and buffer capacity; the Henderson-Hasselbach equation in the preparation of buffer solutions. Chemistry and functions of biological molecules (biomolecules: monomers, polymers, macromolecules, Carbohydrates: mono-, di-, oligo- and polysaccharides, stereoisomerism. Lipids: different types (fatty acids, triacylglycerols, phospholipids, steroids, cholesterol). Amino acids and proteins: protein structure, classification. Nucleotides; nucleic acids. Formation of nucleic acids; Secondary, tertiary, and quaternary structures of DNA; Secondary, tertiary, and quaternary structures of RNA. Flow of genetic information. Replication, Transcription, Translation. Other aspects of nucleic acids and protein synthesis. Mutations. Anti-biotics. Vitamins and coenzymes. Enzymes, Properties and classification, cofactors and coenzymes, kinetics (effect of pH, temperature, [S], [E] on enzyme-catalyzed reactions, Michaelis-Menten equation); regulation (activation and inhibition). Membranes and Membrane Protein: General membrane function. Membrane composition. Phospholipid bilayer. Membrane structure. Posttranslational modification. Membrane fluidity. Diffusion in membranes. Movement of ions and molecules across membranes. Transport across membranes.

**RDGY 102: Introductory Radiography**

This course is designed to provide the basic skills and knowledge that the students will need to prepare them for their first experience of clinical work. It aims to provide them with an overview of the Imaging Department and a basic working knowledge of an X-ray room. Student will be required to take an active part in basic X-ray examinations of the appendicular skeleton.

**BAHS 112:      **Introductory Psychology for Allied Health Sciences****

This course is designed to introduce students to psychology as a discipline and a profession. The emphasis is on the scope of psychology and introductory topics in psychology like the history and subfields of psychology. The various major theories in psychology will also be discussed.

**GSPH 214:      **Writing for Public Health****

The course is to provide the students with the knowledge to communicate health messages in a clear and effective way. It will include writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues

**UGRC 220:      **Liberal and African Studies****

This introduction aims to provide basic background knowledge of Africa, its histories, peoples and cultures. It serves as the spring board from which to launch the elective courses on African and Liberal Studies.

**RDGY 200:      **Vocational Training 1****

This period forms the initial introduction of students to the radiology department so that they can familiarize themselves to the administrative and professional activities of the department. This is the first contact with patients and other members of the health care team and is the learning period of their inter- and intra-relationship with the various groups of people they encounter in the department as a preparation towards their professional development.

**Level 200      **Semester 3****

**RDGY 201:      **Radiography Physics 1****

To educate students in the physics of medical imaging with both ionising and non-ionising radiation demonstrate the fundamental knowledge of X-ray physics, screening and radiation protection as a condition of performing common radiographic examinations as well as the understanding of the physical principles underpinning diagnostic imaging and therapeutic radiography

**RDGY 203:      **Patient Management 1****

This course is to assist students to identify their responsibilities in the healthcare facilities as regards medico-legal, ethical and moral issues in the care of patients

**RDGY 205:      **Radiographic Imaging Processes 1****

To provide the knowledge of the radiographic image characteristics, factors that control image production and diagnostic quality and measures that are required to ensure the preservation of the diagnostic value of the image

**RDGY 207:      **Radiographic Anatomy I****

The course includes the study of the structure of human body and the normal function of its systems. Special emphasis is placed on radiographic anatomy (how the anatomical structures are presented on conventional and computed or sectional radiographic images).

**BAHS 201:      **Computer Applications****

An introduction to computers and data processing. Historical and current status of data processing and electronics digital computer applications; foundation of computer programming; survey of programming language. Survey of World Wide Web applications and use including the browsers, search engine, e-mail, news groups, FTP, multimedia, etc. The

computing security problem. Advanced features of microcomputers applications packages such as word processors, spreadsheets, graphic presentation software, creation and use of macros, styles, and scripts etc.

**SOCI 316: Medical Sociology**

Current knowledge of health production emphasizes the need to perceive health as multidimensional in character. This is because of the critical nexus between the health status of an individual and the cultural, political, economic and the physical environment that influence his/her health/seeking behavior. The multidimensional character of health is even more relevant in view of the fact that the definition of the patient is no longer restricted to an individual; the concept now applies to a whole community. Medical Sociology thus offers a junction where biology and society meet. The pursuit of this course thus gives the student a wider horizon to appreciate the various intermediations in health production. At the end of this course, students should be able to critically assess the outcomes of various interventions in health care processes

**PSCY 307: Human Growth and Development I**

The meaning of development the domains of human development, themes in human development, Why study human development, human growth sequence, prenatal development, the neonate: prematurity, causes and consequences, physical development, psychological Implications of physical development, cognitive Development, personality and social development: psychoanalytic theories, socialization: social learning theories. Mechanisms of socialization, agents of socialization, moral development: psychoanalytic theories, cognitive theories, social learning theories, Culture, Gender and moral development, topical Issues: culture and development, child abuse, the difficult or the maladjusted Child, adolescent delinquency.

**Level 200 Semester 4**

**BAHS 204: General Pathology**

Characteristics and nomenclature of disease, cellular basis of disease – causes of cell injury; cellular response to stimuli including homeostasis and steady state, cellular adaptations, reversible and irreversible (cell death) cell injury ,tissue response to injury – acute and chronic inflammation including beneficial and harmful effects; healing including concept of regeneration & repair; wound healing (primary and secondary); healing of fracture and special tissues; factors affecting healing, circulatory disturbances - hyperaemia and congestion; shock; oedema; thrombosis; embolism; ischaemia and infarction, neoplasia - definition, classification and nomenclature; general characteristics of neoplasms (benign and malignant); staging and grading of cancers (concept of tumour differentiation); metastases and routes of dissemination; carcinogenesis

**PSCY 308: Human Growth and Development II**

Adult development and Aging, Domains of Adult Development, Career in basics and Applied Gerontology. The concept of adulthood: psychological theories of adulthood, stages of adulthood, critique of stage theory, the concept of age. Adulthood: physical development: changes in the sense organs, sex and reproduction, health and vitality. Adulthood: cognitive development: changes in intelligence, fluid and crystallized intelligence, factors responsible for developmental changes. Adulthood: Psychosocial development: stages of adult development: early adulthood, middle adulthood, critique of stage theory revisited, the social clock, affiliation needs, achievement needs, the next cohort. Late adulthood: physical development: the aging process, aging and disease, causes of the aging process, Late adulthood and cognitive

development: learning in old age, dementia. Late adulthood: psychosocial development: theories: disengagement, activity, continuity and discontinuity, diversity, changes in achievement patterns, employment and retirement

**RDGY 202: Radiography Physics II**

This course further introduces the fundamental principles of physics underlying diagnostic X-ray production and radiography. Upon completion, students should be able to demonstrate an understanding of basic principles of physics as they relate to the operation of radiographic equipment; demonstrate an understanding of the fundamental physics principles relevant to equipment used in X-ray therapy and diagnostic imaging as well as the knowledge of physics as a tool for understanding physics applications to various diagnostic and therapy examinations and treatment technologies

**RDGY 204: Patient Management II**

This course is to assist students to identify their responsibilities in the healthcare facilities as regards medico-legal, ethical and moral issues in the care of patients

**RDGY 206: Radiographic Anatomy II**

The course is continuation of RDGY 207 includes the study of the structure of human body and the normal function of its systems. Special emphasis is placed on radiographic anatomy (how the anatomical structures are presented on conventional and computed or sectional radiographic images. Gross anatomy of the appendicular and axial skeleton, osteogenesis, muscles and joints are covered. Other area to be covered include gross anatomy of various organs and glands in the body as well as physiology and pathology of bones skeletal fractures in relation to conventional radiographic images and cross-sectional images of computer-generated images such as ultrasound, CT, MRI and RNI.

**RDGY 208: Radiographic Imaging Processes II**

This course is intended to provide the knowledge of the X-ray Darkroom as an essential component of the diagnostic Imaging department, automated and daylight film handling systems, manipulation of radiographic images, imaging principles of special techniques, and economics of silver in imaging.

**RDGY 212: Equipment for Diagnostic Imaging I**

The course is to provide students with an insight into the main components in an X-ray circuitry and the theoretical background of the design and operation of the circuit elements outlined in the syllabus and the effect of their performance on the quality of the diagnostic imaging.

**RDGY 214: Medical Terminology**

This is to assist students to acquire good working knowledge of medical terms in current use in medical practice as related particularly to radiological investigations. Content is designed to provide an introduction to the origins of medical terminology. A word building system is introduced and abbreviations and symbols are discussed. Also introduced is an orientation to understanding radiographic orders and diagnostic report interpretation. Related terminology is addressed.

**RDGY 300: Vocational Training II**

This is a 6-week inter-semester clinical training period at the end of semester 4 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will also

undertake clinical attachment at a Diagnostic Imaging Department/Unit in an accredited Health Facility. There shall be an evaluation at the end of the clinical attachment. The course is a prerequisite for all Level 300 courses in Diagnostic and Therapy Radiography.

***NB: Level 100 and 200 Courses are common to both Diagnostic and Therapy Radiography students and are prerequisite to progressing to Level 300 for the two (2) Programmes.***

## **DIAGNOSTIC RADIOGRAPHY**

**Level 300            Semester 5**

**RDGY 301:        Equipment for Diagnostic Imaging II**

The is to provide a basic grounding in the theoretical and practical aspects of the diagnostic imaging equipment listed in the syllabus to familiarize the students with the design features and the principle of operation of these equipment. Also an insight into the various approaches to managing diagnostic imaging equipment and the awareness of the necessity for quality assurance programme and their influence of the performance of the equipment.

**RDGY 303:        Radiographic Technique I**

The course is to provide the theoretical basis of imaging the various anatomical areas through lectures and demonstrations so that students will be able to apply correctly such techniques in the practical settings.

**RDGY 305:        Radiobiology and Radiation Protection**

The effects of radiation on cells and the human body in general will be studied under this course. Radiation protection will be treated to emphasize that radiation could be very useful when handled with care. Content is designed to provide an overview of the principles of the interaction of radiation with living systems .Radiation effects on molecules, cells, tissues and the body as a whole are presented. Factors affecting biological response are presented, including acute and chronic effects of radiation.

**RDGY 307:        Radiation Physics**

The course is to provides the students with the understanding for the physical principles of radioactivity and the production of X-rays including methods of measuring ionizing radiation. It will also help the students to understand the terms used to describe the quantity and quality of radiation and their application to medical imaging.

**RDGY 309:        Medical Terminologies II**

This is to assist students to acquire good working knowledge of medical terms in current use in medical practice as related particularly to radiological investigations. Content is designed to provide an introduction to the origins of medical terminology. A word building system is introduced and abbreviations and symbols are discussed. Also introduced is an orientation to understanding radiographic orders and diagnostic report interpretation. Related terminology is addressed

**RDGY 310:        Clinical Practice I**

Students are being introduced to the practical aspect of techniques after introductory Radiography and Radiography Technique I.

**BAHS 311:        Research Methodology**

Research principles (the research process, strategies for obtaining facts); Research practice (experiments, ethnographic studies, surveys); Research representation (critical appraisal of

research, the research presentation, the research report); Formats and styles for reports papers. The Nature of Research; Variety of Research Methods, Finding Research Problems, Literature Review; Ethics in Research; The research proposal; Causation; Internal Validity; Sampling; External Validity; Survey designs (Research Activity; Descriptive Statistics; Measurement and construct Validity; Reliability; TBA Inferential Statistics Research Designs Analytic Epidemiological Study; Qualitative Research; Psychographic Techniques; Interviewing, Focus Groups; Action Research; Evaluation Research.

## **Semester 6**

### **RDGY 302: Radiographic Technique II**

The course is to provide the theoretical basis of imaging the various anatomical areas through lectures and demonstrations so that students will be able to apply correctly such techniques in the practical settings.

### **RDGY 304: Specialized Imaging Modalities**

This is to introduce students to other specialized imaging modalities (both using either ionizing or non-ionizing radiation) available and their advantages and advantages in diagnostic medical imaging

### **RDGY 306: Specialized Imaging Equipment**

The course is designed to introduce students to computerized imaging equipment used for sectional anatomical imaging in diagnostic, therapy and nuclear medical imaging.

### **RDGY 308: Introduction to Quality Assurance in Diagnostic Imaging**

Provision of high quality healthcare to consumers must be the goal of all medical services. Imaging departments play a vital role in facilitating the above goal through the provision of diagnostic services and are widely used because of their known benefits to society. Despite their extensive usage worldwide and known benefits, diagnostic X-rays are by far the largest contributor to the collective dose from all man-made radiation sources. It has been increasingly recognized that quality assurance (QA) programmes play a fundamental role in establishing and maintaining systems to support high quality healthcare. QA directed at equipment and operator performance is of known value in improving diagnostic information content, reducing radiation dose, reducing medical costs and improving departmental management and the quality of patient care.

### **RDGY 310: Clinical Practice II**

This course is designed to enable the student to acquire the necessary skills in clinical radiography to undertake basic projections of different part of the human body. It also introduces students to and familiarizes them with the applications of advanced plain radiography and basic contrast studies. The students will be able to correctly position a patient for thorax, spine, skull, facial bones, sinuses, soft tissue radiography and foreign body localization. The students will be able to select the appropriate radiographic projections to demonstrate pathology, fracture, or any specified anatomical feature, and to correctly calculate and determine exposure factors required to obtain diagnostic radiographs.

### **BAHS 312: Health Law & Ethics**

This course is designed to introduce students to the adage that a competent knowledge of the laws of society is the proper accomplishment of every scholar in society. This should help allied health professionals to reduce negligence to the barest minimum, assist them to almost avert criminality, conduct themselves in the way that promote the profession in the best of

acceptable ways to their clients, employers and society. The course should arm the student with a tool for critical analysis of legal phenomenon broadly and application in the field of health

#### **Semester 7**

##### **RDGY 401: Radiographic Technique III**

The course is to provide the theoretical basis of imaging the various anatomical areas through lectures and demonstrations so that students will be able to apply correctly such techniques in the practical settings

##### **RDGY 403: Imaging Pathology and Pattern Recognition I**

This course is designed to enable students understand elements of radiographic images of various imaging modalities, identify normal and abnormal anatomy of images and identify pathologies on the images of the different modalities.

##### **RDGY 405: Quality Management in Diagnostic Imaging**

To provide an understanding of the concept, principles and policies of quality management as it relates to radiation protection in diagnostic and interventional radiology.

##### **RDGY 420: Clinical Practice III**

The Course is designed to assist students to identify and report equipment malfunctions, examine procedure orders for accuracy and make corrective actions when applicable, demonstrate safe, ethical and legal practices and integrate the radiographer's practice standards into clinical practice setting.

##### **BAHS 411: Principles of Management**

Principles, purpose and nature of management, overview of management, definitions, managerial efficiency/ effectiveness, management skills, role of a manager, functions of a manager, today's manager: skills and competencies, middle management, the purpose of management, definition of a manager; Managerial activities, features of a good plan why we need to plan, nature of planning, significance of planning, requirements of a good plan, limitations of planning; Organizations, types of organizations, organization structures; Role of the supervisor within the laboratory, qualities of a good supervisor; Team building, team building-essence of team work, why teams don't work.

##### **RDGY 400: Vocational Training III**

This is a 6-week inter-semester clinical training period at the end of semester 6 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will also undertake clinical attachment at a Diagnostic Imaging Department/Unit in an accredited Health Facility. There shall be an evaluation at the end of the clinical attachment. The course is a pre-requisite for all Level 300 courses in Diagnostic and Therapy Radiography

#### **Level 400 Semester 8**

##### **BAHS 412: Applied Health Sciences Management**

The role of the supervisor, Leadership, Organization; Planning and the supervisor; Individual behaviour and social psychology; Recruitment and selection processes in health care settings; Induction and monitoring of staff in health care settings; Education and training; Controlling, counselling and discipline; Industrial relations: the supervisor and the trade unions; Health and safety; The law and supervisor – The Labour Act, 2003 Act 561; The supervisor and new technology; Critical thinking, problem-solving and strategic decision-making regarding health

care organizations; Process and quality management; Communication, networking & continuous learning.

**RDGY 402: Radiographic Technique IV**

This is to introduce students to the fundamentals of vascular, lymphatic and sectional imaging using contrast media and other imaging modalities. This is to assist students to acquire knowledge of the basic techniques and protocols for such examinations

**RDGY 404: Imaging Pathology and Pattern Recognition II**

This is to introduce the student radiographer to the identification of common pathologies and pattern recognition on radiographs of the visceral organs; Ultrasound of organs other than Obstetrics and Gynaecology. At the end of the Course should be able to critique images for appropriate technical, procedural and pathological factors, and employ corrective actions if necessary

**RDGY 420: Clinical Practice IV**

This is to assist students to adapt procedures to meet age-specific, disease-specific and cultural needs of patients, Apply the principles of total quality management, Adhere to national, institutional and departmental standards, policies and procedures regarding care of patients, providing radiologic procedures and reducing medical errors, critique images for appropriate anatomy, image quality and patient identification, determine corrective measures to improve inadequate images and Demonstrate competency in the principles of radiation protection standards. Students would spend this period rotating through various units to obtain more hands-on experience practical and proficiency.

**RDGY 410: Research Project (Semesters 7 & 8)**

This course is designed to teach students how to gather information, analyze the information, present and discuss data and address current issues in radiography. Students are given the opportunity to conduct an individual investigation of radiography-related problem

## **THERAPY RADIOGRAPHY**

**Level 300 Semester 5**

**RDGY 309: Medical Terminologies II**

This is to assist students to acquire good working knowledge of medical terms in current use in medical practice as related particularly to radiological investigations. Content is designed to provide an introduction to the origins of medical terminology. A word building system is introduced and abbreviations and symbols are discussed. Also introduced is an orientation to understanding radiographic orders and diagnostic report interpretation. Related terminology is addressed

**RDGY 311: Radiotherapy Physics I (Radioactivity and Radiotherapy Equipment)**

The course is designed to provide the students with the understanding for the physical principles of radioactivity and measuring of ionizing radiation. It will also help students to appreciate the terms used to describe quantity and quality of radiation and identify equipment used in radiotherapy. Also included are principles and functions; as well as the limitation of each equipment and the common cancers treated by each modality and the safety aspects.

**RDGY 313: Radiation Oncology 1: Principles**

The course is designed to provide an overview of malignant diseases as well as the nature and

epidemiology of cancer. It is also designed to provide understanding to students about general principles of cancer management and to provide insight to students about the factors worth considering in choosing various treatment options and advances in oncology and radiotherapy practices.

**RDGY 315: Radiotherapy Technique I**

The course is designed to provide students with cognitive and evaluative skills necessary to understand and perform the required radiotherapy procedures. It includes mould room procedures, localization of tumours and treatment planning procedures. Other areas covered include verification of treatment plans and introduction to treatment accessories and equipment.

**RDGY 317: Radiobiology**

Content is designed to provide an overview of the principles of the interaction of radiation with living systems. Radiation effects on molecules, cells, tissues and the body as a whole is presented. Factors affecting biological response are presented, including acute and chronic effects of radiation.

**RDGY 309: Medical Terminologies II**

This is to assist students to acquire good working knowledge of medical terms in current use in medical practice as related particularly to radiological investigations. Content is designed to provide an introduction to the origins of medical terminology. A word building system is introduced and abbreviations and symbols are discussed. Also introduced is an orientation to understanding radiographic orders and diagnostic report interpretation. Related terminology is addressed

**RDGY 320: Clinical Practice**

Content is designed to provide sequential development, application, analysis, integration, synthesis and evaluation of concepts and theories in radiation therapy. Through structured sequential assignments in clinical facilities, concepts of team practice, patient-centered clinical practice and professional development will be discussed, examined and evaluated

**BAHS 311: Research Methodology**

Research principles (the research process, strategies for obtaining facts); Research practice (experiments, ethnographic studies, surveys); Research representation (critical appraisal of research, the research presentation, the research report); Formats and styles for reports papers. The Nature of Research; Variety of Research Methods, Finding Research Problems, Literature Review; Ethics in Research; The research proposal; Causation; Internal Validity; Sampling; External Validity; Survey designs (Research Activity; Descriptive Statistics; Measurement and construct Validity; Reliability; TBA Inferential Statistics Research Designs Analytic Epidemiological Study; Qualitative Research; Psychographic Techniques; Interviewing, Focus Groups; Action Research; Evaluation Research

**Semester 6**

**RDGY 308: Quality Assurance in Radiotherapy**

Provision of high quality healthcare to consumers must be the goal of all medical services. Imaging departments play a vital role in facilitating the above goal through the provision of diagnostic services and are widely used because of their known benefits to society. Despite their extensive usage worldwide and known benefits, diagnostic and therapy X-rays are by far

the largest contributor to the collective dose from all man-made radiation sources. It has been increasingly recognized that quality assurance (QA) programmes play a fundamental role in establishing and maintaining systems to support high quality healthcare. QA directed at equipment and operator performance is of known value in improving therapeutic information content, reducing radiation dose, reducing medical costs and improving departmental

**RDGY 314: Radiotherapy Physics II (Dosimetry & Principles of Treatment Planning)**

The course is designed to provide basic knowledge and solid foundation in treatment prescriptions and appropriate definitions. Calculations of treatment dose with the treated volume to include tumour and skin/sub-dermal doses are also included. Other areas covered include manual drawing of simple and routine isodose distribution for single, parallel opposes and multi-field techniques. Interpretation of isodose distribution as well as verification of treatment plans with reference of beam/patient alignment is also covered

**RDGY 316: Radiotherapy Technique II**

This course is designed to build on the knowledge and skills gained from Radiotherapy Technique I to enable the students take a greater role with the radiotherapy department through application of their skills to execute complex treatment procedures.

**RDGY 318: Treatment Planning I (Theory)**

The course is designed to provide the theoretical knowledge on treatment planning which will form the foundation for the practical training in treatment planning. The course has further been designed to equip the students with the cognitive and evaluative skills necessary to understand and perform the require treatment planning procedures for various anatomical sites.

**RDGY 322: Radiation Oncology II (Treatment of Systems)**

The course is designed to provide understanding to students about the anatomical structures and physiological functions of the body and the tumours of the haemopoietic and lymphoreticular system, head and neck, ENT, Eye, the endocrine system, digestive and female reproductive system. It is also intended to provide insight to students about the factors worth considering

**RDGY 330: Clinical Practice (Treatment Setup and Patient Management)**

The clinical practicum has been designed to complement the academic and runs throughout the course. Clinical placements have been designed so that the students will be able to observe the practical application of the theoretical courses wherever possible. Assessment would be linked with the theoretical assessment to demonstrate practical application of knowledge.

**RDGY 340: Clinical Practice 1 (Clinical Dosimetry and Treatment Planning)**

This course is planned to provide opportunities to students to translate into practice the theoretical knowledge on treatment planning. Areas covered include: - record keeping; appointment system; equipment calibration and mould room techniques. Other areas covered are the performance of radiotherapy treatment procedures and demonstrating competencies in all aspects of treatment planning procedure.

**BAHS 312: Health Law & Ethics**

This course is designed to introduce students to the adage that a competent knowledge of the laws of society is the proper accomplishment of every scholar in society. This should help allied health professionals to reduce negligence to the barest minimum, assist them to almost avert criminality, conduct themselves in the way that promote the profession in the best of

acceptable ways to their clients, employers and society. The course should arm the student with a tool for critical analysis of legal phenomenon broadly and application in the field of health

**Level 400 Semester 7**

**BAHS 411: Principles of Management**

Principles, purpose and nature of management, overview of management, definitions, managerial efficiency/ effectiveness, management skills, role of a manager, functions of a manager, today's manager: skills and competencies, middle management, the purpose of management, definition of a manager; Managerial activities, features of a good plan why we need to plan, nature of planning, significance of planning, requirements of a good plan, limitations of planning; Organizations, types of organizations, organization structures; Role of the supervisor within the laboratory, qualities of a good supervisor; Team building, team building-essence of team work, why teams don't work.

**RDGY 407: Radiotherapy Physics III (Brachytherapy and Radiation Protection)**

The course is designed to provide the students with the understanding of the principles of clinical use of radioactive substance in specific disease management. Relevant dose calculation in brachytherapy is also covered. The need for radiation protection measures in brachytherapy to minimize unnecessary radiation exposure to patients and staff is included in the course. The risk-benefit philosophy underpinning therapeutic radiography is also covered

**RDGY 409: Treatment Planning II**

The course which is continuation of RDGY 318 is designed to provide the theoretical knowledge on treatment planning which will form the foundation for the practical training in treatment planning. . The course has further been designed to equip the students with the cognitive and evaluative skills necessary to understand and perform the require treatment planning procedures for various anatomical sites.

**RDGY 411: Quality Management in Radiotherapy**

To provide an understanding of the concept, principles and policies of quality management as it relates to radiation protection in therapy radiotherapy.

**RDGY 430: Clinical Practicum II: (Treatment Set up and Patient Management**

Clinical practicum has been designed to enable the student to integrate clinical experience with the theoretical knowledge. The course has further been designed to enable the students take a greater role within the radiotherapy department through application of their skills and execute complex localization, verification and treatment procedures.

**RDGY 440: Clinical Practicum II (Clinical Dosimetry & Treatment Planning)**

This course is planned to provide opportunities to students to translate into practice the theoretical knowledge on treatment planning. Areas covered include: - record keeping; appointment system; equipment calibration and mould room techniques. Other areas covered are the performance of radiotherapy treatment procedures and demonstrating competencies in all aspects of treatment planning procedure

**RDGY 410: Research Project (Semesters 7 & 8)**

This course is designed to teach students how to gather information, analyze the information, present and discuss data and address current issues in radiography. Students are given the opportunity to conduct an individual investigation of radiography-related problem

## **Semester 8**

### **BAHS 412: Applied Health Sciences Management**

The role of the supervisor, Leadership, Organization; Planning and the supervisor; Individual behaviour and social psychology; Recruitment and selection processes in health care settings; Induction and monitoring of staff in health care settings; Education and training; Controlling, counselling and discipline; Industrial relations: the supervisor and the trade unions; Health and safety; The law and supervisor – The Labour Act, 2003 Act 561; The supervisor and new technology; Critical thinking, problem-solving and strategic decision-making regarding health care organizations; Process and quality management; Communication, networking & continuous learning.

### **RDGY 430: Clinical Practicum II: (Treatment Set up and Patient Management)**

Clinical practicum has been designed to enable the student to integrate clinical experience with the theoretical knowledge. The course has further been designed to enable the students take a greater role within the radiotherapy department through application of their skills and execute complex localization, verification and treatment procedures.

### **RDGY 440: Clinical Practices II (Clinical Dosimetry & Treatment Planning)**

This course is planned to provide opportunities to students to translate into practice the theoretical knowledge on treatment planning. Areas covered include: - record keeping; appointment system; equipment calibration and mould room techniques. Other areas covered are the performance of radiotherapy treatment procedures and demonstrating competencies in all aspects of treatment planning procedure

### **RDGY 410: Research Project (Semesters 7 & 8)**

This course is designed to teach students how to gather information, analyze the information, present and discuss data and address current issues in radiography. Students are given the opportunity to conduct an individual investigation of radiography-related problem

## **BSC IN OCCUPATIONAL THERAPY**

### **PROGRAMME OBJECTIVES**

This program is aimed at producing competent practitioners in occupational therapy who are capable of continuing professional and personal development to meet specific needs of Ghana. The program objectives are to:- Equip students with the specific knowledge base and skills that are required for competent practice of occupational therapy at the beginning level; Develop students' understanding of the holistic nature of a person's health status and its implications on the delivery of health care service with emphasis on rehabilitation; Develop students' analytical thinking, problem solving, interpersonal and communication skills; Develop students' ability to integrate knowledge, skills and attitudes to practice competently in occupational therapy; Foster students' development of professional identity and accountability; Develop students' skills in self-directed learning and positive attitudes towards continuing professional and personal development; Students' to synthesize current biological, behavioral and clinical sciences for occupational therapy practice with due reference to the holistic approach to health care issues; Analyze activities and tasks essential to life roles in self- maintenance, productivity, and leisure/play; Identify patients'/clients' functional problems resulting from developmental dysfunction, physical disability, psychosocial dysfunction and/or ageing

process; Plan, implement and evaluate programs of therapy which help patients/clients acquire adaptive skills, social effectiveness and physical abilities essential for participation in own life roles; Communicate (verbally and written) and function appropriate to the professional standard; Contribute to the planning, organizing, staffing, leading and assuring the quality of service of an occupational therapy unit; Apply knowledge and interpersonal skills learned to work co-operatively as a member of the health care team which aims at reintegrating the disabled back to their families and into the community; and; Continue ongoing personal and professional development through activities such as independent study, peer review activities, clinical supervision, continuing education and research.

**CURRICULUM  
LEVEL 100 COURSES**

*All the courses at Level 100 are compulsory*

**SEMESTER 1**

STAT 101	Introduction to Statistics	3
BAHS 103	Introduction to Microbiology	3
CHEM 111	General Chemistry I	3
PHYS 143	Mechanics and Thermal Physics	3
ABCS 101	Introductory Animal Biology	3
UGRC 150	Critical Thinking and Practical Reasoning	3
BAHS 113	Introduction to Computer studies	1
UGRC 110	Academic Writing I	3
		<b>22</b>

**SEMESTER 2**

BAHS 102	Human Anatomy	3
BAHS 104	Human Anatomy Practical	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practical	1
OTTR 102	Intro to Occupational Therapy	2
BAHS 122	Introductory Biochemistry	2
BAHS 112	Intro Psychology for Allied Health Sciences	2
UGRC 220	Liberal and African Studies	3
GSPH 214	Writing for Public Health	3
		<b>20</b>

**OTTR 100: Practice Placement.**

\*This is a 6-week inter semester clinical training period at the end of semester 2 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake introductory clinical training in an accredited Hospital Ward/Unit. Students shall be evaluated at the end of the clinical affiliation. The course is a pre-requisite for all Level 200 courses in Occupational Therapy.

## LEVEL 200 COURSES

*All the courses at Level 200 are compulsory*

### SEMESTER 3

OTTR 203	Occupational Therapy Theory and Practice	2
PSTR 201	Advanced Anatomy	2
PSTR 203	Advanced Anatomy Practical	1
SAHS 201	Basic Computer Application	2
PSCY 307	Human Growth & Development I	3
SAHS 205	Introductory Biochemistry II	2
SAHS 203	Statistics	2
SOCI 316	Medical Sociology	3
		<b>17</b>

### SEMESTER 4

PSTR 204	Neuroscience	2
OTTR 202	OT for Physical Dysfunction	3
OTTR 204	Individuals, Institutions and Change	2
PSTR 208	Health Promotions and Disease Prevention	2
PSCY 308	Human Growth & Development II	3
PSTR 212	Biomechanics	2
SAHS 204	General Pathology	3
SAHS 202	Immunology	2
		<b>19</b>

### **OTTR 200 Practice Placement 3**

\*This is a 6-week inter semester clinical training period at the end of semester 4 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake introductory clinical training in an accredited Hospital Ward/Unit. Students shall be evaluated at the end of the clinical affiliation. The course is a pre-requisite for all Level 300 courses in Occupational Therapy.

## LEVEL 300 COURSES

*All the courses at level 300 are compulsory*

### SEMESTER 5

OTTR 301	Enabling Expression of Needs	2
PSTR 301	Kinesiology	2
PSTR 307	Neuro-rehabilitation I	2
OTTR 303	Environmental Planning I	3
OTTR 305	Orthotics and Seating	3
OTTR 307	OT Practice Skills I (Practical)	2
SAHS 301	Research Methodology	2
PSTR 309	Rheumatology (OT)	2
PSTR 311	Systemic Pathology	2
		<b>20</b>

### SEMESTER 6

OTTR 302	Designing for Clients Needs (+ Practical)	3
PSTR 302	Traumatic Skeletal Disorders (OT)	2

PSTR 304	Neuro-Rehabilitation II	2
SAHS 302	Health Law and Ethics	2
OTTR 304	Environmental Planning II	2
OTTR 306	OT for Psychosocial Dysfunction	3
OTTR 308	OT for Developmental Dysfunction (Pediatrics)	3
OTTR 312	Community Therapy Services	2
OTTR 401	OT Practice Skills II	2
		<b>19</b>

**OTTR 300 Practice Placement 3**

\*This is a 6-week inter-semester clinical training period at the end of semester 6 (i.e. during the long vacation) to allow students to obtain practical hands-on experience. Students will undertake clinical attachment at a Hospital ward/Unit in an accredited health facility. There shall be an evaluation at the end of the clinical attachment. The course is a pre-requisite for all Level 400 courses in Occupational Therapy. NOTE: Alert students on the need to think of their research proposals at this stage of their course.

**LEVEL 400 COURSES**

**All the courses at level 400 are compulsory**

**SEMESTER 7**

OTTR403	Inter-professional Assessment	2
PSTR 403	Dermatology & Burns	2
OTTR 407	Geriatrics OT	3
SAHS 401	Principles of Management	3
PSTR 405	Health and Physical Fitness	2
<b>OTTR 400</b>	<b>Practice Placements I (intra sem.) 3days/week</b>	<b>3</b>
<b>OTTR 420</b>	<b>Project (Dissertation I)</b>	<b>4</b>
		<b>19</b>

**SEMESTER 8**

SAHS 402	Applied Health Sciences Management	3
OTTR 402	Vocational Rehabilitation for OT	2
OTTR 404	Evidencing Practice & Debate on OT current Issues	2
PSTR 402	Health, Fitness and Physical Activity	2
<b>OTTR 400</b>	<b>Practice Placement II (Intra-sem.) 2dys/wk</b>	<b>2</b>
PSTR 406	Ergonomics and Industrial Therapy	3
<b>OTTR 420</b>	<b>Project (Dissertation II)</b>	<b>4</b>
		<b>18</b>

**Course Description**

**OTTR 102: Introductions to Occupational Therapy**

This unit is focused on ensuring clear understanding of the profession of Occupational therapy and the historical development. The unit examines the ability to confidently discuss Occupational Therapy in the areas of philosophy, models, and scope of practice, prospects, associated limitations and the role of the occupational therapist in the health care system.

**OTTR 201: Occupational Therapy Theories and Practice**

The unit is to assist students to gain understanding of disability in the socio- cultural context. The unit will further inform on OT theoretical frameworks and approaches used for different

disabling conditions and situations. Students will be expected to appreciate information gathering, synthesizing and importance of confidentiality in OT practice.

**OTTR 202: Occupational Therapy for Physical Dysfunction**

This course will examine areas to develop students understanding of the impact of altered physical function on occupational performance. Students will be introduced to skills of assessment and recording. It will also examine in-depth knowledge and demonstration of understanding in evaluating neuromuscular and motor skills, somatic sensory function, special senses, cognitive and perceptual skills in relation to occupational performance. The unit will cover areas including,

**OTTR 204: Individuals, Institutions and Change**

The course will assist the student to develop awareness of the needs of persons who have been, are, or could be affected by institutional living. The course will enhance students understanding on how to integrate knowledge on healthcare services with the study of effects of institutional living and the application of theory and concepts of change and its management.

**OTTR 301: Enabling Expression of Needs**

This unit will examine the development of different forms of communications and consider the occupational performance needs of people with related communication difficulty. The unit will also examine the normal development of communication skills associated with communication problems and the impact on occupational performance. Students will appreciate and evaluate a range of tools and techniques associated with assessment and treatment of persons with communication disorders. The unit will again assist the student to develop an understanding of the function of the variety of supporting services and agencies relevant to communication and inter agency working with the OT.

**OTTR 303: Environmental Planning I**

This unit will examine areas to gaining understanding of the influence of the environment on enabling occupation. This will explore the concept of disability and its associated legal issues. Students will also be guided through the exploration of the concept of community

**OTTR 305: Orthotics & Seating**

This unit will examine occupational performance components deficits with a variety of conditions/injuries. The unit will explore the analysis and assessment on how orthotic interventions may address and facilitate different levels of occupational performances.

The unit will further examine appropriate use of wheel chair by w/chair dependants and their carers to mitigate affected occupational performance areas.

**OTTR 307: Occupational Therapy Practice Skills I (Practical)**

The unit will examine skills and techniques in the assessment of performance components of occupational performance areas of self-care, productivity and leisure with consideration to physical and social/ cultural environment. The student would be able to interpret and record a full assessment of patients with physical dysfunction.

**OTTR 302: Designing for Clients' Needs (+ Practical Demonstration)**

This unit is based on problem solving and practical workshop activity. Students will work in groups and will have the opportunity to make a prototype, or adapt a piece of domestic or therapeutic equipment to meet the needs of an identified client or client group. The unit will

guide students to explore and describe materials which are locally available, and their potential usage in construction of adaptive equipment.

**OTTR 304: Environmental Planning II**

This unit will examine the need to enable students to be fully aware of how the environment can be physically adapted to facilitate independence in all areas of activity of daily living. Students will demonstrate basic technical drawing techniques in order to be able to understand building plans and to draw adaptations. The unit will also examine areas of communicating knowledgeably with others responsible for providing accessible and suitable work environments for disabled persons and domestic settings for disabled and elderly people. There will also be the need to examine relevant legislative factors affecting environmental design and provision of work place and domestic fixtures and fittings.

**OTTR 306: Occupational Therapy for Psychosocial Dysfunction**

The unit will enlighten students to gain understanding of mental illness in relation to occupational performance. The unit also examines how OT improves functional capacity and quality of life for people with mental illness in the areas of employment, education, community living, and home and personal care through the use of real life activities in therapy treatments.

**OTTR 308: Management of Practice and Change**

This unit will assist students to develop skills of self-efficacy, applying personal and organisational theory to the effective management of professional practice. The unit will also examine the theory and practice of personal management and organisational skills to evaluate opportunities and constraints upon the development of professional practice within changing health service systems

**OTTR 312: Community Therapy Services**

The unit examines further in-depth understanding of the influence of the environment on enabling occupation. The unit dwells on earlier knowledge on the concepts of community, societal structure and the importance of meaningful occupation. Emphasis is laid on WHO model of CBR and how the therapist could work with other MDT members to sustain this community rehabilitation model. The unit is aimed to making therapy services accessible, acceptable, and affordable in the community setting.

**OTTR 401: Occupational Therapy Practice Skills II (Practical)**

The unit will examine areas to assist students to have a thorough understanding of the occupational therapy process and its application. The area of study will lead to demonstrate a good understanding of each stage of the occupational therapy process.

**OTTR 403: Inter-Professional Assessment**

The unit will provide students with an opportunity to explore areas of professional assessment of individuals and family care needs while working with other professional team members. The unit will compare and contrast professional roles and boundaries within the inter-disciplinary team and analyse the concept of effective team work to provide holistic care.

**OTTR 405: Occupational Therapy for Developmental Dysfunction**

To enable students to have knowledge and skills to plan and carry out assessment and treatment of children with common conditions as seen in OT practice. The unit will assess occupational performance areas of self-care, play, productivity and leisure.

The unit will ensure students appreciation to various developmental disabilities in the areas of

identification and management.

**OTTR 407: Occupational Therapy and Geriatrics**

This area will examine knowledge and skills to plan and carry out OT assessment and treatment with elderly patients with common physical conditions as seen in OT practice. The unit will enable the ability to construct OT assessment and treatment plans.

**OTTR 402: Vocational Rehabilitation**

The unit will explore the philosophy and purpose of vocational rehabilitation/ training. This area of study will enable students to acknowledge how healthy working life continually provides working age people with the opportunity, ability, support and encouragement to work in ways which allows them to sustain and improve their health and wellbeing. The unit takes into consideration sense of identity, social structure and routine, social networks, skills and meaning to the concept of leisure.

**OTTR 404: Evidencing Practice & Debate On Current Occupational Therapy Issues**

This unit aims to develop a basic understanding of the methods used to provide evidence to underpin professional practice in occupational therapy. It examines the ability to understand how the academic knowledge base of the profession is developed and applied. The unit also examines current socio-political issues and their effect on OT practice and development. Students will also be introduced to process management of transition from students to qualified practitioners.

**OTTR 400: Practice Placements (Rotation)**

This course is a two semester-long practice placement during level 400 in 3 different settings (Physical Health, Mental Health, and Rehabilitation Centre) to develop students' identification with the occupational therapy profession through observation and practice under supervision. Students will be doing three days per week in semester 7 and two days per week during semester 8 when they will be assessed.

**UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments

**GSPH 214: Writing for Public Health**

Writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues

**UGRC 220: Liberal and African Studies**

This introduction aims to provide basic background knowledge of Africa, its histories, peoples and cultures. It serves as the spring board from which to launch the elective courses on African and Liberal Studies.

**STAT 101:     Introductory Statistics**

Types of data, descriptive statistics and plots, theoretical distributions, probability, estimation, hypothesis testing, and one-way analysis of variance. A brief introduction to correlation and univariate linear regression. Basic statistical methods for both continuous and dichotomous data.

**BAHS 102:     Human Anatomy**

Introduction, Anatomical terminology and nomenclature, Structure and organisation of the cell, Basic tissues, Musculoskeletal system, Digestive System, Renal System, Integumentary System and Appendages, Reproductive System, Endocrine System, Special sensory organs

**CHEM 111:     Physical and Inorganic Chemistry**

Introduction to the principles of chemistry including physical and chemical changes, energetics, atomic structure, bonding, nomenclature, chemical calculations, chemical reactions (including solubility, neutralization, and oxidation-reduction) gas laws, solutions, acids and bases, pH, equilibrium, and nuclear chemistry.

**BAHS 106:     Basic Physiology**

Functions of the cell organelles and the cell membrane. Basic concept of cell transport in biological systems. Excitable and non excitable tissues. Neurotransmitters and synaptic transmission and their application in drug- receptor interaction. Electrical and mechanical activity of the heart. Formation, composition and functions of the blood. Haemodynamics. Mechanism of breathing , gaseous transport and exchange. Function of GIT (peristaltic and mixing movements). Functions of the liver. Nutritional requirements of the body. Metabolism of carbohydrate, protein and lipids. Functions of the kidney .Organization of the nervous system. Functions of the autonomic nervous system, motor and sensory nerves. Physiology of the brain and the spinal cord. Physiology of the following : vision, hearing, balance, taste , smell and related clinical problems. Physiology of skeletal and smooth muscle contraction. General mechanism of hormonal function and control. Functions of the male and female reproductive system and the breast.

**CHEM 110:     General Chemistry Practical**

Safety in the chemistry laboratory; Errors in the chemistry laboratory; The use of the analytical balance; Calibration of volumetric ware: Pipette, Burette and volumetric flask; Preparation of standard solutions; Acid-base titration (basic); Identification of functional groups in organic compounds; Quantitative determination; Colorimetric determination of concentration of substances in coloured solutions; Experimental determinations with ultraviolet/visible light.

**BAHS 108:     Basic Physiology Practical**

The laboratory sequence will support topics under BAHS 106 (Basic Physiology).

**PHYS 143:     General Physics**

Conceptual view of physics, Newtonian mechanics, wave motion, heat and thermodynamics, fluids, Wave motion, electricity and magnetism, geometrical and physical optics, Introduction to concepts of relativity, quantum theory, atomic and nuclear physics. Application of physical principles to related scientific disciplines including life sciences.

**BAHS 113:     Introduction to Computer Studies**

What is a computer?; History of computers ; Computer types; Hardware and software; Basic operations; Data sizes and speeds; Inside a computer case (Motherboard, Processor, Memory,

Disks); Peripherals (Input Devices, Output Devices , Future Peripherals); System software; Application software; Personal Networks ;Security; Internet; Development; Databases

**UGRC 150: Critical Thinking and Practical Reasoning**

Health and health management information search and appraisal strategies; Socratic questioning; knowledge construction; reflective thinking; basis of clinical reasoning and scientific inquiry; creative/lateral thinking; models of health and disability; application; academic and professional communication; scholarship/scientific writing; ethics; collaborative models.

**BAHS 122: Introductory Biochemistry**

Cell Theory; The Three Domains of Life; Prokaryotes and eukaryotes; subcellular organelles (compartmentalization of cellular processes); pH and buffer solutions; chemistry of water, definition of pH, the pH scale, buffer solutions and buffer capacity; the Henderson-Hasselbach equation in the preparation of buffer solutions. Chemistry and functions of biological molecules (biomolecules: monomers, polymers, macromolecules, Carbohydrates: mono-, di-, oligo- and polysaccharides, stereoisomerism. Lipids: different types (fatty acids, triacylglycerols, phospholipids, steroids, cholesterol). Amino acids and proteins: protein structure, classification. Nucleotides; nucleic acids. Formation of nucleic acids; Secondary, tertiary, and quaternary structures of DNA; Secondary, tertiary, and quaternary structures of RNA. Flow of genetic information. Replication, Transcription, Translation. Other aspects of nucleic acids and protein synthesis. Mutations. Anti-biotics. Vitamins and coenzymes. Enzymes, Properties and classification, cofactors and coenzymes, kinetics (effect of pH, temperature, [S], [E] on enzyme-catalyzed reactions, Michaelis-Menten equation); regulation (activation and inhibition). Membranes and Membrane Protein: General membrane function. Membrane composition. Phospholipid bilayer. Membrane structure. Posttranslational modification. Membrane fluidity. Diffusion in membranes. Movement of ions and molecules across membranes. Transport across membranes.

**SOCI 316: Medical Sociology**

Current knowledge of health production emphasizes the need to perceive health as multidimensional in character. This is because of the critical nexus between the health status of an individual and the cultural, political, economic and the physical environment that influence his/her health-seeking behaviour. The multidimensional character of health is even more relevant in view of the fact that the definition of the patient is no longer restricted to an individual; the concept now applies to a whole community. Medical Sociology thus offers a junction where biology and society meet. The pursuit of this course thus gives the student a wider horizon to appreciate the various intermediations in health production.

**SAHS 201: Basic Computer Application**

An introduction to computers and data processing. Historical and current status of data processing and electronic digital computers; a survey of computer applications; foundations of computer programming; survey of programming languages. Survey of World Wide Web applications and use including browsers, search engines, e-mail, news groups, FTP, multimedia, etc. The computing security problem. Advanced features of microcomputer applications packages such as word processors, spread sheets, graphic presentation software, etc. Creation and use of macros, styles, and scripts etc.

**PSTR 201: Advanced Anatomy**

Advanced Anatomy provides detailed insight into structures and their related functions in the

different anatomical regions of the body; and associates them with clinical conditions encountered by the Therapist.

**PSTR 201: Advanced Anatomy Practical**

This course is the practical aspect of PSTR 201 Advanced Anatomy. It involves the dissection of cadavers to observe and identify the structures found in the different regions of the body.

**PSTR 208: Health Promotion and Disease Prevention**

This course seeks to develop an understanding of the theory of health promotion and disease prevention. It focuses on strategies including health education which aims at disease prevention, promotion of healthy lifestyles and behaviour change. The following areas will be covered:

**SAHS 202: Immunology**

Theory and application of basic concepts in immunology, immunopathology, and immunologic testing methods. Cells, proteins and chemicals involved in the immune system. Immune disorders such as hypersensitivity, autoimmunity, immunodeficiency and protein abnormalities, transplant and tumor immunology, immunologic testing methods and flow cytometry.

**SAHS 203: Statistics**

This course provides the student with an enduring understanding of, and appreciation for, the statistical processes most used in healthcare research. Emphasis is placed on development of a working knowledge of basic statistical processes sufficient for evaluation and interpretation of the statistical methods and findings in published reports of research.

**PSTR 212: Biomechanics**

Biomechanics is designed and specially tailored to introduce the theory and applications of biomechanics to Physiotherapy/occupational therapy students and other allied health professional (AHPs) who may require it in their academic and professional training.

**SAHS 302: Health Law and Ethics**

This course is designed to introduce students to the adage that a competent knowledge of the laws of society is the proper accomplishment of every scholar in society. This should help allied health professionals to reduce negligence to the barest minimum, assist them to almost avert criminality, conduct themselves in the way that promote the profession in the best of acceptable ways to their clients, employers and society.

**SAHS 301: Research Methodology**

Research principles (the research process, strategies for obtaining facts); Research practice (experiments, ethnographic studies, surveys); Research presentation (critical appraisal of research, the research presentation, the research report); Formats and styles for reports and papers. The Nature of Research; Variety of Research Methods, Finding Research Problems, Literature Review; Ethics in Research; The research proposal; Causation; Internal Validity; Sampling; External Validity; Survey designs (Research, Activity); Descriptive Statistics; Measurement and Construct Validity; Reliability; TBA; Inferential Statistics; Research Designs; Analytic Epidemiological Study; Qualitative Research; Psychographic Techniques; Interviewing, Focus Groups; Action Research; Evaluation Research

**PSTR 301: Kinesiology**

The course is to enable the student appreciate the study of analysis of normal human movement as basis for clinical intervention in rehabilitation of abnormal movements.

**PSTR 302: Traumatic Skeletal Disorders (OT)**

The course aims to provide the student with knowledge of traumatic disorders and injuries to bones and joints as well as occupational therapy intervention in ameliorating secondary conditions, treating and rehabilitating the sequelae of the disorders and injuries.

**PSTR 307: Neurorehabilitation 1**

The student is equipped to relate basic neuro-anatomical knowledge to problem identification and evaluation of treatment of neurological conditions. Emphasis is placed on upper motor neuron lesions.

**PSTR 309: Rheumatology (OT)**

This course is to provide the student with knowledge of the diseases of muscles, bones and joints as well as occupational therapy intervention in ameliorating secondary conditions, treating and rehabilitating the sequelae of the disorders.

**PSTR 311: Systemic Pathology**

This is the current knowledge of specific diseases as they affect individual organism or systems and their effects on the body as a whole. The operation of one or more categories of causation and processes featuring in general pathology may be responsible for the genesis of each specific disease. Diseases of the cardiovascular, respiratory, central and peripheral nervous, skeletal muscle, bone and joint, endocrine and integumentary systems. Implications of these diseases on physiotherapy treatment and vice versa.

**PSCY 308: Human Growths and Development II**

The course looks at the need to study adult development and Aging. Domains of Adult Development. Career in basics and Applied Gerontology

**PSTR 403: Dermatology and Burns**

The course is aimed at exposing students to the identification of various skin disorders and burns; and the role of physiotherapy in preventive, therapeutic and rehabilitative management. The following areas will be covered.

**PSTR 405: Health and Physical Fitness**

The course focuses on the attainment and maintenance of physical fitness level in healthy individuals and the role of physiotherapy in health promotion and illness prevention.

**SAHS 401: Principles of Management**

Principles, purpose and nature of management, overview of management, definitions, managerial efficiency/ effectiveness, management skills, role of a manager, functions of a manager, today's manager: skills and competencies, middle management, the purpose of management, definition of a manager; Managerial activities, features of a good plan why we need to plan, nature of planning, significance of planning, requirements of a good plan, limitations of planning; Organizations, types of organizations, organization structures; Role of the supervisor within the laboratory, qualities of a good supervisor; Team building, team building-essence of team work, why teams don't work and what to do about it; Leadership, leadership styles; how to develop effective leadership; Leadership and management, importance of leadership, essence of

leadership,conceptual framework on leadership,ten functions of leaders,leadership competencies,the prize of leadership,the perils of leadership,leadership –management comparedmanager/leader qualities,dealing with difficult people,what makes people “difficult?”,top ten things about dealing with difficult people,ten marks of strategic leaders;Personal organization,planning and the technical; supervisor;the scope of communication, communication channels,methods of communication,basis of good communication; Reports,types of reports, procedures for report writing;Recruitment and selection; Teaching a skill; Counseling and discipline, counseling methods, discipline, grievances dismissals,How to be confident

**PSTR 406: Ergonomics and Industrial Physiotherapy**

The course is to create the awareness about the role of physiotherapy in the prevention and management of work related musculoskeletal disorders.

**SAHS 402: Applied Health Sciences Management**

The role of the supervisor, Leadership, Organization; Planning and the supervisor; Individual behaviour and social psychology; Recruitment and selection processes in health care settings; Induction and monitoring of staff in health care settings; Education and training; Controlling, counselling and discipline; Industrial relations: the supervisor and the trade unions; Health and safety; The law and supervisor – The Labour Act, 2003 Act 561; The supervisor and new technology; Critical thinking, problem-solving and strategic decision-making regarding health care organizations; Process and quality management;Communication, networking & continuous learning.

## SCHOOL OF MEDICINE AND DENTISTRY

### CENTRAL ADMINISTRATION

<b>Margaret Lartey</b> <i>MB ChB (Ghana), FWACP, MSc. (Ghana) FWACP</i>	-	Professor/Dean
<b>Francis Kwamin</b> <i>BDS, MBChB, FGCS, FICD</i>	-	Senior Lecturer/Vice Dean
<b>Susie Lamptey</b> <i>Dip Theatre Arts, (Ghana) CIM (UK) CIAMC(Ghana)</i>	-	Assistant Registrar
<b>Juliana Agyapong Lartey</b>	-	School Accountant

### DEPARTMENT OF ANAESTHESIA

<b>Ernest Aniteye</b> <i>MB ChB (Ghana), DA (UK) DA (WACS) FRCA, FWACS, FGCS</i>	-	Associate Professor <b>Head of Department</b>
<b>Henry Kpakpo Baddoo</b> <i>MB ChB (Ghana), FRCA (Ed)</i>	-	Professor/Post-Retirement
<b>Yaw Adu-Gyamfi</b> <i>MB ChB (Ghana), FRCA (Eng), FWACS, Dip ACU (China)</i>	-	Professor/Part-Time
<b>Frank Boni</b> <i>MB ChB (Ghana), FFARCSI (Ireland), FWACS, FGCPs</i>	-	Senior Lecturer/Part-Time
<b>Eugenia Lamptey</b> <i>MB ChB (Ghana), DA (UK) FFARCSI, FGCPs</i>	-	Senior Lecturer/Post-Retirement
<b>Phyllis D. Lassey</b> <i>MB ChB (Ghana), FFARCS (Eng.)</i>	-	Senior Lecturer
<b>Brenda Philips</b> <i>MB Ch.B (Ghana), FRCA (UK), FGCPs</i>	-	Senior Lecturer/Part-Time
<b>Ernest Ofofu-Appiah</b> <i>MB Ch.B, FWACS</i>	-	Lecturer

### CENTRE FOR TROPICAL CLINICAL PHARMACOLOGY & THERAPEUTICS

<b>Neils Ben Quarshie</b> <i>MPhil (Ghana), PhD (Lond.)</i>	-	Associate Professor/ <b>Director</b>
<b>Alexander Nii Oto Dodoo</b> <i>B.Pharm (Hons), UST MSc (Lond) M'Phil (Ghana), PhD (Lond)</i>	-	Associate Professor
<b>William Kudzi</b> <i>MPhil, PhD</i>	-	Research Fellow
<b>Edmund T. Nartey</b> <i>BSc. (Hons.) M.Phil. PhD (Ghana)</i>	-	Research Fellow

### DEPARTMENT OF CHILD HEALTH

<b>Bamenla Quarm Goka</b> <i>MB ChB (Ghana), MRCP (UK), FWACP, FGCP</i>	-	Associate Professor <b>Head of Department</b>
<b>Joseph Odai Oliver-Commey</b> <i>MB ChB (Ghana), FRCP (Canada),</i>	-	Professor/Part-Time
<b>Onike Patricia Rodrigues</b> <i>MB ChB (Leeds), MRCP (UK), DCH (London.), FRCPCH (UK), FWACP Dip Amer. Board Paediatrics, FWACP</i>	-	Professor/Post-Retirement

<b>Jennifer Welbeck</b> <i>MB ChB (Ghana) FRCP (Canada), FWACP,</i>	-	Associate Professor
<b>Lorna Awo Renner</b> <i>MB ChB (Gh), MWACP, MRCP (UK), MRCPC, FRCPC</i>	-	Associate Professor
<b>Ebenezer Vincent Badoe</b> <i>MB ChB (Ghana), MRCP (Ire), MRCP (UK), FGCP, MRCPC, DCH (Lond)</i>	-	Associate Professor
<b>Albert Gyang Boohene</b> <i>MBBS (Lon.), MRCS, LRCP (Lond.), DCH (Lond.), MRCP (Edin.), DTPH (Lond.), FWACP FRCP (Lond.) FRCPC, FGMA</i>	-	Senior Lecturer/Part-Time
<b>Harold Sackey</b> <i>MB ChB, MRCP (UK), FRCPC (UK)</i>	-	Senior Lecturer
<b>Christabel Chika Enweronu-Laryea</b> <i>MB BS (Nigeria); MRCP (UK), MRCPC, FRCPC</i>	-	Senior Lecturer
<b>Catherine Segbefia</b> <i>MB ChB, MWACP</i>	-	Senior Lecturer
<b>Collins Oduro-Boatey</b> <i>MB ChB, FWACP, FGCP, DIP PAED CARDIOL.</i>	-	Lecturer/Post Retirement
<b>Nana AkyaeYao</b> <i>MD, MRCP, MRCP</i>	-	Lecturer
<b>Victoria May Adebayeri</b> <i>MB Ch.B</i>	-	Lecturer/Part-Time
<b>Frank Owusu-Sekyere</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Omobolande Ozoya</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Joan Woode</b> <i>MBCh.B</i>	-	Clinical Tutor/Part-Time
<b>Joycelyn Assimeng</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Yvonne Brew</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Eric Sifah</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Maame Nyarko</b> <i>MB Ch.B</i>	-	Clinical Tutor/Part-Time
<b>Gladys Lomoko</b> <i>MBCh.B, MWACP, GCPS</i>	-	Clinical Tutor/Part-Time
<b>Marie-Charlyne Fatima Kilba</b> <i>MBCh.B, MWACP</i>	-	Clinical Tutor/Part-Time
<b>William Obeng</b> <i>MBCh.B, MGCPs</i>	-	Clinical Tutor/Part-Time

#### DEPARTMENT OF COMMUNITY HEALTH (SPH)

<b>Edem Tette</b> <i>MB ChB (Ghana); MPCH;</i>	-	Lecturer
<b>Richard Berko Biritwum</b> <i>MB ChB (Gh), Postgrad. Dip. in Stats (Gh), MSc (Harvard) FWACP</i>	-	<b>Head of Department</b> Professor/ Post-Retirement
<b>Rosemary Richardson</b> <i>MB ChB (Gh) FWACP</i>	-	Lecturer/ Post-Retirement
<b>Emmanuel Tsegah</b> <i>MB ChB (Ghana)</i>	-	PMO/Post-Retirement

<b>Akye Essuman</b> <i>MB ChB (Ghana.) FWACP</i>	-	Lecturer
<b>Henry J.O. Lawson</b> <i>MB ChB (Ghana.) FWACP</i>	-	Lecturer
<b>Emilia A. Udofia</b> <i>MBBS, MPH; MWACP; FMCPH</i>	-	Lecturer
<b>Alfred Yawson</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Eugenia Gifty Kusi</b>	-	Lecturer /Part-Time
<b>Benedict Calys-Tagoe</b> <i>MB Ch.B, FWACP</i>	-	Lecturer
<b>Nana Ayegia Hagan Seneadza</b> <i>MBChB, FWACP</i>	-	Lecturer

### DEPARTMENT OF MEDICINE & THERAPEUTICS

<b>Patrick Adjei</b> <i>MB ChB, FWACP, PhD</i>	-	Senior Lecturer <b>Head of Department</b>
<b>Margaret Lartey</b> <i>MB ChB (Ghana), FWACP, MSc. (Ghana) FWACP</i>	-	Professor
<b>Alfred Robinson Neequaye</b> <i>MB BS (Lond), LRCP, MRCS, MRCP (UK), FWACP FRCP</i>	-	Professor/ Part-Time
<b>David Ofori-Adjei</b> <i>MB ChB, MRCP(UK), FWACP</i>	-	Professor/Post-Retirement
<b>Albert George Baidoo Amoah</b> <i>MB ChB (Ghana), PhD (Surrey), MRCP (UK), FRCP (Eng), FWACP</i>	-	Professor
<b>Kenneth Kweku Adjepon-Yamoah</b> <i>E.CFMB, MB ChB, MRCP, PhD, FWACP, FRCP(E)</i>	-	Professor/Part –Time
<b>Jonathan Hubert Addy</b> <i>MB BS(Lond), MRCP) MD (Lond), DTM&amp;H, (Lond), Dip.Derm (Lond), FWACP, FRCP</i>	-	Associate Professor/Part-Time
<b>John Kpodonu</b> <i>MD CES (Cardio), Mes Sc.Med. (Cardio), Cesam Paris, FWACP</i>	-	Associate Professor/Part-Time
<b>Michael Osom Mate-Kole</b> <i>MB ChB (Ghana), MRCP (UK), FWACP</i>	-	Associate Professor/ Part-Time
<b>Hector Allotei Addo</b> <i>MD (Hebrew Univ.), PhD (Dundee)</i>	-	Associate Professor/Part-Time
<b>Kofi Nyarko Nkrumah</b> <i>BVMS MB ChB (Glasgow) MRCP (UK), DTM&amp;H, MSc Nuclear Med. (Lond), FRCP (Glasgow)</i>	-	Senior Lecturer/ Part-Time
<b>Audrey Gyanuah Forson</b> <i>MB ChB (Gh), FWACP, FRCPMSc. FGCP</i>	-	Senior Lecturer
<b>Harriet Kwarko</b> <i>MB BS; MRCP (UK); MRCPPath; MRCP</i>	-	Lecturer/Part-Time
<b>Eugene Kofi Amable</b> <i>MD (Liberia) FWACP</i>	-	Lecturer/Part-Time
<b>Albert K. Akpalu</b> <i>MB ChB (Gh.) FWACP</i>	-	Senior Lecturer
<b>Josephine Akpalu</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Brig. Albert B. Gyening</b> <i>MBChB, FWACP</i>	-	Lecturer/Part-Time

<b>Jacob Asare-Brobbe</b> <i>MB ChB, FWACP</i>	-	Lecturer/Part-Time
<b>Fred Asiedu-Frimpong</b> <i>MB ChB, FWACP</i>	-	Lecturer/Part-Time
<b>Kenneth Tachi</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Timothy N. A. Archampong</b> <i>MB ChB, MRCP (UK), FWACP</i>	-	Lecturer
<b>Peter Puplampu</b> <i>MB ChB, MSc. FWACP, FGCP, MSc.</i>	-	Lecturer
<b>Michael Osei-Boamah</b> <i>MB ChB, (KNUST)</i>	-	Lecturer/Part-Time
<b>Ernest Yorke</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Yacoba Atiase</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Charlotte Osafo</b> <i>MB ChB, FWACP</i>	-	Lecturer
<b>Adwoa A. Agyei-Nknasah</b> <i>MB ChB (Gh), FWACP</i>	-	Lecturer
<b>Vincent Wolali Boima</b> <i>MB ChB (Gh), FWACP, FISN</i>	-	Lecturer
<b>Ernest Kenu</b> <i>MB ChB (Gh) MPH, MGCP, Ph.D.</i>	-	Lecturer/Joint SPH
<b>Maame Boatemaa Amissah-Arthur</b> <i>MBCh.B, MRCP, SCE</i>	-	Lecturer

#### DEPARTMENT OF OBSTETRICS & GYNAECOLOGY

<b>Ali Samba</b> <i>MB ChB, (Ghana.) FWACS</i>	-	Lecturer/ <b>Ag. Head of Department</b>
<b>Joseph Darkwa Seffah</b> <i>MB ChB (Ghana), FWACS</i>	-	Professor
<b>Anyetei Tonyeli Lassey</b> <i>MB ChB (Ghana), MRCOG, FWACS, FRCOG (UK)</i>	-	Associate Professor/ Post-Retirement
<b>Kobinah Nkyekyer</b> <i>MB ChB (Ghana), MRCOG</i>	-	Associate Professor/ Post-Retirement
<b>Josiah Oloboye Armah</b> <i>MD (Göttingen), FWACS</i>	-	Senior Lecturer/Part Time
<b>John Baptist Wilson</b> <i>MB BS (Lond), MRCOG, FRCOG (UK), FWACS</i>	-	Senior Lecturer/Part-Time
<b>Benjamin Daniel Robert Tei Annan</b> <i>MB ChB (Gh), MRCOG, FWACS</i>	-	Senior Lecturer/ Part-Time
<b>Nelson Ricky Kwame Damale</b> <i>MB ChB (Gh), MRCOG, MFFP (ROCG)</i>	-	Senior Lecturer/Post-Retirement
<b>Robert Kwame-Aryee</b> <i>MB ChB (Gh), FWACS</i>	-	Senior Lecturer/Post-Retirement
<b>Samuel Antwi Oppong</b> <i>MBCh.B, FWACS</i>	-	Lecturer
<b>Kareem Mumuni</b> <i>MBCh.B, FWACS, FGCS, MPH</i>	-	Lecturer
<b>Ernest Maya</b> <i>MB ChB (Gh), MPH, FWACS, FGCS</i>	-	Lecturer/Joint SPH
<b>Mercy Nuamah</b> <i>MD (Gh), Ph.D</i>	-	Research Fellow

**Michael Yaw Ntumy** - Lecturer  
*MB ChB, FWACS*

#### DEPARTMENT OF PSYCHIATRY

**Sammy Kwame Ohene** - Senior Lecturer  
*MB ChB (Ghana), FWACS*  
**Head of Department**  
**Angela Lamensdorf Ofori-Atta** - Associate Professor  
*BSc (Ghana), PhD (Brit. Columbia)*  
**Christian Charles Adomako** - Associate Professor/Part-Time  
*MB ChB; MRCP; DPM, Dip. In Psys.*  
**Araba Sefa-Dede** - Senior Lecturer/  
*BA (Ghana), PhD (Wash)* Post-Retirement  
**Diana Baah-Odoom** - Lecturer/Part-Time  
*BA (Nursing) (Ghana.), M.Phil (Gh.)*  
**Ama Serwah Addo** - Lecturer/Part-Time  
*MB BS (Glasgow, DCH, MRCP (Glasgow), MRCP, MRCPsyc.*  
**Lily N. A. Kpobi** - Assistant Lecturer  
*BSc., MPhil (Ghana)*

#### DEPARTMENT OF RADIOLOGY

**Alex Akoto Yeboah** - Senior Lecturer  
*MD (Hun) PMUBC (Hun)*  
**Head of Department**  
**Yaw Boateng Mensah** - Senior Lecturer  
*MBChB, FWACS, FGCS*  
**Edmund Brakohiapa** - Lecturer  
*MB ChB, FWACS*  
**Benjamin Dabo Sarkodie** - Lecturer  
*MBCh.B, FWACS*

#### DEPARTMENT OF SURGERY

**Nii Armah Adu-Aryee** - Senior Lecturer  
*MB ChB (Ghana), FWACS*  
**Head of Department**  
**Simon Beinakpaa Naaeder** - Professor/ Post-Retirement  
*MB ChB (Ghana), FRCS (Eng), FWACS*  
**Afua Jecty Hesse** - Professor/Part-Time  
*MB ChB (Ghana), FRCS (Edin) FWACS*  
**Joe Nat Clegg-Lampsey** - Associate Professor/  
*MB ChB (Ghana), FRCS (Edin), FWACS, FGCS* Post-Retirement  
**George Oko Klufio** - Associate Professor/ Part-Time  
*MB ChB (Ghana), FRCS (Eng), FWACS*  
**Rudolph Darko** - Associate Professor/  
*MB ChB, FRCS(Ed). FRCS(Eng.), FWACS, FICS,FGCS, Cert Stats, FGMA, OV* Post-Retirement  
**Emmanuel Dornu Kitcher** - Associate Professor/  
*MB ChB (Ghana), FRCS (Edin), FWACS* Post-Retirement  
**Mark Mawutor Tettey** - Associate Professor  
*MB ChB, FWACS*  
**Winfred Mensah Hodasi** - Senior Lecturer/ Part Time  
*MD (Heidelberg), F.Chir (Munster), FWACS*

<b>Joseph Felix Kwadwo Tandoh</b> <i>BA (Cantab.) MA (Cantab.) MB B Chir, FRCS (Edin.) FRCS (Eng.)</i>	-	Senior Lecturer/ Part Time
<b>Benjamin Baako</b> <i>MB ChB (Ghana), FRCS (Edin) FRCS (Eng)</i>	-	Senior Lecturer/ Part-Time
<b>Abednego Ofori Addo</b> <i>MB ChB (Ghana), FRCS, FWACS</i>	-	Senior Lecturer/ Part-Time
<b>Stephen Korku Akafo</b> <i>MB ChB (Ghana), FRCOph, FWACP</i>	-	Senior Lecturer/Post-Retirement
<b>Ibn Mutawukilu Iddrisu</b> <i>MD (Halle) FWACS</i>	-	Senior Lecturer/ Part-Time
<b>Lawrence Agyeman Sereboe</b> <i>MB BS (Nig), FWACS</i>	-	Senior Lecturer
<b>Edith Mawuse Dogbe</b> <i>MB ChB (Ghana), Dip.Oph (Glasg), FWACS</i>	-	Senior Lecturer/Post-Retirement
<b>Albert Bedford Painstil</b> <i>MB ChB (Ghana), FRCS (Edin)</i>	-	Senior Lecturer
<b>Thomas Kofi Dakurah</b> <i>MB ChB (Ghana), FWACS, FRCS</i>	-	Senior Lecturer
<b>William Appeadu-Mensah</b> <i>BSc (KNUST), MB ChB (KNUST), FWACS</i>	-	Senior Lecturer
<b>Samuel Gepi-Atee</b> <i>MB ChB (Ghana) FRCSI (Lond.)</i>	-	Senior Lecturer/Part-Time
<b>Vera Adobea Essuman</b> <i>MB Ch.B (Ghana.); FWACS (Ophth. WAPMC.</i>	-	Senior Lecturer
<b>Mathew K.Y. Kyei</b> <i>MB ChB, FWACS, FGCS</i>	-	Senior Lecturer
<b>Jonathan C.B. Dakubo</b> <i>BSc., MB ChB, FWACS</i>	-	Senior Lecturer
<b>James E. Mensah</b> <i>MB ChB, FWACS</i>	-	Senior Lecturer
<b>Joel Yarney</b> <i>MBCh.B</i>	-	Senior Lecturer/Part-Time
<b>Benhardt Ago Kuma</b> <i>MB BS (Eng), MRCS, FWACS, FRCS</i>	-	Lecturer/Part-Time
<b>Anthony George Laing</b> <i>MB ChB (St. Andrews), FRCS</i>	-	Lecturer/Part-Time
<b>Edward Asumanu</b> <i>MB ChB, FWACS</i>	-	Lecturer/ Part Time
<b>Florence Dedey</b> <i>MB ChB, FWACS</i>	-	Lecturer
<b>Michael A. K. Segbefia</b> <i>MB ChB, FWACS</i>	-	Lecturer
<b>Agbeko Kwasi Ocloo</b> <i>MB ChB, FWACS</i>	-	Lecturer
<b>James Danso-Adams</b> <i>MD (Noi/sad),MDOtorhinolaryngology (Yugoslavia), FWACS</i>	-	Lecturer/Part-Time
<b>A. G Bugri</b> <i>MB ChB, FWACS</i>	-	Lecturer/Part-Time
<b>Sunny Doodu Mante</b> <i>MB ChB, FWACS</i>	-	Lecturer/Part-Time
<b>Wisdom Yevudza</b> <i>MB ChB, FWACS</i>	-	Lecturer/Part-Time

<b>Imoro Zeiba Braimah</b> <i>MB ChB, FGCS</i>	-	Lecturer
<b>Antoinette A.A. Bediako-Bowan</b> <i>MBCh.B FWACS, FGCS</i>	-	Lecturer
<b>Kwaku Asare Ofei</b> <i>MBCh.B FWACS</i>	-	Lecturer

#### PROFESSOR EMERITI

<b>Emmanuel Quaye Archampong</b> <i>BSc, MB MS (Lond), FRCS (Edin &amp; Eng), MS (Lond), FWACS, FGAAS</i>	-	Emeritus Professor of Surgery
<b>Edward Donkoh Yeboah</b> <i>MB Bchir MD (Camb) FRCS (Eng), FWACS, FAC</i>	-	Emeritus Professor of Surgery

#### BIOMATERIAL SCIENCE

<b>Neils J. Quartey-Papafio</b> <i>BSc. MPhil, Ph.D</i>	-	Lecturer <b>Head of Department</b>
<b>M. A. Yeboah-Agyapong</b> <i>BDS, FWACS, FOSCC</i>	-	Lecturer/Part-Time

#### DEPARTMENT OF COMMUNITY AND PREVENTIVE DENTISTRY

<b>Daniel Tormeti</b> <i>BSc. BDS</i>	-	Lecturer <b>Head of Department</b>
<b>Thomas Ndanu</b> <i>MPhil, Ph.D</i>	-	Research Fellow
<b>Josephine Sackeyfio</b> <i>BDS, FGCS</i>	-	Lecturer
<b>Jihad Joseph Akl</b> <i>BDS, buccol</i>	-	Lecturer/Part-Time
<b>Samuel Kofi Acquah</b> <i>BDS, MSc</i>	-	Lecturer/Part-Time
<b>Alfred D. Dai-Kosi</b> <i>BA, MPhil</i>	-	Assissant Lecturer

#### DEPARTMENT OF ORAL PATHOLOGY AND ORAL MEDICINE

<b>Francis Kwamin</b> <i>BDS, MBCh.B, FGCS, FICD</i>	-	Snr. Lecturer/ Post-Retirement <b>Head of Department</b>
<b>N. O. Nartey</b> <i>BDS, MSc. MRCD, FAAOP, FWACS, FGCS</i>	-	Associate Professor/ Post-Retirement
<b>Eric S. Boye</b> <i>MBCh.B, MRCP, FGCS</i>	-	Lecturer/Part-Time

#### DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

<b>E. A. Abdulai</b> <i>BDS, FWACS</i>	-	Senior Lecturer <b>Head of Department</b>
<b>Grace Parkins</b> <i>BDS, FDS, FICoi RCPS, FICP, FWACS, FGCS</i>	-	Assoc. Professor
<b>Isaac Nuamah</b> <i>BDS, MBCh.B, LDS RCS, FDS RCS, FDS RCPS</i>	-	Senior Lecturer
<b>Michael Owusu Boamah</b> <i>BDS, MGCS, MWACS</i>	-	Lecturer/Part-Time

## DEPARTMENT OF ORTHODONTICS AND PAEDODONTICS

<b>Kwabena G. Amoah</b> <i>MD, MSc.</i>	-	Lecturer <b>Head of Department</b>
<b>Merley A. Newman-Nartey</b> <i>BDS, MICD</i>	-	Senior Lecturer
<b>Mamta Nicharu</b> <i>Thadani, BDS, MDS</i>	-	Lecturer

## DEPARTMENT OF RESTORATIVE DENTISTRY

<b>Patrick Ampofo</b> <i>BDS, FWACS, MFDS, MClin. Dent.</i>	-	Lecturer <b>Head of Department</b>
<b>E. A. Nyako</b> <i>BDS, FWACS, MFDS, MClin. Dent.</i>	-	Associate Professor
<b>Sandra Hewlett</b> <i>BDS, M.Clin. Dent., FGCPs, FWACS</i>	-	Senior Lecturer
<b>Godfred Otoo</b>	-	Lecturer/Part-Time
<b>Pamela A. Ohene-Djan</b> <i>BDS, MSc, LDS</i>	-	Lecturer/Part-Time
<b>Nana Kofi Acheampong</b> <i>BDS, LDS, DPDS, MFGDP</i>	-	Lecturer/Part-Time

## REGULATIONS FOR THE CLINICAL PARTS OF THE BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MB, ChB) AND THE BACHELOR OF DENTAL SURGERY (BDS) DEGREE PROGRAMMES

### 1 ADMISSION

- 1.1 Further to the General Regulations regarding admission into the University of Ghana, a candidate for admission to the Clinical Parts of the MB ChB or BDS Degree programmes must have obtained the BSc (Med. Sci.) degree of the University of Ghana. The following provisions may be followed for admission into the BSc. (Med. Sci.) programme (which runs in the School of Biomedical and Allied Health Sciences)
- The admission would be based on Senior High School results in Science (WASSCE results). However, all GCE 'A' Level Science, International Baccalaureate and its equivalent applicants would be considered for admission to Level 100.
  - For admission to Level 100, students may be required to pass an examination and go through interviews.
  - To progress from Level 100 to Level 200, a student is required to make a minimum CGPA of 2.0; that is Grade C, which is equivalent to mark of 60-64%. It is interpreted as Average by the new Students Handbook for Faculty of Science.

### 2 DURATION AND STRUCTURE

- 2.1 The Clinical Parts of the MB ChB or the BDS Degree Programmes shall be of 3 years duration and structured as follows:

#### 2.1.1 MB ChB

- |     |                                 |          |
|-----|---------------------------------|----------|
| (a) | 1 <sup>st</sup> Clinical Year - | 43 Weeks |
| (b) | 2 <sup>nd</sup> Clinical Year - | 42 Weeks |
| (c) | 3 <sup>rd</sup> Clinical Year - | 49 Weeks |

<b>2.1.2</b>	<b>BDS</b>			
	(d)	First Clinical Year (BDS Final Part I)	-	45 Weeks
	(e)	Second Clinical Year (BDS Final Part II)	-	46 Weeks
	(f)	Third Clinical Year (BDS Final Part III)	-	42 weeks

### 3.0 ACADEMIC YEAR

The Academic Year for both programmes shall comprise two semesters.

### 4.0 STRUCTURE OF SEMESTER

#### 4.1 MB ChB

4.1.1	First Clinical Year	-	43 Teaching Weeks
	(i) Semester 7	-	27 Weeks
	(ii) Semester 8	-	16 Weeks
4.1.2	Second Clinical Year	-	42 Teaching Weeks
	(i) Semester 9	-	24 weeks
	(ii) Semester 10	-	16 Weeks
	(iii) Revision	-	2 Weeks
4.1.3	Third Clinical Year	-	49 Teaching Weeks
	(i) Semester 11	-	27 Weeks
	(ii) Semester 12	-	20 Weeks
	(iii) Revision	-	2 Weeks

#### 4.2 BDS

4.2.1	First Clinical Year (BDS Final Part I)		45 Teaching Weeks
	(a) Semester 7	-	24 Weeks
	(b) Semester 8	-	18 Weeks
4.2.2	Second Clinical Year (BDS Final Part II)		46 Teaching Weeks
	(a) Semester 9	-	22 Weeks
	(b) Semester 10	-	22 Weeks
	(c) Revision	-	2 Weeks
4.2.3	Third Clinical Year (BDS Final Part III)		42 Teaching Weeks
	(a) Semester 11	-	22 Weeks
	(c) Semester 12	-	18 Weeks
	(d) Revision	-	2 Weeks

### 5.0 SUBJECTS FOR MB CHB AND BDS CLINICAL YEARS 1 - 3

#### 5.1 MB ChB

5.1.1	First Clinical Year - Semesters 7 & 8 (43 Weeks)		
	i Semester 7 (27 Weeks) shall be devoted to the following:		
	Junior Clerkship in Community Health*		10 Weeks
	Medical Psychology*		10 Weeks
	Introduction to Nursing Skills		1 Week
	Introduction to Clinical Skills		4 Weeks
	Coordinated Course I (Medicine & Surgery, Community Health, and Applied Pathology and		12 Weeks

	Inputs from other Clinical Departments)		
	Medical Ethics		12 Weeks
	* These courses run concurrently.		
ii.	Lectures in Medical Ethics shall be given concurrently with Coordinated Course I and examined at the end of the semester.		
iii.	Semester 8 (16 Weeks)		
	Semester 8 shall cover the following:		
	Coordinated Course II (Medicine, Surgery, Community Health and Applied Pathology)		12 Weeks
	Trauma		4Weeks
5.1.2	Second Clinical Year – Semesters 9 and 10		(42 Weeks)
i.	Semester 9		(24 Weeks)
	Semester 9 subjects shall be:		
	Junior Clerkship in Obstetrics/Gynaecology		8Weeks
	Junior Clerkship in Child Health		8 Weeks
	Junior Clerkship in Specialties I (Psychiatry, Dermatology, Ophthalmology, ENT & Forensic Medicine)		8Weeks
ii.	Semester 10		(18 Weeks)
	Semester 10 subjects shall be: -		
	Senior Clerkship in Obstetrics/Gynaecology		8 Weeks
	Senior Clerkship in Child Health		8 Weeks
	Revision		2 Weeks
5.1.3	Third Clinical Year – Semesters 11 and 12 (49 Weeks)		
	Semester 11 & 12 subjects shall be: -		
	Clinical Psychiatry (Block)		5 Weeks
	Anaesthesia (Block Lectures)		2 Weeks
	Senior Clerkship in Medicine & Therapeutics		10 Weeks
	Senior Clerkship in Surgery		10 Weeks
	Senior Clerkship in Community Health		10 Weeks
	Specialties II (Anaesthesia, Urology and Orthopaedics, Radiology)		10 Weeks
	Revision		2 Weeks
<b>5.2</b>	<b>BDS</b>		
5.2.1	First Clinical Year (BDS Final Part I): Semesters 7 & 8		(45 Weeks)
a.	Semester 7: 27 Weeks		
	Oral Biology I	}	10 Weeks
	Dental Material Science I		
	Dental Morphology I		
	Behavioural Science I		
	Biostatistics and Research Methodology I		
	Introduction to Clinical Dentistry I		
	Introduction to Nursing Skills	-	1 Week
	Introduction to Clinical Skills	-	4 Weeks
	Coordinate Course I (Human Disease I)	-	12 Weeks

- b. Semester 8: 18 Weeks
- |  |   |          |
|--|---|----------|
| Coordinated Course II (Human Disease II)                               | - | 12 Weeks |
| Specialty Rotations (including Trauma/Orthodontics, ENT/Ophthalmology) | - | 6 Weeks  |
- 5.2.2 Second Clinical Year: BDS Final Part II, Semesters 9 & 10  
Duration - 46 Weeks: This period shall be devoted to the following courses:
- a. Semester 9: 23 Weeks
- |   |   |          |
|---|---|----------|
| Operative Technique and Endodontics             | } | 22 Weeks |
| Prosthetics Dentistry I (Complete Dentures)     |   |          |
| Local Anaesthesia and Surgical Anatomy          |   |          |
| Community Dentistry, Ethics and Jurisprudence I |   |          |
| Oral Pathology I                                |   |          |
| Oral Radiology I                                |   |          |
| Oral Biology II                                 |   |          |
| Dental Material Science II                      |   |          |
| Dental Morphology II                            |   |          |
| Behavioural Science II                          |   |          |
| Biostatistics and Research Methodology II       |   |          |
| Introduction to Clinical Dentistry II           | - | 1 Week   |
| Revision  | - | 1 Week   |
- b. Semester 10: 23 Weeks
- |  |   |         |
|--|---|---------|
| Advance Operative Technique & Endodontics        | } | 22 Week |
| Oral Diagnosis                                   |   |         |
| Local Anaesthesia and Exodontia                  |   |         |
| Restorative Dentistry I                          |   |         |
| Orthodontics & Pedodontics I                     |   |         |
| Periodontics I                                   |   |         |
| Oral Pathology II                                |   |         |
| Oral Radiology II                                |   |         |
| Community Dentistry, Ethics and Jurisprudence II |   |         |
| Prosthetics Dentistry II (Partial Dentures)      |   |         |
| Revision   |   |         |
- 5.2.3 Third Clinical Year: BDS Final Part III, Semester 11 & 12 (42 Weeks)
- a. Semester 11: 22 Weeks
- |   |   |          |
|---|---|----------|
| Community Dentistry                     | } | 22 Weeks |
| Oral Medicine and Dental Therapeutics I |   |          |
| Oral & Maxillofacial Surgery I          |   |          |
| Dental Practice Management I            |   |          |
| Restorative Dentistry II                |   |          |
| Periodontics II                         |   |          |
| Orthodontics & Pedodontics II           |   |          |

- b. Semester 12: 20 Weeks
- |  |   |          |
|--|---|----------|
| Oral Medicine and Dental Therapeutics II | } | 18 Weeks |
| Oral & Maxillofacial Surgery II          |   |          |
| Dental Practice Management II            |   |          |
| Restorative Dentistry III                |   |          |
| Periodontics III                         |   |          |
| Orthodontics & Pedodontics III           |   |          |
| Revision                                 |   | -        |

**6 MINIMUM/MAXIMUM PERIOD FOR COMPLETING THE BDS PROGRAMME**

- 6.1 The minimum period for completing the Clinical MB ChB or BDS Programmes shall be six semesters or three Academic Years.
- 6.2 The maximum period for completing the Clinical MB ChB or BDS Programmes shall be twelve semesters or six Academic Years.
- 6.3 A candidate who is unable to complete his or her programme within the maximum period allowed, shall lose all credits accumulated. Such a candidate shall not be allowed to re-apply for admission into the MB ChB or BDS degree programmes.

**7 INTERRUPTION OF STUDY PROGRAMME**

- 7.1 A student may break his/her study programme but not break for more than four continuous semesters, so that the maximum period allowable for the completion of the programme is not exceeded. Such a student shall be allowed to continue the programme from where he/she had left off.
- 7.2 A student who wishes to interrupt his/her course of study shall apply in advance to the Dean of the School of Medicine and Dentistry, stating reasons why he/she wants to interrupt his/her study programme, and permission duly granted before he/she leaves the University. The decision of the Dean shall be communicated to the applicant by the School Administrator/College Secretary before he/she leaves the University.
- 7.3 A student who breaks his/her studies for more than four continuous semesters shall be deemed to have lost any accumulated credits. Such a student may not be allowed to re-apply for admission.
- 7.4 Where the ground for interruption of studies is medical, the Director of University Health Services shall be required to advise the College Secretary on the propriety and length of period of interruption. The College Secretary shall cause the Director of University Health Services to investigate any medical Report reaching his office from any health delivery facility outside the University Hospital and advice accordingly.

**8 EXEMPTIONS**

- 8.1 No exemption shall be granted from any part of the Clinical MB ChB or BDS courses/subjects and examinations.

**9 SCHEME OF EXAMINATIONS**

**9.1 MB ChB Degree Programme**

- i. First Clinical Year - Semesters 7 & 8 (MB ChB Part I in Coordinate Course I

& II) Candidates shall be examined at the end of Coordinated Course I and II and shall be required to pass both examinations in order to proceed to the Second Clinical Year.

- ii. Second Clinical Year - Semesters 9 & 10 (MB ChB Part II)  
At the end of the Second Clinical Year, candidates shall be required to take the MBChB Final Part II Examinations in Child Health and Obstetrics & Gynaecology.
- iii. Third Clinical Year - Semesters 11 & 12 (MB ChB Part III)  
At the end of the Third Clinical Year, candidates shall be required to take the MB ChB Final Part III Examinations in Medicine & Therapeutics, Psychiatry, Surgery and Anaesthesia and Community Health.

- 9.1.1 The methods of examination shall be:
- a. Written – MCQ, Short Essays
  - b. Clinical – Long and Short Cases
  - c. Objective Structured Clinical Examination (OSCE)
  - d. Orals
  - e. Defense of Dissertation

## 9.2 BDS Degree Programme

- i. First Clinical Year (BDS Part I)  
Candidates shall be examined at the end of Coordinated Course I and II and shall be required to pass both examinations in order to proceed to the Second Clinical Year.
- ii. Second Clinical Year (BDS Final Part II)
  - a. At the end of the First Semester of the Second Clinical Year, candidates shall be required to take the BDS Part IIA Examinations in Biomaterial Science, Oral Biology, Prosthetic Dentistry (Complete Dentures), Operative Technique, Behavioural Science, and Biostatistics & Research Methodology.
  - b. At the end of the Second Semester of the Second Clinical Year, candidates shall be required to take the BDS Part IIB Examinations in Diagnostic Dental Sciences (including Oral Pathology, Oral Diagnosis and Oral Radiology), Prosthetics Dentistry (Partial Dentures) and Oral Surgery II etc. All other continuing courses will be evaluated by Continuous Assessment.
- iii. Third Clinical Year (BDS Part III) -  
At the end of the Third Clinical Year, candidates shall be required to take the BDS Part III Examinations in Oral Medicine & Dental Therapeutics, Oral & Maxillo-Facial Surgery, Restorative Dentistry (including Conservative, Endodontics & Prosthetics), Periodontics, Orthodontics & Pedodontics and Community Dentistry (including Ethics & Jurisprudence and Long Essay).

- 9.3.1 A candidate shall not proceed to the next Clinical Year until he or she has completed the course and passed the examinations each subject in the preceding Clinical Year.
- 9.3.2 The pass mark for all subjects at all MB ChB and BDS Examinations shall be 60%, provided that the candidate shall have passed the clinical and/or practical examinations.

## **10 ELIGIBILITY FOR EXAMINATIONS**

- 10.1 A candidate shall attend all such lectures, tutorials, seminars, ward rounds, clerkships, satisfy the clinical and laboratory requirements and undertake all other assignments as approved by the University.
- 10.2 Each department shall, with the approval of the Academic Board, determine the requirements for the subjects they offer.
- 10.3 Further to the above, a candidate shall attend lectures, tutorials, practical and other activities prescribed for the courses/subjects for which he/she has registered and execute all assignments given.
- 10.4 A candidate who does not fulfill the requirements for any course/subject shall not be allowed to take the examination in that course/subject.
- 10.5 In any case, a student who is absent for a cumulative period of 21 days from all lectures, tutorials, ward rounds, clerkships and other activities prescribed for any course/subject in any semester shall be deemed to have withdrawn from the course/subject. Such a student shall not be permitted to sit for the semester examination.

## **11 REGISTRATION FOR EXAMINATIONS**

- 11.1 Registration for a School of Medicine and Dentistry examination shall require endorsement of the Registration Form by the Head of Department to the effect that the candidate has pursued satisfactorily the approved course (s) of study being offered over the prescribed period and has attended at least 85% of lectures, tutorials, clinical, laboratory assignment and other activities prescribed for the course (s)/subject (s). A candidate's registration shall not be valid unless it is so endorsed.
- 11.2 Endorsement as outlined above shall be withheld if a candidate is not deemed to have followed satisfactorily the approved course of study.
- 11.3 In any event of the withholding of an endorsement, the Head of Department shall request the confirmation by the Dean, subject to subsequent approval by the School Management Committee.

## **12 EXAMINATIONS**

- 12.1 Candidates shall be required to take the first examination immediately following the completion of the relevant courses/subjects and may not postpone their entry without special written permission of the Dean.
- 12.2 A candidate who has not complied with the prescribed requirements for any course/subject or who has not performed satisfactorily in other duties prescribed or associated with a course/subject of instruction, may, on the recommendation of the relevant Department, be refused admission to the examination of the year concerned

and be required to repeat part or the whole of the course/subject of instruction leading to the particular examination.

12.3 A candidate who passes an examination as a whole at the first attempt and reaches the requisite high standard in a subject(s) may, on the recommendation of the Board of Examiners be awarded (a) Distinction; or (b) Credit; in such subject (s) in accordance with such rules as may be approved by the Academic Board.

12.4 Criteria for such Honours are:

Distinction	-	80 – 100%
Credit	-	70 – 79%

### **13 SUPPLEMENTARY EXAMINATIONS**

13.1 Supplementary Examinations for the MB ChB Parts I and II, BDS Parts I and II shall be held within six weeks after the main examinations.

13.2 Supplementary Examinations for MB ChB Part III and BDS Part III Examinations shall be held fifteen weeks after the main examinations.

13.3 Supplementary Examinations shall not include continuous assessment marks.

13.4 A candidate who fails in only one course/subject of an examination at the first examination shall be referred in that course/subject and shall be required to take the examination in the referred course/subject at the supplementary examination following the main examination.

13.5 A candidate who fails in more than one subject or course at the first examination shall be deemed to have failed the whole examination and may on the recommendation of the College Admissions and Examinations Board be required to:

- Either
- (i) repeat the whole of the examination at the supplementary examination immediately following the main examination; or,
  - (ii) repeat only those course(s)/subjects in which he/she failed, provided he/she attains not less than 50% in the course(s)/subject(s) in which he/she failed (pass mark is 60%); or,
  - (iii) repeat the year without the option of the supplementary examination.

13.6 A candidate who fails to complete an examination at the supplementary examination, may, on the recommendation of the College Admissions and Examinations Board, be required to withdraw from the School of Medicine and Dentistry or to repeat the whole or part of the course of instruction leading to that examination, before presenting himself/herself for re-examination.

### **14 EXTERNAL EXAMINERS**

14.1 External Examiners shall be required for both the main and supplementary examinations for the MB ChB Parts II, III and BDS Parts II and III.

- 14.2 All External Examiners shall be required to submit a written report on all aspects of the examination in which they took part.

**15 DEFERMENT OF EXAMINATION**

**15.1 On Grounds of Ill-Health:** A student who has satisfied all the requirements but is unable to take the main examination on grounds of ill health, shall, on application to the School Administrator/College Secretary, and on provision of a Medical Certification issued by the Head of Department concerned and endorsed by the Director of University Health Services/Dean, School of Medicine and Dentistry, be allowed to take supplementary examination as his/her main examination. He/she shall be credited with the grade obtained in the supplementary examination. Subsequent application for deferment, on grounds of ill-health, shall be subject to a Medical Certificate issued by a properly constituted Medical Board.

**15.2 On Grounds other than Ill-Health:** In cases of deferment on grounds other than ill-health, the Dean of the School of Medicine and Dentistry shall invite the applicant for an interview and advise the University as appropriate. It shall be the student's responsibility to satisfy the University beyond reasonable doubt why he/she wishes to defer the examinations.

15.3 In all cases of deferment of examinations, the applicant(s) shall obtain written responses from the School Administrator/College Secretary before leaving the University.

**16 EXAMINERS BOARD**

16.1 There shall be an Examiners Board organized by the College Admissions and Examinations Board for the main and supplementary examinations, in respect of the MB ChB Parts I, II, III and BDS Parts I, II and III respectively.

16.2 The Examiners Board shall receive, consider and determine the results of the MB ChB Parts I, II, III and BDS Parts I, II and III examinations respectively.

16.3 The Examiners Board shall be required to make appropriate recommendations on any candidate based on his/her performance and also on any aspect of the examination as it deems fit.

**17 DECLARATION OF RESULTS**

17.1 Results of the MB ChB Parts I, II, III and BDS Parts I, II and III Examinations shall normally be published by the College Secretary on the School's Notice Boards after the Examiners' Board has determined the results.

17.2 The results as published shall be subject to the approval of the Academic Board of the College of Health Sciences.

17.3 Results indicating the student's performance shall be made available to him/her.

**18 ELIGIBILITY FOR THE MB CHB AND BDS DEGREES**

18.1 The MB ChB and BDS degrees shall be awarded to a candidate who has been properly admitted to the University, has followed the approved courses of study over the prescribed period and has satisfied the following conditions:

**18.1.1 UNIVERSITY REQUIREMENTS**

- (i) evidence of regular enrolment in the degree programme;
- (ii) discharge of all obligations owed to the University;
- (iii) a pass in all University Required Courses; and,
- (iv) satisfactory performance in the appropriate University Examinations.

**18.1.2 Faculty/Departmental Requirements**

Satisfactory discharge of such requirements as may be prescribed for the degree.

**19 REQUIREMENTS FOR GRADUATION**

19.1 A candidate shall be deemed to have:

- (i) satisfied all General University and Faculty requirements; and,
- (ii) Obtained at least 60% in each subject featured in the MB ChB Parts I, II, III and BDS Parts I, II and III examinations.

**20 CONFIRMATION OF AWARD OF DEGREE**

20.1 A list of candidates who are deemed eligible shall be brought before the Academic Board of the University for approval as soon as practicable.

20.2 No award shall be confirmed unless the Academic Board of the University is satisfied that the candidate has satisfied all the conditions for the award of a degree.

**21 CANCELLATION OF AWARD**

21.1 Notwithstanding previous confirmation of an award of a degree as above, the Academic Board of the University may at any time cancel an award even with retrospective effect, if it becomes known that:

- (i) a candidate has entered the University with false qualifications;
- (ii) a candidate has impersonated someone else;
- (iii) a candidate has been guilty of an examination malpractice for which a grade Z would have been awarded; or,
- (iv) there are other reasons that would have led to the withholding of confirmation of the award in the first place.

21.2 In any such event, the decision of the Academic Board of the University shall be published on the University Notice Boards and the candidate notified. Such cancellation and the reasons for it shall be entered on the candidate's transcript.

**22 TRANSCRIPT OF ACADEMIC RECORD**

22.1 At the end of a student's programme, the University shall, on the payment of an appropriate fee, issue to the particular student a complete transcript of his/her academic record upon request. This transcript shall be marked *Student's Copy* and shall record all courses attempted and all results obtained.

**23 CLASSIFICATION OF DEGREE**

23.1 The MB ChB and BDS Degrees shall not be classified.

**Competencies that a Student Should Exhibit on Graduation in Relation to their Subsequent Training and Future Roles in the Health System**

**Knowledge**

At the end of the training the student must be able to demonstrate knowledge and understanding of the Basic, Para-Clinical, Clinical, Behavioural and Social Sciences including Public Health relevant to the practice of medicine and Dentistry.

**Attitude**

The student should be able to:

- maintain the highest standard of professional conduct and medical/dental ethics
- demonstrate respect for, and the responsibility for, preserving human life from the time of conception and the need for human beings to live and be treated with dignity and humanity
- Accept and demonstrate the importance of team work in health delivery.

**Skills**

The students must be able to demonstrate appropriate:

- Communication skills.
- Clinical Skills.
- Promotive, preventive, rehabilitative skills and be able to organise and carry out health programmes in collaboration with other members of the health team to improve health.
- Management skills.

**Life Long Learning and Continuing Professional Development**

The student should be able to demonstrate the importance of research in the management of patients and the advancement of medical and dental knowledge and cultivate life-long learning habits.

Further to the above, it is deemed essential to inculcate into the student a sense of patriotism to serve the motherland.

**Course Descriptions****DEPARTMENT OF BIOMATERIAL SCIENCE****Biomaterial Science Course**

The Department of Biomaterial Science runs undergraduate programme through didactic teaching at First and Second Clinical Years for 26 weeks. Dental Material Science I is run for 10 weeks at First Clinical Year, and Dental Material Science II for 16 weeks at Second Clinical Year.

**DEPARTMENT OF COMMUNITY AND PREVENTIVE DENTISTRY****Community and Preventive Dentistry Course**

Dental Public Health is the science and art of preventing and controlling oral diseases and promoting oral Health through organized community efforts. Community Dentistry focuses on protecting, maintaining and improving the oral health of the population within a social unit. Undergraduate dental students are encouraged to appreciate the role of dental public health in the delivery of quality oral care to the population. Students are provided with knowledge and skills in dental Public Health. The Community Dentistry Course starts from clinical year I with introduction to Behavioural Sciences and Dental Biostatistics. Didactic lecturers including ethics and jurisprudence in oral health are also given in clinical years II and III. During the outreach programmes in clinical years II and III, the students are taken to the community,

usually selected basic school in Accra where they are taught to identify common oral diseases and refer. They also participate in health educational talks and dental health education during such visits.

All final year dental students are required to write a dissertation or undertake a project during the course with the aim to demonstrate the application of knowledge in the field of Community and Preventive Dentistry, to develop the aptitude and skills in scientific writing and to stimulate students' interest in undertaking scientific research.

#### **Periodontology Course**

This is the field of dentistry that deals with diseases of the tooth supporting structures. The pre clinical component familiarizes the student with their micro-anatomy, embryology and their physiology. Preventive and Clinical Periodontology will enable the student to differentiate between health and disease, determine the etiology, establish a diagnosis, prognosis and treatment plan and manage periodontal prophylaxis and to treat mild cases of periodontal disease.

Therapeutic Periodontology focuses on the surgical management of periodontal disease. The students will therefore be knowledgeable about the management of advanced periodontal disease and the expectations of the surgical periodontal treatment. Interrelations between periodontics and other disciplines of dentistry are highlighted as well.

#### **Behavioural Science Course**

Deals with the Psychology and Sociology of dental care. The aim is to teach basic ideas in Sociology and Psychology as they relate to dentistry, to provide students with the knowledge of how behavioural science can be applied in daily practice and to assist dentists to make their occupation rewarding and enjoyable

#### **Biostatistics Course**

Students are given introduction to basic research and research techniques, methods and designs, basic statistics and data analysis, computer skills for data management and data analysis.

### **DEPARTMENT OF ORAL BIOLOGY**

#### **Oral Biology Course**

This course teaches tooth morphology and dental morphology including the study of surface form of the oral cavity, the external morphology and composition of the individual teeth, the relationship of the teeth to one another, and occlusion of the teeth. The student should be able to learn tooth morphology, with the best possible collection of extracted sound teeth, tooth models, notice the anatomic variations in teeth of the same type, develop the manual skill to draw and carve teeth, know anatomy of pulp cavities, study the anatomy of the skull, know about anatomic and functional occlusion, define and correctly use the basic terminology of dental morphology, deal with practical problems and understand the practical reasons behind current carving techniques and relate the structures of dental and oral tissues to their functions.

### **DEPARTMENT OF ORAL PATHOLOGY AND ORAL MEDICINE**

#### **Oral Pathology Course**

This introductory course in Oral Pathology is designed to acquaint the student with the basic understanding of the two major diseases – Dental Caries and periodontal disease. The student is taught the etiology, pathogenesis, clinical signs and symptoms, treatment and prognosis of Dental

Caries and periodontal diseases. Developmental anomalies of the oral and maxillofacial tissues are also discussed. The student is expected to gain sound knowledge and understanding of etiology and pathogenesis of dental caries and its sequelae, acquire basic understanding of periodontal diseases for future courses in periodontology and be conversant with terminology of oral pathology to permit effective and scientific communication with other members of the dental and medical professions.

Signs and symptoms of the disease processes will be related to the gross and histopathological changes in the tissues.

#### **Oral Diagnosis Course**

This is an introductory course in Oral diagnosis and medicine. The student is taught the initial clinical procedure such as recording the case history, physical examination of the oral and maxillo-facial structures, and laboratory and radiographic investigations that will aid in arriving at a diagnosis. The student is taken through a systematic approach to differential diagnosis of oral disease conditions. Clinical management of oral diseases will commence at this level

#### **Oral Medicine Course**

This is a final year course where the student is expected to start integrating dental and relevant medical information for total care and decision making in patient management. He should understand the relationship of common medical conditions presenting with oro-facial clinical presentations, understand the patho-physiology of oral diseases of systemic origin and undertake an integrated clinical management of oral disease.

#### **Oral Radiology Course**

This covers the fundamentals of the production and interaction of x-rays, the basics of radiation biology and radiation protection and production of the radiograph. The theoretical and practical knowledge of the projection of intra and extra-oral radiographic views of the jaws and the skull, the

perception and the appearance of normal tissues on the radiograph and the diagnosis of pathology using radiographs are taught.

### **DEPARTMENT OF ORAL & MAXILLOFACIAL SURGERY**

#### **Oral Surgery Course**

The Local Anaesthesia course comprises a series of weekly lectures covering the administration of Local Anaesthesia. There is revision and application of the anatomy of the oral and peri-oral structures with emphasis on the trigeminal nerve (particularly maxillary and mandibular nerves), together with the neurophysiology of nerve impulse transmission.

Lectures are given on pharmacology of Local Anaesthetic agents advantages, disadvantages and complications of administering them. Further lectures cover the basic theoretical instruction in exodontia by intra-alveolar and transalveolar methods. The application of sound surgical principles, aseptic technique, assessment of patient for these procedures and for minor oral surgical procedures and the management of complications. In addition students attend a tumour clinic and assist or observe in minor and major operations in the clinic and the theatre and are involved in pre-operative surgical preparation of patients.

## **DEPARTMENT OF ORTHODONTICS AND PAEDODONTICS**

### **Ortho/Pedo Course**

An introduction program is devoted to the general topics of orthodontic diagnosis.

This course is then designed to emphasize the basic and fundamental differences in dental treatment of children as compared to that of adults and how restorative dentistry and pulp therapy do differ in children as compared to adults. There is the continuous and dynamic change in the occlusion of children due to growth and development. It presents how the effect of these changes in the dentition influence the management of children. It introduces the student to the systematic approach in the guidance of the behaviour of the child dental patient. The student is taught to differentiate between normally developing occlusion and incipient malocclusion to differentiate between malocclusions which may be treated in general practice and those which require specialist care, to know how to manage a simple case of malocclusion with simple appliances and to know how malocclusion might be caused or made worse iatrogenically, in the course of the general dental treatment and how to avoid being the cause of malocclusion.

## **DEPARTMENT OF RESTORATIVE DENTISTRY**

### **Conservative Dentistry Course**

The course is designed to enable the student to acquire the technique and procedure for the preparation and restoration of teeth with amalgam and the tooth coloured materials and also to know the fundamental and basic concepts of cavity classification, design and rules for preparation.

The biological and mechanical designs are learned and practiced using the methods of site isolation, instrumentation, removal of carious tooth tissues, treatment of superficial and deeper tissue while considering the restorative material of choice. In the phantom head course, plastic and extracted natural teeth are used.

### **Restorative Dentistry Courses;**

These include the pre-clinical (Junior) Operative Technique Course at the Phantom Lab where clinical skills are taught on manikins, the clinical operative technique and endodontics courses and the advanced (Senior) Operative Technique Course made up of the Crown and Bridge course and the Inlay /Onlay course. This reinforces the need of a thorough understanding of the biological and mechanical concepts in cavity preparation and the restoration teeth. Greater attention is placed on the use of cast gold and the restoration of badly broken down teeth. There are significant technical and laboratory procedures taught and accomplished to enable the student have those skills necessary to support the clinical operations. The need for occlusal harmony in restoration of teeth is established and followed. Reinforcement of using related procedures is directed to facilitate the need for awareness of the clinical environment.

### **Prosthetic Dentistry Course**

The course comprises of clinical and hospital practice designed to offer the student the maximum ability to recognize clinical conditions which require specialist prosthodontic or medical opinion and treatment, contribute effectively to an integrated programme in dental education and clinical practice that offers a comprehensive care and delivery aiming for the total rehabilitation of the dental patient, to be able to diagnose and treat simple dental conditions requiring prosthetic management and to understand and evaluate new concepts and procedures in prosthetic dentistry.

### **Comprehensive Practice (Full Care Patient Project)**

This project allows the student of coordinate removable Prosthodontic work in combination with other disciplines like Oral surgery, Restorative dentistry and Preventive Dentistry. This student is allocated a partially edentulous patient for whom he should complete the oral diagnosis and treatment planning in sequence by rotating through other disciplines of Dentistry to provide full care for the patient.

## **DEPARTMENT OF ANAESTHESIA**

### **Course Description**

The clinical rotation in anaesthesia, usually in the final year of undergraduate training introduces the concept of an anaesthetist as “perioperative physician”. It also brings to the fore the role of the anaesthetist in unifying the specialties of medicine and surgery and the concept of teamwork in patient management. The students will therefore be taught about applied basic sciences as applied to anaesthesia, pain management and introductory intensive care. The students will also be exposed to the special skills of the anaesthetist in terms of resuscitation of the critically ill, cardiopulmonary resuscitation, management of the airway, acute and chronic pain management. Skills training in the Skills and Simulation Laboratory is an integral part of the training.

## **DEPARTMENT OF COMMUNITY HEALTH**

### **Community Health Course**

Community Health or Community Medicine is a clinical discipline which integrates both Medicine and Public Health. It is the study of the health status of a defined group of people and the actions and conditions to promote, protect and preserve their health and its determinants. It involves doctors and other professionals who tailor their interventions to a particular community or group within a community, municipality or region and provide both clinical, preventive and promotive care to the community or group. The goal of the department of community health is to train medical students to be able to identify major problems affecting the health of communities, and determine their solutions.

The student is taught to make a diagnosis of the health problems in a community, taking into considerations the major ecological factors, which influence health such as social, physical and biological environment, to draw up health programmes feasible for the existing health care system organize and carry out the programmes in collaboration with members of the health team and the community. He should be able to stimulate the community to modify their behavior with a view of improving their health status, administer health programmes with health personnel, using appropriate management and evaluation techniques and carry out scientific investigations/research into the health problems of the community.

### **Long essay/Dissertation**

The main purpose of the long essay is to introduce students to research methodology and techniques. The department has a dissertation guide which provides more details on the format and process of writing the long essay.

### **Case Reports**

Students are expected to present a case report from the district. The purpose of this exercise is to teach students how to write case reports and to share their experience in the district as part of the clinical component of the District Rotation. The case report should be a clinical case such as a tropical disease not commonly seen in the tertiary setting or unusual presentation of any

disease. Interesting case studies on health service related issues can also be presented.

### **Family Medicine Course**

Family medicine is the specialty that provides continuing and personalized healthcare for the individual in a holistic manner within the context of his/her family and environment. The expected outcome is the ability of the student to provide and coordinate the continuous and comprehensive care of patients and their families taking cognizance of bio-psychosocial, familial and community/cultural factors influencing their health. The student should be able to apply the principles and concepts of family medicine in patient care

### **CENTRE FOR TROPICAL CLINICAL PHARMACOLOGY AND THERAPEUTICS**

Courses in clinical pharmacology are taught during the coordinated course in medicine. During the sub-intern period a more patient based programme will be followed. The objective of this clinically based programme is to assist the potential doctor in the art of decision making in therapeutics when he or she is confronted with a patient.

### **DEPARTMENT OF CHILD HEALTH**

#### **Child Health Course**

Paediatrics is the medical specialty concerned with the study and treatment of children in health and disease during development from birth to adolescence (18yrs). Child health deals with the normal growth and development of children as well as diseases which can impact growth and development including the behavioural and social aspects of the child. The student should acquire the relevant knowledge, skills and attitudes to take care of common childhood emergencies (Emergency Paediatrics), should know and be able to manage common acute diseases that affect children in Ghana and the West African Subregion (Acute Paediatrics), should know and be able to manage as well as follow up children with chronic childhood diseases. (Chronic paediatric problems), should know about normal nutrition, growth and development of children and their abnormal states, including the children with special needs, should know and be able to manage the common conditions that affect the neonate (Neonatal Paediatrics) and should be knowledgeable of the socio-economic and cultural factors that influence the health of children in Ghana.

### **DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY**

This subject which looks at the woman's health is in two parts: Obstetrics and Gynaecology. It is run over two clerkships in the second clinical year. The student is expected to understand the scientific basis (basic sciences) of Obstetrics and Gynaecology while concentrating on the common clinical conditions that he / she is likely to encounter. By the end of the clerkships the student should be able to apply the basic sciences to the theory and practice of Obstetrics and Gynaecology, take a good history; conduct a thorough clinical examination and make a good presentation of the findings and describe and / or discuss appropriately the management of the common clinical conditions and their complications. Conditions include normal pregnancy as well as high-risk/abnormal pregnancies, common gynaecological conditions and also family planning methods.

## **DEPARTMENT OF MEDICINE AND THERAPEUTICS**

### **Medicine and Therapeutics Course**

The Department offers comprehensive training in the discipline of cardiology, clinical pharmacology, dermatology, endocrinology, gastroenterology, infectious diseases, nephrology, neurology, nuclear medicine, and respiratory medicine to produce highly disciplined, scientifically knowledgeable and skilled clinicians capable of functioning effectively in any rural or urban medical set up in Ghana, and working at a standard acceptable in the international community of medicine. At the end of the course, students will be expected to demonstrate ability to make appropriate medical diagnoses, perform a problem-focused history, physical examination and assessment,

develop skills in gathering and interpreting clinical and laboratory information, have adequate knowledge in patient management( both pharmacologic and non-pharmacologic interventions), acquire skills in performing stipulated practical procedures under supervision, develop appropriate work ethics, behavior and communication skills including counseling and negotiation and attend post-mortems on their patients.

## **DEPARTMENT OF PSYCHIATRY**

### **Psychiatry Course**

The Psychiatry Course leading to MB CH.B consists of Junior and Senior Clerkships.

The students are required to have a basic knowledge in the anatomy of the brain and related structures, Neurophysiology and Biochemistry relevant to Neuropharmacology. During the Junior Clerkship, they are also taught how to interact with the mentally ill, how to examine the mental state of the patients, history taking and basic psychopathology at the end of which students should be in a position to formulate the patient's mental or physical problem and plan management of the said patient. The aim of the Senior Clerkship is to consolidate what the student has already learnt together with common Psychosexual Disorders.

### **Clinical Psychology Course**

The goals of the course are for students to become aware of psychological determinants of behavior and gain greater understanding of self and others, recognize and harness opportunities for the application of psychological findings and principles, appreciate the necessity for multi-level explanation and intervention and appreciate research methodologies and their use to drive psychological theory. Students will be expected to think of illness from a psychological perspective and understand that the course is as much about illness and healing as it is about the healer. Relaxation training as well as neuropsychological assessment is also taught

There is a Project in Research in Psychiatry for four weeks when students are expected to master the art of conceptualizing psychological and psychiatric variables and how to measure these.

## **DEPARTMENT OF RADIOLOGY**

Department of Radiology offers lectures and tutorial during the Medicine and Surgery Clerkships to reinforce the teaching of disease conditions. Radiological anatomy taught course consists of basic anatomy relevant to all the common radiological examinations with emphasis on cross sectional anatomy in the axial, coronal, sagittal and where appropriate, oblique planes. Imaging techniques would include x-rays, ultrasonography, CT, MRI and some interventional procedures

## DEPARTMENT OF SURGERY

Surgery is one of the key pillars in medical education. . The main objective of the Department is to train well rounded medical students in all aspects of surgical disciplines who can hold their own and function as first-line medical professionals with confidence and the right attitude. The various disciplines of surgery through which the student rotates include General Surgery, Paediatric Surgery, Urology, Orthopaedics, Neurosurgery, Plastic Surgery, Cardiothoracic Surgery, Ophthalmology and Ear-Nose-Throat Surgery. At the end of his clerkship the student should be able to take a history from a patient, perform a physical examination on him and interpret his findings list the probable diagnosis, order relevant investigations and then synthesize all information obtained into logical conclusion. With an acceptable and safe management plan. The student should be able to acquire and satisfactorily demonstrate the requisite Knowledge, Attitude, Skills and Ethical considerations necessary for the practice of surgery at the end of the programme.

## GRADUATE ENTRY MEDICAL PROGRAMME (GEMP)

### Introduction

The **Graduate Entry Medical Programme (GEMP)** is a parallel programme of the University of Ghana School of Medicine and Dentistry (UGSMD) which admits first degree students of science-related courses. The duration of the programme is four (4) years, comprising an initial phase (Phase I) of one and a half (1½) years of three semesters and a clinical phase (Phase II) of two and a half years. Phase I of the programme covers predominately basic and para-clinical sciences integrated with clinical sciences. Phase II is run with the existing University of Ghana School of Medicine and Dentistry (UGSMD) clinical programmes and remains unchanged.

### MODULES OF PHASE I

#### YEAR I

#### SEMESTER I

CODE	COURSE TITLE	CREDITS
GEMP 321	Cell Biology & Genetics	7
GEMP 323	Human Anatomy	7
GEMP 325	Immunity & Infections	7
<b>Total Credits</b>		<b>21</b>

\*Credit made up of 5 contact hours for Lectures/Team-Based Learning and 2 hours for practical per week. Provision has been made for extra hours for self-directed learning.

#### SEMESTER 2

CODE	COURSE TITLE	CREDITS
GEMP 322	Mechanisms of Disease	5
GEMP 324	Nutrition and Metabolism	5
GEMP 326	Cardiovascular System	5
GEMP 328	Respiratory System	5
GEMP 332	Gastro-intestinal and Hepato-biliary System	5
<b>Total Credits</b>		<b>25</b>

\*Credit made up of 4 contact hours for Lectures/Team-Based Learning and 2 hours for practical per week

<b>SEMESTER 3</b>		
<b>CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
GEMP 421	Body Fluids, Renal and Reproductive Systems	5
GEMP 423	Neuroscience	5
GEMP 425	Population Health, and Medical Statistics	5
GEMP 427	Haematopoietic and Lymphoreticular System	5
GEMP 429	Medical Psychology, Behavioural Science& Sociology	4
<b>Total Credits</b>		<b>24</b>

### **ASSESSMENT**

Students will be assessed through Formative and Summative Assessments which will contribute 40% and 60% respectively to the final semester mark. The pass mark for a module remains 60%.

#### **I) FORMATIVE ASSESSMENT**

This examination will contribute 40% to the final semester mark.

There would be one (1) continuous assessment made up of multiple choice questions and long/short essays towards the end of the module as well as a minimum of two (2) Team-Based Learning (TBL) assessments and two (2) Practicals/Objective Structured Practical Examination (OSPE) per semester.

#### **II) SUMMATIVE ASSESSMENT**

This examination will contribute 60% to the final semester mark.

There will be one of 2-part theory paper and an oral examination for each module:

- Part 1 – MCQs (50% of Summative mark)
- Part 2 – long and/or short essays (40% of Summative mark)
- Oral examination: (10% of Summative mark).

### **SUPPLEMENTARY EXAMINATIONS**

There will be two supplementary examinations:

- I) The first will take place after End of Semester 2 examinations – to re-sit failed End of Semesters 1 and 2 examinations 4 to 6 weeks following the declaration of the results of the main examinations.
- II) The second will be written after Semester 3, to re-sit failed Semester 3 examinations 4 to 6 weeks following the declaration of the results of the main examinations.
- III) If a student fails 3 attempts at a module examination, he/she **shall be asked to withdraw from the programme.**

### **PROGRESSION TO PHASE II**

To progress to the clinical phase (Phase II), a student must have passed with at least 60% module mark in ALL Phase I Module Examinations.

### **COURSE MODULE DESCRIPTIONS**

The stated editions of the reading lists in the entire document notwithstanding, the latest editions either in existence or to be published in future would be the recommended editions to be used for all modules.

#### **GEMP 321: Cell Biology and Genetics**

The aim of this module is to provide information necessary for students to gain an

understanding of the cell, fundamental processes of the flow of biological information, inheritance and mutation and how these relate to disease causation and response to treatment. The module also deals with the principles of enzyme action and its application in medicine. It also covers gene and chromosome analyses and issues concerning genetic screening and gene therapy. The module would enhance students' understanding of the central nature of genetics to modern medicine and the basic principles underlying drug action and how they relate to their pharmacokinetic and pharmacodynamic properties.

**GEMP 322: Human Anatomy**

The Human Anatomy module is aimed at providing students with sufficient knowledge and understanding of the anatomy of human beings to enable them function competently as a clinical students and throughout their career as clinicians, teachers or researchers. The Module which covers relevant areas of human anatomy namely embryology, histology and gross anatomy addresses topics such as Introduction to Anatomical Terminology, Basic Tissues, Bone Development and Remodeling, Muscle nomenclature, Gametogenesis, Muscles of the appendicular and axial skeletons, Anatomy of the male and female Reproductive systems among others. Throughout the module emphasis is laid on linking basic human anatomy with relevant clinical conditions.

**GEMP 323: Immunity and Infections**

This module introduces students to micro-organisms and parasites which cause disease and how biological systems recognize and protect themselves from these foreign micro-organisms/macromolecules. The morphology and pathological roles of bacteria, viruses and parasites are discussed. Students will be made to appreciate the precision of the immune system and its contribution to the survival of individual species in all possible environmental conditions. The importance of immunology in clinical diagnosis, treatment, prevention and control of infectious diseases of both humans and animals is emphasized.

**GEMP 324: Mechanisms of Disease**

This module is designed to introduce students to the scientific basis of disease and help them to understand how a variety of agents and factors cause different basic pathological processes, the underlying mechanisms of these processes and how these subvert morphology and/or function of tissues, organs, systems and the whole human body. An appreciation of these processes and mechanisms will facilitate an understanding of the symptoms, signs and abnormal laboratory test results in patients. The module also covers the diseases and how various therapeutic interventions are designed to curtail pathological processes involved..

**GEMP 325: Nutrition and Metabolism**

This module, which mainly comprises nutrition, biochemistry and endocrinology, is aimed at developing students' knowledge of the sources and utilization of nutrients, energy balance, tissue metabolism and its control by the endocrine system. This knowledge is required for understanding the metabolic basis and treatment of diseases as well as appropriate dietary modifications in the prevention and management of various medical and pathological conditions.

**GEMP 326: Cardiovascular System**

The aim of this module is to let students understand the role of the cardiovascular system in the sustenance of life and the relationship of the structure of the heart and blood vessels to the function of the cardiovascular system as well as alterations in functions in disease and restoration to normalcy. Common cardiovascular diseases such as endocarditis, myocarditis,

pericarditis, atherosclerosis, arteriosclerosis, hypertensive vascular diseases, vasculitides, aneurysms, cardiomyopathies are discussed as examples of pathological conditions of the cardiovascular system.

**GEMP 328: Respiratory System**

This module will enable the students to understand the structure, function, and regulatory mechanisms of the respiratory system, and how they relate to the manifestation of common respiratory diseases and their treatment. Students will be able to understand the anatomical, physiological and pathophysiological basis of respiratory diseases and its relation to clinical manifestations. It will also enable students understand the importance of environment and how occupation can lead to some respiratory diseases. Therapeutic interventions both pharmacologic and non-pharmacological in the management of patients with a respiratory disease are discussed. The Module covers areas such as Respiratory Anatomy, Physiology, Pathology, Microbiology, Pharmacology, Radiology and Physiotherapy.

**GEMP 332: Gastrointestinal and Hepatobiliary Systems**

The aim of this module is to let students understand the normal function of the human gastrointestinal and biliary systems, and how they are altered in common diseases. It discusses the structure and function of various parts of the alimentary tract as well as the exocrine pancreas and the liver. Relevant clinical conditions such as peptic ulcer, pancreatitis, malabsorption and hepatitis and basic principles of their management, including surgical interventions are emphasized.

**GEMP 421: Body Fluids, Renal and Reproductive Systems**

This module is designed to provide knowledge on body compartments, fluid and electrolyte compositions, acid-balance and the structure and function of the renal and reproductive systems of both male and females. It deepens students' understanding of the various mechanisms which control the internal environment with particular emphasis on the role of the kidney. The endocrine control of reproduction and possible abnormalities of reproduction and the principles of their investigation and management are discussed.

**GEMP 423: Neuroscience**

This module is designed to equip students with basic knowledge of the functional anatomy and physiology of the nervous systems, common microbial infections and pathological diseases of the nervous system and how these impact function. Students are made to understand manifestations of psychiatric diseases as well as the effect of drugs on the functions of the nervous system in health and disease. This will enable them apply the acquired knowledge to diagnose, investigate and manage diseases of the nervous system. Topics covered by the Module include: Neuroanatomy, neurophysiology, neuropathology, neuropharmacology, psychiatry, neurology, neurosurgery, pediatric and developmental neurology and infections of the nervous system

**GEMP 425: Health and Disease in Population and Medical Statistics**

This module is designed to equip students with essential knowledge of the dynamics of populations and how to interpret population-based studies of disease distribution and associated risk factors, treatment effectiveness as well as disease prevention for the benefit of the health of patients and the population as a whole. The module covers topics such as General epidemiology and disease control, Biostatistics, Demography, Field survey (pre-survey preparation), Field survey (survey work, data analysis, report writing and presentation), Ecology and community characteristics and dynamics, General principles of health education,

Principles and practices of occupational health, Environmental health, food hygiene and waste disposal, Health management and administration, Impact of gender and unemployment on health and Social welfare systems.

**GEMP 427: Haematopoietic and Lymphoreticular System**

The general objective of this module is to introduce the structure and function of the haemopoietic and lymphoreticular systems and haemostasis; the diseases which arise from them and how they are affected by other systemic diseases. At the end of the module, the student should be able to describe the structure and function of the haemopoietic and lymphoreticular systems; describe blood coagulation, the presentation and diagnosis of bleeding and hypercoagulable disorders; describe the aetiopathogenesis of haematological malignancies, their presentation, diagnosis and management; discuss plasma proteins in health and disease and describe the mechanism of action of drugs used to control abnormal clotting and their interactions with other drugs.

**GEMP 429: Medical Psychology, Behavioural Science and Medical Sociology**

This module is aimed at emphasizing the importance of psychological, social and societal factors in health and disease. The effect of social values and cultural practices on health is discussed. The module is also designed to equip students with the knowledge, skills and attitude to induce positive change in health behaviour of individuals, communities and work places in order to enable the trainees practice medicine ethically. Topics covered include Death and dying, Burnout syndrome, Stress, Paradigms in healthcare, common psychological problems in the community and Introduction to psychology.

## SCHOOL OF NURSING

### INTRODUCTION

Nursing is a dynamic and challenging profession which serves to promote, maintain and restore health. The changing trends in health needs, health technology and the expectations of clients require that the graduate nurse acquires knowledge and skills of the highest standard to meet the challenges of modern day nursing. It is against this background that the School of Nursing has improved upon its programme to meet the current needs of the job market in Ghana and abroad.

This four-year degree programme will have Level 100 counting towards graduation. Nurses who hold University of Ghana Diploma in Nursing will enter the programme at Level 200. Students will be awarded BSc Nursing with one of the following options: General Nursing, Paediatric Nursing, Midwifery, Community Health Nursing and Mental Health Nursing.

### ADMINISTRATION

<b>Lydia Aziato</b> <i>BA (Ghana) MPhil (Ghana) PhD (Cape Town)</i>	-	<b>Ag. Dean/</b> Senior Lecturer
<b>Theodore M. Ahuno</b> <i>BA, MPA (Ghana)</i>	-	Senior Assistant Registrar

### DEPARTMENT OF ADULT HEALTH

<b>Kwadwo A. Korsah</b> <i>BA (Ghana), MPhil (Ghana), FWCN</i>	-	Lecturer <b>(Ag. Head of Department)</b>
<b>Patricia Avadu</b> <i>Dip In Nursing, BA (Ghana), MPhil (Ghana)</i>	-	Lecturer
<b>Gladys Dzansi</b> <i>BA (Ghana), MPhil (Ghana) (on Study Leave)</i>	-	Assistant Lecturer
<b>Cecilia Eliason</b> <i>BA (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer

### DEPARTMENT OF COMMUNITY HEALTH

<b>Patience Aniteye</b> <i>BSc (Ghana), MPhil (Ghana), PhD (LSHTM, London)</i>	-	Lecturer <b>(Ag. Head of Department)</b>
<b>Prudence P. Mwini-Nyaledzigbor</b> <i>SRN, BSc, MPhil (Ghana), PhD (South Africa)</i>	-	Senior Lecturer (Leave of Absence)
<b>Lillian Akorfa Ohene</b> <i>BSc (Ghana) MPhil (Ghana) (on Study Leave)</i>	-	Assistant Lecturer

### DEPARTMENT OF MATERNAL AND CHILD HEALTH

<b>Florence Naab</b> <i>BA (Ghana), MPhil (Ghana), PhD (Wisconsin)</i>	-	Lecturer
<b>Ernestina Asiedua</b> <i>BA (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer
<b>Mary Ani-Amponsah</b> <i>BA (Ghana) MPhil (Ghana) (on Study Leave)</i>	-	Assistant Lecturer
<b>Samira Mustapha Ablordey</b> <i>Dip. In Nursing, BA (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer
<b>Emma Annan</b> <i>BSc (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer

## DEPARTMENT OF RESEARCH, EDUCATION AND ADMINISTRATION

<b>Vivian Afrah Lower Pupilampu</b> <i>BA (Ghana) MPhil (Alberta)</i>	-	Lecturer
<b>Adelaide M. Ansah Ofei</b> <i>BA (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer
<b>Adzo Atswei Kwashie</b> <i>BSc (Ghana) MPhil (Ghana) FWCN</i>	-	Assistant Lecturer

## DEPARTMENT OF MENTAL HEALTH

<b>Alexander Kwablah Mensah Attiogbe</b> <i>BA (Ghana) MPhil (Ghana)</i>	-	Assistant Lecturer
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## FULL TIME LECTURERS OF SERVICE DEPARTMENTS

<b>Richard Kwasi Gyasi</b> <i>MB, Ch B (Ghana), DCP, FWAP</i>	-	Associate Professor
<b>Matilda Steiner-Asiedu</b>	-	Associate Professor
<b>Isaac Asiedu-Gyekye</b> <i>MSc, PhD (Pyatigorsk, Russia)</i>	-	Senior Lecturer
<b>Samuel Atindanbila</b> <i>BA, PCE (UCC), MPhil (Ghana), PhD (Ghana)</i>	-	Senior Lecturer
<b>Charles Antwi-Boasiako</b> <i>BSc. (Hons) (Zoology) MPhil, PhD (Ghana)</i>	-	Lecturer
<b>Saviour Adjenti</b> <i>BSc. (KNUST), MPhil (Ghana), PhD (Cape Town)</i>	-	Lecturer

## PART TIME LECTURERS

<b>Doris Grace Kpongbe</b> <i>BA, MPhil (Ghana)</i>	-	Part-Time Lecturer
<b>Edwin Nkansah</b> <i>BSc (Cape Coast), MSc (London), PhD (London)</i>	-	Part-Time Lecturer
<b>Kate Coleman-Sarfo</b> <i>BPharm (KNUST), PGD (Aberdeen), MSc (KNUST), MPH (Ghana)</i>	-	Part-Time Lecturer
<b>Joseph K. Ecklu</b> <i>BSc. MBA (Ghana)</i>	-	Part-Time Lecturer
<b>Emmanuel Klo</b> <i>MSc Pharmacy (Ukraine), PGD (Scotland)</i>	-	Part-Time Lecturer
<b>Florence Ama Nkansah</b> <i>BPharm (KNUST), MSc (Aberdeen)</i>	-	Part-Time Lecturer
<b>Philip Anum</b> <i>MSc Pharm (Pyatigorsk), MSc Clinical Pharm (Bradford), FPCPharm (WAPCP)</i>	-	Part-Time Lecturer
<b>Raymond Ashaley Tetteh</b> <i>MSc Pharm (Romania), MSc Clinical Pharm (Aberdeen), CHA (GIMPA), CDIM (Cape Town)</i>	-	Part-Time Lecturer
<b>Joseph Kodjo Nsiah Nyoagbe</b> <i>BPharm (KNUST), MSc Pharm (Bradford), MBA (GIMPA)</i>	-	Part-Time Lecturer
<b>Doris Kumadoh</b> <i>BPharm (KNUST), MPhil (KNUST), MPSGH</i>	-	Part-Time Lecturer
<b>Isaac Kingsley Amponsah</b> <i>B.Pharm (KNUST), PhD (KNUST), MPSGH, WANNPRES, IAPH</i>	-	Part-Time Lecturer

**BSC NURSING WITH OPTIONS PROGRAMME PROGRAMME STRUCTURE**

**LEVEL 100  
 FIRST SEMESTER  
 CORE**

<b>Course Code</b>	<b>Course Title</b>	<b>Credits</b>
BAHS 101	Introduction to Microbiology	3
BAHS 103	Introduction to Microbiology Practicals	1
NURS 105	Introduction to Community Health Nursing	2
NURS 107	Introduction to Mental Health Nursing	2
NURS 109	Nursing Perspectives	2
NURS 111	Trauma and Emergency Nursing	2
UGRC 110	Academic Writing I	3
UGRC 120	Numeracy Skills	3
<b>Total Credits</b>		<b>18</b>

**SECOND SEMESTER  
 CORE**

<b>Course Code</b>	<b>Course Title</b>	<b>Credits</b>
BAHS 102	Human Anatomy	3
BAHS 104	Anatomy Practicals	1
BAHS 106	Basic Physiology	3
BAHS 108	Basic Physiology Practicals	1
NURS 108	Fundamentals of Mental Health Nursing	2
NURS 114	Psychology for Nurses	2
NURS 116	Obstetric Anatomy and Normal Pregnancy	1
NURS 118	Fundamentals of Nursing	1
NURS 122*	Nursing Practical I	1
UGRC 130	Understanding Human Societies	3
UGRC 150	Critical Thinking and Practical Reasoning	3
<b>Total Credits</b>		<b>21</b>

***Long Vacation Practicum***

*NURS 122\* will be offered partly during the semester and continued for six weeks in the long vacation.*

**LEVEL 200  
FIRST SEMESTER  
CORE**

**(Diploma Holders will enter at this point)**

Course Code	Course Title	Credits
BAHS 201	Basic Biochemistry and Molecular Cell Biology	3
BAHS 203	Basic Biochemistry and Molecular Cell Biology Practicals	1
BAHS 205	General & Autonomic Pharmacology	2
NURS 231	Principles and Practice of Health Assessment	2
NURS 233	Medical Microbiology and Parasitology	2
NURS 235	Normal Labour and Puerperium	2
NURS 237	Theoretical Foundations of Nursing	2
NURS 239	Pharmacology	3
NURS 241	Foetal and Child Development	1
NURS 243	Prevention and Control of Communicable Diseases	2
NURS 245	Nursing Practical II	1
UGRC 210	Academic Writing: II	3
<b>Total Credits</b>		<b>18</b>

*\*Students who entered the programme as diploma holders will offer UGRC 110: Academic Writing I in addition.*

**SECOND SEMESTER  
CORE**

Course Code	Course Title	Credits
NURS 232	Medical conditions of Integumentary, Endocrine systems	2
NURS 234	Surgical Conditions of Integumentary, and Endocrine systems	2
NURS 236	Abnormal Pregnancy, Labour and Puerperium	2
NURS 238	Classification and Management of Mental Disorders	2
NURS 242	Medical and Surgical Conditions of the Newborn and the Child	2
NURS 244	Management of Child Welfare Clinics	2
NURS 246*	Nursing Practical III	1
NURS 248	Nutrition and Dietetics	2
NURS 252	Pathology	3
UGRC 220 - 238	Introduction to African Studies	3
<b>Total Credits</b>		<b>21</b>

**Long Vacation Practicum**

*NURS 246\* will be offered partly during the semester and continued for six weeks in the long vacation.*

*\*Students who entered the programme as diploma holders will not do UGRC 220: African Studies but will offer UGRC 130: Understanding Human Societies and*

UGRC 150: Critical Thinking and Practical Reasoning at this level.

**LEVEL 300  
FIRST SEMESTER  
CORE**

Course Code	Course Title	Credits
BAHS 301	Clinical Microbiology	2
NURS 331	Medical Conditions of Respiratory, Cardiovascular and Genitourinary Systems	3
NURS 333	Surgical Conditions of Respiratory, Cardiovascular and Genitourinary Systems	2
NURS 335	Community Health Service Organisation and Participation	2
NURS 337	Nursing Practical IV	1
NURS 339	Reproductive Health	2
NURS 341	High Risk Neonate	2
NURS 343	Principles of Psychiatric Nursing	1
NURS 345	Nursing Research	2
<b>Total Credits</b>		<b>15</b>

*\*Students who entered the programme as diploma holders will offer UGRC 120: Numeracy Skills in addition.*

**SECOND SEMESTER  
CORE**

Course Code	Course Title	Credits
NURS 332	Medical Conditions of Nervous and Musculo-skeletal Systems and Sensori-Neural Organs	3
NURS 334	Surgical Conditions of Nervous and Musculo-Skeletal Systems and Sensori-Neural Organs	2
NURS 336	Systems and Sensori-Neural Organs Occupational and Community Health Services	2
NURS 338*	Nursing Practical V	1
NURS 342	Medical and Surgical Conditions in Childhood	2
NURS 344	Management of Major Psychiatric Disorders	1
NURS 346	Proposal Development and Report Writing	2
NURS 348	Gynaecological Nursing and Obstetric/ Gynaecological Operations	2
NURS 352	Advanced Clinical Nursing I	2
<b>Total Credits</b>		<b>17</b>

**Long Vacation Practicum**

*NURS 338\* will be offered partly during the semester and continued for six weeks*

*in the long vacation*

\* Students who entered the programme as diploma holders will offer UGRC 220: Introduction to African Studies in addition.

**LEVEL 400  
FIRST SEMESTER  
CORE**

Course Code	Course Title	Credits
NURS 400**	Project Work	6
NURS 451	Tools and Methods of Teaching Nursing	2
NURS 453	Principles of Management in Nursing	2
NURS455	Biostatistics	2
NURS457	Nursing Practical VI (Specialty option)	3
NURS459	Advanced Clinical Nursing II	2
NURS461	Nursing Seminar	2
<b>Credits</b>		<b>16</b>
<b>Options (Select 3 credits)</b>		
<b>General Nursing</b>		
NURS463	Peri-Operative and Critical Care Nursing	3
<b>Paediatric</b>		
NURS465	Integrated Management of Childhood illnesses	3
<b>Community Health Nursing</b>		
NURS467	Community Health Nursing Administration	3
<b>Midwifery</b>		
NURS 469	Advanced Midwifery Practice	3
<b>Mental Health Nursing</b>		
NURS 471	Theoretical Frameworks of Mental Health Nursing	3
<b>Total Credits</b>		<b>19</b>

**SECOND SEMESTER  
CORE**

Course Code	Course Title	Credits
NURS 452	Curriculum Development in Nursing Education	3
NURS 454	Administration of Nursing Services and Schools	2
NURS 456	Teaching Practice	2
NURS 458*	Nursing Practical VII (Specialty option)	3
<b>Credits</b>		<b>13</b>
<b>Options (Select 3 credits)</b>		
<b>General Nursing</b>		
NURS 462	Palliative Care and Hospital Emergency Management	3

<b>Paediatric Nursing</b>		
NURS 464	Childhood Chronic and Life Threatening Diseases	3
<b>Community Health Nursing</b>		
NURS 466	Home-Based Nursing and National Health Programme	3
<b>Midwifery</b>		
NURS 468	Domiciliary Midwifery	3
<b>Mental Health Nursing</b>		
NURS 472	Advanced Practice in Mental Health Nursing	3
<b>Total Credits</b>		<b>16</b>

**Long Vacation Practicum**

NURS 458\* will be offered partly during the semester and continued for six weeks in the long vacation.

- NURS 400\*\* is a six credit course, three credits allocated to each semester.
- The option chosen in first semester should be continued with its corresponding course in the second semester.

**Course Descriptions**

**BAHS 101: Introduction to Microbiology**

To introduce the students to Medical Microbiology as a field of study. During the course, various microbial agents of medical importance will be studied, with emphasis on their prevention and control.

**BAHS 102: Human Anatomy**

To help students appreciate the normal structure of the human body and apply this knowledge in the health science. Internationally-accepted nomenclature will be introduced and used throughout the course. The students will be exposed to preserved body structures to aid better understanding. Diagrams of anatomic structures will be presented as part of the course.

**BAHS 103: Introduction to Microbiology Practicals**

To illustrate the experimental principles involved in course BAHS 101 and to acquaint students with the laboratory equipment, and methods applied in clinical diagnosis. This practical course is designed to teach the student about morphology of microbial agents and simple staining and other techniques for their identification.

**BAHS 104: Anatomy Practicals**

This course aims to help students to appreciate the relationship between structures in the human body which will support the lectures in the laboratory.

**BAHS 106: Basic Physiology**

To introduce the students to the normal function and physiological processes of the human body. Students are expected to study the specific physiological properties of the cell, organs and systems outlined in the content. The students will also be required to learn the systems in relation to how they help maintain homeostasis in the body.

**BAHS 108: Basic Physiology Practicals**

To expose students to experimental methodology to enable them acquire skills to complement the knowledge from the theory.

**NURS 105: Introduction to Community Health Nursing**

This course introduces students to the history, processes and methods of community health nursing. Students will also discuss the concept of health, personal and environmental health. They will develop competencies in promoting health in the community and managing home accidents. Students will be expected to select a community or group and examine its environmental health practices.

**NURS 107: Introduction to Mental Health Nursing**

This course is designed to introduce students to the basic concepts in mental health care. It consists of various concepts used in psychiatric/mental health nursing which would be useful to students in understanding the behaviour of clients. The course will be useful to students who are preparing to care for patients with biopsychosocial needs in a variety of clinical settings. It will also assist students to appreciate developments in psychiatric/mental health care over the years and stimulate them to develop interest in mental health care.

**NURS 108: Fundamentals of Mental Health Nursing**

This course is designed to equip the student with knowledge of the theoretical basis for psychiatric mental health nursing. It includes the processes of assessment, admission and discharge of various categories of people with mental health problems, as well as the legal and ethical issues involved in these processes. This knowledge will guide the student to identify clients' problems, determine and respect clients' rights in psychiatric nursing practice.

**NURS 109: Nursing Perspectives**

This course is designed to introduce students to the nursing profession. It explores the historical development of nursing, different perspectives on the professionalism of the nurse, ethical standards, and the legal implications of nursing practice. Students will also be acquainted with the objectives and structure of the various nursing and health related organizations, and the new trends in nursing care.

**NURS 111: Trauma and Emergency Nursing**

The course introduces students to the various types of trauma and their management. It will also equip students with knowledge and skills that can be utilized to provide safety / emergency care to individuals in the community. The course includes practical sessions in the laboratory and students will be expected to do return demonstration on competencies demonstrated.

**NURS 114: Psychology for Nurses**

The course is designed to help students appreciate the behavioural characteristics of humans. The course will examine theories underlying human behaviour. The physical, cognitive, and psychosocial factors influencing human responses to illness will be explored. Students will be introduced to appropriate mechanisms that can be used in meeting the needs of individuals with negative response to illness.

**NURS 116: Obstetric Anatomy and Normal Pregnancy**

This course is designed to introduce students to obstetric anatomy and physiology, and management of normal pregnancy.

**NURS 118: Fundamentals of Nursing**

This course is to introduce students to the basic concepts and techniques in nursing. Students will acquire knowledge and skills to carry out basic nursing procedures through the use of the nursing process and infection prevention practices. It will offer students opportunity to demonstrate skills acquired and to properly document all nursing care given to patients.

**NURS 122: Nursing Practical I**

This course will expose students to clinical and field experiences in emergency and trauma care, primary health care and mental health. The purpose of the placement is to enable students gain skills in basic nursing within the different clinical areas. It will be offered partly during the semester and continued as a six week long vacation course. During the long vacation, students will be placed in medical/surgical units of selected hospitals for two weeks. They will also work in polyclinics and psychiatric hospitals for two weeks respectively.

**BAHS 201: Basic Biochemistry and Molecular Cell Biology**

This course is aimed at introducing students to the major chemical constituents of the cell and the biochemical basis of human function and disease. Description of cell signaling, enzyme kinetics and introduction to basic molecular biology shall also be covered.

**BAHS 203: Basic Biochemistry and Molecular Cell Biology Practicals**

The aim of this course is to acquire practical skills in biochemistry and appreciate biochemical concepts to support the theory.

**BAHS 205: General & Autonomic Pharmacology**

To equip students with knowledge in basic pharmacological concepts and the pharmacology of the automatic nervous systems.

**NURS 231: Principles and Practice of Health Assessment**

The course is designed to equip students with knowledge and skills in carrying out comprehensive health assessment. Students will be taken through the physical assessment of the human body in relation to the various body systems. They will gain competency in determining normal and abnormal functioning of organs and systems. The course will consist of classroom teaching and skills demonstration.

**NURS 232: Medical Conditions of Integumentary, Gastrointestinal and Endocrine Systems**

This course introduces students to medical conditions of the integumentary, gastrointestinal, and endocrine systems. The conditions will be discussed with reference to definition, types, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, differential diagnosis and management. The framework for nursing management will be Betty Neumann's prevention concept and Virginia Henderson's nursing components.

**NURS 233: Medical Microbiology and Parasitology**

This course is designed to give students knowledge about microbial organisms. It will also examine the way infections and infestation are transmitted and how to disinfect and sterilize materials. The course has a practical component to enable students view micro-organisms using the light microscope. The aim is for students to apply the knowledge gained to the prevention of cross infection.

**NURS 234: Surgical Conditions of Integumentary, Gastrointestinal and Endocrine Systems**

The course will focus on surgical conditions of the integumentary, gastrointestinal and endocrine systems, and their surgical interventions. Neoplasms will also be discussed. The conditions will be discussed with reference to definition, types, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, differential diagnosis, and conservative/surgical management. The framework for nursing management will be Levine's conservation principles and the nursing process.

**NURS 235: Normal Labour and Puerperium**

This course is designed to introduce the student to the stages and management of normal labour and normal puerperium. Students are expected to gain competencies that will enable them to give appropriate care during labour and puerperium. It will also involve skills demonstration and clinical placement.

**NURS 236: Abnormal Pregnancy, Labour and Puerperium**

This course is designed to enable the student midwife diagnose and manage abnormalities associated with pregnancy, labour and puerperium.

**NURS 237: Theoretical Foundations of Nursing**

This course is designed to provide nursing students insight into the multiple nursing theories. The course will focus on theory and practical application of the concepts discussed. It will consist of presentations and applied exercises. The students will be given the opportunity to critically analyze some of the existing nursing theories and equip them to meet professional and social expectations.

**NURS 238: Classification and Management of Mental Disorders**

This course will focus on the classification of mental disorders, developmental, behavioural and anxiety disorders. Students will be introduced to assessment and management of these conditions.

**NURS 239: Pharmacology**

This course is designed to equip students with knowledge in basic concepts of pharmacology. Students will be introduced to the principles of drug administration, effects of drugs as well as excretion of drugs from the body. The different classes of drugs and their effect on the various body systems will be discussed. Various side effects of drugs will also be analyzed.

**NURS 241: Foetal and Child Development**

This course offers students knowledge on conceptual and foetal development, growth and development of the child.

**NURS 242: Medical and Surgical Conditions of the Newborn and the Child**

This course is designed to equip students with knowledge and skills to manage the newborn and the child. It will enable students manage medical and surgical conditions in the newborn and the child.

**NURS 243: Prevention and Control of Communicable Diseases**

The course is designed to equip students with knowledge and skills in prevention and care of individuals/families with communicable diseases. Students will be introduced to theory of disease, epidemiology, control principles and methods, control strategies and organization of

diseases of public health importance. Disease notification and health regulations in public health will also be emphasized.

**NURS 244: Management of Child Welfare Clinics**

This course is designed to enable students develop competencies in community health practice. Students will be taken through the nursing process as applied in community health nursing, organization of child welfare clinics and immunization. They will carry out home visits and conduct a study on a problem family.

**NURS 245: Nursing Practical II**

This practical course is designed to enable students gain competencies in medical/surgical and paediatric nursing. The focus will include assessment of patients, admission and discharging of patients, administration of medication and care of patients using the nursing process. There will be practical examination at the end of the session. Students are expected to continue with practical experience during the inter-semester break.

**NURS 246: Nursing Practical III**

The course aims at giving students the opportunity to apply the nursing process in caring for patients with conditions affecting integumentary, digestive and endocrine systems. Students will also gain skills in the management of pregnant women during antenatal, labour and puerperium. There will also be placement in the community and psychiatric hospital. There will be practical examinations at the end of the session.

**NURS 248: Nutrition and Dietetics**

This course is designed to help students appreciate the value of nutrients in health and illness. The student will be introduced to the different types of food nutrients, their functions and sources. The effects of over-nutrition and under-nutrition will be stressed. The concept of convalescent diet, special diet and planning meals for ill patients will also be examined. The nutritional requirements for specific disease conditions will be discussed. Students will also be introduced to how to assess the nutritional status individuals.

**NURS 252: Pathology**

This course is designed to expose students to pathological processes that occur in the human body. Students will be taken through cellular basis of disease, inflammatory processes and healing of wounds and fractures. The concepts of immunology and development of neoplasm will be discussed. There will be concurrent practical sessions to expose students to pathological tissues macroscopically and microscopically.

**BAHS 301: Clinical Microbiology**

To enable students acquire knowledge on the interaction between various infectious agents and humans as well as the environment, promote the occurrence of infectious diseases, as they affect the systems. Infectious agents of public health importance in Ghana will be emphasized.

**NURS 331: Medical Conditions of Respiratory, Cardiovascular and Genitourinary Systems**

This course is designed to enable students develop competencies in managing-patients with medical conditions of the respiratory, cardiovascular and genitourinary systems. The conditions will be discussed with reference to description of the condition, types, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, differential diagnosis and management. The framework for nursing management will be Betty Neuman's

prevention principles and the nursing process.

**NURS 332: Medical Conditions of Nervous and Musculo-Skeletal Systems and Sensori-Neural Organs**

The course will expose students to medical conditions of the nervous, musculo-skeletal system and sensori-neural organs. The conditions will be discussed with reference to definition, types, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, differential diagnosis and management. The framework for nursing management will be Betty Neuman's prevention principles and the nursing process.

**NURS 333: Surgical Conditions of Respiratory, Cardiovascular and Genitourinary Systems**

The course is designed to enable students develop competencies in managing patients with surgical conditions of the respiratory, cardiovascular and genitourinary systems. The conditions will be discussed with reference to definition, types, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, differential diagnosis and management. The framework for nursing management will be Levine's conservation principles and the nursing process.

**NURS 334: Surgical Conditions of Nervous and Musculo-Skeletal Systems and Sensori-Neural Organs**

The course is designed to help students develop competencies in managing surgical conditions of the nervous and musculoskeletal system and sensori-neural organs. The conditions will be examined based on the definition, prevalence, aetiology, pathophysiology, clinical manifestation, diagnostic investigations, surgical and conservative management. Levine's conservation principles and the nursing process will be the framework for discussing nursing interventions.

**NURS 335: Community Health Service Organization and Participation**

This course will equip students with the requisite knowledge and skills relating to community health practice. Students will be taken through community diagnosis, mobilization, organization and participation. The sources of community data, measurement of morbidity and mortality, and health indices will also be discussed. Students will be assigned in groups to carry out a community study as part of the course.

**NURS 336: Occupational and Community Health Services**

The course is aimed at assisting students to develop competencies in providing school, occupational, outreach and reproductive/adolescent health services. The problems of the school child, care of the physically/psychologically impaired and the aged will also be discussed. Students will be put in groups to undertake school health and health outreach services.

**NURS 337: Nursing Practical IV**

This course offers students the opportunity to apply knowledge and skills acquired in performing various nursing procedures. They will be placed on selected wards. There will be practical examinations at the end of the session. Students are expected to continue with practical experience during the inter-semester break.

**NURS338: Nursing Practical V**

This course will equip students with skills in managing patients pre-, intra-, and post-,

operatively. They will be placed in general and specialized theatres during the semester. Students will have psychiatric, obstetric and gynaecological nursing experiences during the long vacation.

**NURS 339: Reproductive Health**

This course is designed to give students insight into physical and emotional maturity of adolescents and associated problems, adolescent sexuality and associated risks. It will also expose students to basic principles of population dynamics and family planning.

**NURS 341: High Risk Neonate**

The course is designed to provide students with knowledge and skills to identify and manage the high risk neonate, recognise emergency conditions and take appropriate actions.

**NURS 342: Medical Surgical Conditions in Childhood**

The course is designed to provide students with knowledge and skills in managing medical and surgical conditions in children. Conditions affecting the endocrine, renal, gastrointestinal tract as well as tumours, genetic disorders and congenital malformations will be discussed.

**NURS 343: Principles of Psychiatric Nursing**

The course introduces students to the principles of psychiatric nursing. Students will be exposed to the knowledge and skills in assessing and managing clients with major psychiatric disorders.

**NURS 344: Management of Major Psychiatric Disorders**

This course is a continuation of NURS 343. It will assist students to plan and deliver care that will stabilise the individual client's health status to facilitate reintegration of the client into the community.

**NURS 345: Nursing Research**

This course is designed to introduce students to the use of the scientific process in identification, study and solution of problems. Students will be introduced to the principles and techniques of the research process. It will stimulate critical thinking and promote evidence-based practice.

**NURS 346: Proposal Development and Report Writing**

The course is designed to build on NURS 345 and assist students to be able to identify health and nursing problems in the course of their work and design simple but appropriate research projects to solve those problems. Students are expected to develop competencies in writing research proposals and report. It will also create in students the need for dissemination and utilization of research findings. They will be assigned supervisors to guide them through the research process.

**NURS 348: Gynaecological Nursing and Obstetric / Gynaecological Operations**

The course is designed to equip the student with knowledge on the various disorders of the female reproductive system, and manage clients with gynaecological problems, and in obstetric and gynaecological operations.

**NURS 352: Advanced Clinical Nursing I**

This course will enable students develop competencies in preparing patients for diagnostic procedures, setting trays and trolleys for various therapeutic procedures. Procedures of the

integumentary, cardiovascular, respiratory, gastrointestinal and genitourinary systems will be discussed. There will be a component on practical skill demonstrations.

**NURS 400: Project Work**

This course is designed to test students' ability to identify a health and/nursing problem and design appropriate research into that problem. The course is aimed at testing the ability of students to search for literature, collect quality data and produce a standard scientific project work. The student is expected to present the research problem for approval and carry out the research under the supervision of lecturers. At the end of the second semester, two copies of typed work will be presented for assessment.

**NURS 451: Tools and Methods of Teaching Nursing**

This course will introduce nursing students to the theory, philosophy, and principles in teaching and learning. It aims at equipping nursing students with the knowledge and skills that the nurse educator requires in order to translate curriculum objectives into measurable outcomes. This course also introduces students to the major teaching and learning strategies. It aims at equipping the student with skills in facilitating active student learning and critical thinking.

**NURS 452: Curriculum Development in Nursing Education**

The course introduces students to basic concepts and the application of curriculum development process to nursing education in particular. Factors influencing curriculum development and learning are examined in relation to nursing education. Students will study and critique nursing curricula at various levels.

**NURS 453: Principles of Management in Nursing**

This course presents the basis of the theory and science of management, and the management of the national health system. It emphasizes the essentials of management that are pertinent to the effective work of nurses while maintaining their human relation skills gained from nursing practice and sustaining the values that originally attracted them to nursing. The functions of management - planning, organizing, staffing and leading, and controlling will provide the conceptual framework for nurses to understand the contemporary challenges nurse managers face with management of the workforce, health financing, budgeting, ethical decision-making, technology management, health information systems and emerging workplace issues. This course lays the groundwork for an understanding of the nature and importance of managing and of management as a developed and important science for managing health service organizations.

**NURS 454: Administration of Nursing Services and Schools**

The present day concept in nursing service administration is to demonstrate administrative functions that will provide therapeutic and satisfying situations for patients and personnel. The course is designed to prepare student/nurse administrators for working in dynamic health care environments with acute, long-term, community orientations and schools of nursing. The course provides practical approaches for applying leadership and management skills.

**NURS 455: Biostatistics**

This course is designed to equip students with skills in basic statistical methods used in health research. In particular, students will learn methods of describing data and how to interpret and use confidence intervals and significance tests, the most common methods of allowing for random variation in research results. The presentation and comparison of proportions and

means will be covered. As part of this course, students will learn to make practical use of a statistical computer package.

**NURS 456: Teaching Practice**

This course is a practical component of NURS 451 which exposes students to a variety of methods suitable for teaching. It aims at equipping the student with teaching skills. Students are expected to have practice teaching in the classroom setting where they will be evaluated by their lecturers and peers.

**NURS 457: Nursing Practical VI (Specialty Option)**

This course gives students the opportunity to undertake nursing practicum in child health, maternal health, adult health, community health and mental health depending on their specialty options.

**NURS 458: Nursing Practical VII (Specialty Option)**

The course gives the student the opportunity to continue with nursing practicum in their specialty option.

**NURS 459: Advanced Clinical Nursing II**

This course is a continuation of NURS 352 which aimed at assisting students to develop competencies in preparing patients for diagnostic procedures, setting trays and trolleys for various, therapeutic procedures. Medical and surgical procedures of the endocrine, neurologic, reproductive systems and sensori-neural organs will also be discussed. Students will also be exposed to ward management and nursing records. There will be practical demonstrations and return demonstration.

**NURS 461: Nursing Seminar**

This course is designed to provide students the opportunity to discuss events and issues that influence health in general and/or nursing in particular. Students are expected to identify topics of interest to them and make presentations to the class for discussion and critique.

**NURS 462: Palliative care and Hospital Emergency Management**

The course is designed to enhance students' knowledge and skills in managing medical emergencies. They will also be introduced to managing clients / families with life threatening illnesses.

**NURS 463: Peri-Operative and Critical Care Nursing**

The course will equip students with the knowledge and clinical skills needed to provide care for adult patients requiring surgery and critical care. It consists of classroom teaching and practical sessions in peri-operative nursing and critical care.

**NURS 464: Childhood Chronic and Life-Threatening Diseases**

The students will acquire knowledge and skills to enable them manage children with life-threatening illnesses through the application of palliative care. Students will also develop competencies in managing children with chronic illnesses that are not life-threatening and children on life support.

**NURS 465: Integrated Management of Childhood Illnesses**

The course is designed to provide the student with knowledge and skills in the use of a more integrated approach to manage sick children to achieve better outcomes.

**NURS 466: Home-Based Nursing and National Health Programme**

This course prepares students for community and home-based nursing. There will be discussions on the changing policies and practice in National Health Programmes.

**NURS 467: Community Health Nursing Administration**

This course will enable students build their knowledge and skills in health care systems management, occupational health and safety, regenerative health, school health and port health. They will also be involved in disease surveillance and control, special immunization programmes and public health administration.

**NURS 468: Domiciliary Midwifery**

The course is designed to help the student acquire knowledge to carry out domiciliary midwifery services in the community. The student will also manage clients and families in the community during pregnancy, labour and puerperium and compile the care given into a written document.

**NURS 469: Advanced Midwifery Practice**

This course is designed to enable the student midwife diagnose and manage various abnormalities associated with pregnancy, labour and puerperium. There will be demonstration and clinical components. The student is also expected to present patient / family maternity care study.

**NURS 471: Theoretical Frameworks in Mental Health Nursing**

This course is designed to introduce the student to theoretical frameworks used in mental health care. Learners will also examine family development structure, process and concepts and review their theoretical underpinnings from family theory. It is also designed to enable students to be abreast with trends emerging in mental health care and also to appreciate the relationship between social behaviour and health. The learner will also learn to plan to care for specific mental disorders.

**NURS 472: Advanced Practice in Mental Health Nursing**

This course is designed to help students develop an understanding of the complexity, rewards and challenges of working in virus specialty areas in the context of primary health care delivery system. Aging and developmental processes will be learnt. The student will understand the significance of the family and loved ones in planning care for the various categories of disorders. Students will be placed in chosen specialty area to carry out and present a project work.

## SCHOOL OF PHARMACY

### ADMINISTRATION

<b>Isaac Julius Asiedu-Gyekye</b> <i>MSc Pharm, PhD (Pyatigorsk), cmc, fdip, MCPA, MPSGh, IPMA, FGCP Pharm</i>	-	Senior Lecturer/ <b>Ag. Dean</b>
<b>Susan Fosua Okan</b> <i>B.Sc. (KNUST), MPhil (Ghana), EMBA (Ghana), MAUA</i>	-	Assistant Registrar/ School Administrator
<b>Saviour Nenyonyoge</b> <i>B.Sc. (U.C.C), EMBA (Ghana)</i>	-	Principal Accounting Assistant/ School Accountant

### FACULTY

#### DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

<b>Samuel Frimpong-Manso</b> <i>MPharm (Szeged), PhD (Szeged)</i>	-	Senior Lecturer/ <b>Head of Department</b>
<b>Nathaniel Nii Adu Okine</b> <i>BPharm (KNUST), PhD (London)</i>	-	Associate Professor
<b>Kwabena Frimpong-Manso Opuni</b> <i>BPharm (KNUST), MPharm (KNUST), PhD (Germany), MPSGh,</i>	-	Lecturer
<b>Michael Lartey</b> <i>BSc (KNUST), MSc (Germany), PhD (USA)</i>	-	Lecturer
<b>+Lawrence Asamoah Adutwum</b> <i>BPharm (KNUST), MPharm (Nagasaki), MPSGh</i>	-	Assistant Lecturer

#### DEPARTMENT OF PHARMACEUTICS AND MICROBIOLOGY

<b>Henry Netthey</b> <i>BSc (Toronto), PharmD, PhD (Mercer)</i>	-	Senior Lecturer/ <b>Head of Department</b>
<b>Ofosua Adi-Dako</b> <i>BPharm (KNUST), MPharm (KNUST), PhD (KNUST), MPSGh</i>	-	Lecturer
<b>Awo Afi Kwapong</b> <i>BPharm (KNUST), MPharm (KNUST), PhD (UK), MPSGh</i>	-	Lecturer
<b>Philip Debrah</b> <i>BPharm (KNUST), MPharm (KNUST), PhD (Ghana), MPSGh</i>	-	Lecturer
<b>Mansa Fredua-Agyemang</b> <i>BPharm (KNUST), Diploma (ICM, UK), MSc (UK), MPhil (UK), PhD (UK)</i>	-	Lecturer
<b>Lovia Allotey-Babington</b> <i>MSc (Pyatigorsk, Russia), MSc. (London), Dip Mgt (IPMC), MPSGh PhD (Mercer)</i>	-	Lecturer

#### DEPARTMENT OF PHARMACOGNOSY AND HERBAL MEDICINE

<b>Joseph Adusei Sarkodie</b> <i>Bsc. Chemistry (Ghana), M.Sc. (Germany), PhD (Ghana)</i>	-	Senior Lecturer/ <b>Head of Department</b>
<b>Cindy Asare</b> <i>BSc (Ghana), DPhil (KNUST)</i>	-	Lecturer

**Emelia Oppong Bekoe** - Lecturer  
*BPharm (KNUST), MPharm (KNUST),  
 PhD (Germany), MPSGh,*

#### DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY

**Kwame Benoit Nguessan Banga** - Senior Lecturer/  
**Head of Department**  
*BSc. (Cote d'Ivoire), MSc. (Cote d'Ivoire),  
 PhD (Strasbourg)*

**Isaac J. Asiedu-Gyekye** - Senior Lecturer  
*MSc (Pharm), PhD (Pyatigorsk), cmc, fdip,  
 MCPA, MPSGh, IPMA*

**Alexander K. Nyarko** - Professor  
*BSc. (Ghana) M.Sc. (Ghana), PhD (Philadelphia)*

**Kwasi Agyei Bugyei** - Associate Professor  
*DVM. BVSc. (Ljubljana), MSc., PhD (Guelph)*

**Patrick Amoateng** - Senior Lecturer  
*BPharm (KNUST), PhD (KNUST), MCPA, MPSGh*

**Kennedy Edem Kukuia** - Senior Lecturer  
*BPharm (KNUST), MPSGH, PhD (KNUST)*

**Seth K. Amponsah** - Lecturer  
*BSc (Ghana), MPhil (Ghana), PhD (Ghana)*

#### DEPARTMENT OF PHARMACY PRACTICE AND CLINICAL PHARMACY

**Irene Akwo Kretchy** - Senior Lecturer/  
**Head of Department**  
*BPharm (KNUST), MPhil (Ghana),  
 MPSGh, PhD (KNUST)*

**Thelma Ohene-Agyei** - Lecturer  
*BPharm (KNUST), MPhil (KNUST), PhD (UK)*

- + Study Leave
- \* Acting

#### PART TIME ACADEMIC STAFF

**Arthur Commey Sackeyfio** - Part Time Associate  
 Professor  
*Pharmacy (Manchester) PhD (Bradford), FPSG,,  
 FPCPWA*

**G. D. Lutterodt** - Part Time Professor  
*BSc. BPharm, MSc., PhD, PRF*

**Barima Amissah Afrane** - Part-Time Lecturer  
*BSc (New York), PharmD (Southern California)*

**Edwin Nkansah** - Part-Time Lecturer  
*BSc (Cape Coast), MSc (London), PhD (London)*

**Kate Coleman-Sarfo** - Part-Time Lecturer  
*BPharm (KNUST), PGD (Aberdeen), MSc (KNUST),  
 MPH (Ghana)*

**Emmanuel Klo** - Part-Time Lecturer  
*MSc Pharmacy (Ukraine), PGD (Scotland)*

**Florence Ama Nkansah** - Part-Time Lecturer  
*BPharm (KNUST), MSc (Aberdeen)*

**Philip Anum** - Part-Time Lecturer  
*MSc Pharm (Pyatigorsk), MSc Clinical Pharm  
 (Bradford), PhD, FPCPharm (WAPCP)*

<b>Raymond Ashaley Tetteh</b> <i>MSc Pharm (Romania), MSc Clinical Pharm (Aberdeen), CHA (GIMPA), CDIM (Cape Town)</i>	-	Part-Time Lecturer
<b>Joseph Kodjo Nsiah Nyoagbe</b> <i>BPharm (KNUST), MSc Pharm (Bradford), MBA (GIMPA)</i>	-	Part-Time Lecturer
<b>Doris Kumadoh</b> <i>BPharm (KNUST), MPhil (KNUST), MPSGH</i>	-	Part-Time Lecturer
<b>Isaac Kingsley Amponsah</b> <i>BPharm (KNUST), PhD (KNUST), MPSGH, WANNPRES, IAPH</i>	-	Part-Time Lecturer

## STUDENTS' ADMISSION, PROGRESSION AND GRADUATION

### 1.1 GENERAL REGULATIONS

- 1.1.1 The University runs a modular course structure. Under this structure, the University's academic programme has been organized into a semester system, and instruction takes the form of courses evaluated in terms of credits. Units of courses are examinable at the end of every semester and, if passed, a student shall earn credit(s) for the Units. The courses are coded and arranged in progressive order of difficulty, or in levels of academic progression.
- 1.1.2 Each department shall provide detailed information about the structure of courses leading to the award of Bachelors' degree.
- 1.1.3 It is the responsibility of each student admitted to the University of Ghana, to be familiar with the specific requirements of the degree as well as the rules, regulations and policies of the University.
- 1.1.4 Each student is responsible for ensuring that the courses in which registration is effected satisfy the programme requirements of the Bachelor's degree sought; advice and/or counseling for all who need assistance is freely available.
- 1.1.5 It is also understood that every student, by the act of registering, agrees to abide by all rules, regulations and policies of the University of Ghana and of the Faculties or Departments in which that student is registered.
- 1.1.6 Each student is expected to be familiar with the General Information outlined in this Handbook as well as the information pertaining to the School of Pharmacy. Students shall therefore be held liable for any lapses. When in doubt, students may consult their Heads of Department in writing with a copy to the Dean asking that advice be given in writing.
- 1.1.7 Exemption from any of these General Regulations may be granted only by the express permission of the Academic Board on the recommendation of the Board of the School of Pharmacy.
- 1.1.8 The University reserves the right to change rules, regulations and policies, as well as programme and course requirements given in this Handbook without prior notice.

1.2 **ADMISSION TO THE SCHOOL OF PHARMACY**

1.2.1 Further to the General Regulations regarding admission into the University of Ghana, admission to the School of Pharmacy for the B. Pharm Programme shall be direct into Level 100

- a) from the Senior Secondary School (using the SSS results) and must meet the following requirements:
  - i. Core subjects
    - passes in three subjects, namely, English, Mathematics and Integrated Science
    - additionally, candidates shall be required to pass core Social Studies at least at Grade E.
  - ii. Elective subjects  
Passes in three Elective Subjects shall be required namely Biology, Chemistry and either Physics or Mathematics.
- b) Other qualifications include International Baccalaureate (IB), International General Certificate of Secondary Education (IGCSE), General Certificate of Education (GCSE), the American Grades 12 and 13 examinations and other external qualifications which have equivalencies to the Senior Secondary School Certificate of Education (SSSCE) and the General Certificate of Education (GCE).

**1.3.1 ACADEMIC YEAR / STRUCTURE**

1.3.1 The Academic Session shall comprise two semesters.

1.3.2 Duration of Semester

A semester shall be of 17 weeks duration and be structured as follows:

14 weeks of Teaching

1 week of Revision

2 weeks of Examinations.

1.4 **DEFINITION OF COURSE UNIT**

A course unit shall be defined as follows:

- i. One-hour lecture = 1 Unit
- ii. One-hour tutorial = 1 Unit
- iii. One, two/three-hour practical session = 1 Unit

1.5 **DEFINITION OF COURSE CREDIT**

A credit shall be defined as follows:

- i. One-hour lecture or tutorial/week/semester
- ii. One two/three-hour practical/week/semester.

1.6 **GRADING SYSTEM FOR COURSES & SUBJECTS**

1.6.1 Student performance in a subject/course shall be graded as follows:

Letter Grade	Marks	Grade Point	Interpretation
A	80 – 100	4.0	Outstanding
B+	75 – 79	3.5	Very Good
B	70 – 74	3.0	Good
C+	65 – 69	2.5	Fairly Good
C	60 – 64	2.0	Average
D+	55 – 59	1.5	Below Average
D	50 – 54	1.0	Marginal Pass
*E	45-49	0.5	<b>Unsatisfactory</b>
F	0 – 44	0	Fail

Note: **\*Although this is a failure grade, it may still be accepted as fulfilling prerequisite for other courses.**

**Other Grades**

Grade	Interpretation	Grade Point
X	Fail	0
Z	Disqualification	0
I	Incomplete	0
Y	Continuing	0
AUDI	Audit	0

1.6.2 Grade Point (GP): Each grade is assigned an equivalent grade point as indicated above. The number of (grade) points earned by a student, for each course completed, is computed as the product of the number of credits for the course and the grade point equivalent of the grade obtained in that course.

1.6.3 Cumulative Grade Point Average (CGPA): The student’s cumulative grade point average is calculated by dividing the total number of grade points obtained, up to any specified time, by the total number of credits of all courses for which the student has registered up to that time.

1.6.4 Final Grade Point Average (FGPA): The FGPA is the CGPA for all courses under consideration calculated up to the end of a student’s academic programme.

1.7 **DEFINITION OF GRADES**

1.7.1 Pass Grades: Grades A to D+ (not less than 1.5 GPA) constitute Pass grades in a course and also a subject.

1.7.2 Failure Grades: Grades D, E, F, X, Z constitute Failure grades in a course and also in a subject.

1.7.3 Continuing: A grade Y, denoting Continuing shall be awarded at the end of a semester to any student who is taking a course, which continues into the next semester.

- 1.7.4 **Non-Completion of Course:**
- i. A grade I, denoting Incomplete, shall be awarded to a student who is unable to complete a course for reasons adjudged by the Board of Examiners as satisfactory. Such a student shall be expected to complete the course the very next time the course is available.
  - ii. A grade X shall be awarded to a student who is unable to complete a course for reasons adjudged by the Board of Examiners as unsatisfactory.

- 1.7.5 **Disqualification:**
- i. A grade Z denotes Disqualification from an examination as a result of an examination malpractice or offence, and shall be awarded whenever it is established that a candidate had attempted to gain an unfair advantage in an examination, be it in a Principal subject or an Ancillary or any other paper.
  - ii. A candidate awarded a grade Z may be debarred from taking a University Examination for a stated period, or indefinitely, or may be expelled from the University.
  - iii. A grade Z may be awarded only by the Board of Examiners.

- 1.7.6 **Student in Good Standing**  
A student in good standing shall be one whose *Cumulative* Grade Point Average (*CGPA*) is at least **1.50 (Grade D+)**.

## 1.8 **DEFINITION OF COURSES AND SUBJECTS**

### 1.8.1 Core Pharmacy Course

A core pharmacy course is any course in a pharmaceutical discipline that is offered as part of the B.Pharm programme.

### 1.8.2 Non-Pharmacy Course

A non-pharmacy course is a course in a non-pharmaceutical discipline that is offered a part of the B.Pharm programme.

The non-pharmacy courses currently offered in the B.Pharm programme are:

PHAR 121 Mathematics for Pharmacy I  
PHAR 122 Mathematics for Pharmacy II  
PHAR 141 Human Anatomy and Physiology  
PHAR 143 Human Anatomy and Physiology (Practical)  
PHAR 142 Basic Biochemistry  
PHAR 144 Basic Biochemistry (Practical)  
PHAR 151 Computer Literacy I  
PHAR 152 Computer Literacy II  
PHAR 251 Biostatistics  
PHAR 253 Entrepreneurial Skills (Practicals)  
UGRC 110 Academic Writing I  
UGRC 150 Critical Thinking and Practical Reasoning  
UGRC 210 Academic Writing II  
UGRC 220 Liberal and African Studies

### 1.8.3. Core Pharmacy Subject

All core pharmacy courses in a particular pharmaceutical subject area shall constitute a

subject in pharmacy.

The core pharmacy subjects currently offered in the B.Pharm Programme are:

- I. General Chemistry: PHAR 111; PHAR 112; PHAR 113; PHAR 114
- II. Principles of Pharmacy: PHAR 123; PHAR 125
- III. Pharmaceutical Microbiology I: PHAR 124; PHAR 126
- IV. Pharmacognosy: PHAR 131; PHAR 133
- V. Behavioural Pharmacy: PHAR 153; PHAR 154
- VI. Organic/Medicinal Chemistry I: PHAR 211; PHAR 212; PHAR 213; PHAR 214
- VII. Pharmaceutical Microbiology II: PHAR 221; PHAR 223
- VIII. Physical Pharmacy: PHAR 222; PHAR 224
- IX. Drugs of Plant Origin I: PHAR 232; PHAR 232
- X. General/Autonomic Pharmacology: PHAR 241; PHAR 242; PHAR 243; PHAR 244
- XI. Biostatistics & Pharmacoepidemiology: PHAR 251
- XII. Chemical Pathology: PHAR 252; PHAR 254
- XIII. Drug Analysis: PHAR 311; PHAR 313
- XIV. Medicinal Chemistry II: PHAR 312; PHAR 314
- XV. Pharmaceutical Technology: PHAR 321; PHAR 323
- XVI. Principles of Immunology: PHAR 322; PHAR 324
- XVII. Drugs of Plant Origin II: PHAR 331; PHAR 333
- XVIII. Endocrine & Immunopharmacology: PHAR 341; PHAR 343
- XIX. Systems Pharmacology I & Toxicology: PHAR 342; PHAR 344; PHAR 346
- XX. Clinical Pharmacy: PHAR 351; PHAR 353
- XXI. Pharmacy Practice: PHAR 352; PHAR 354
- XXII. Drug Quality Assurance: PHAR 411; PHAR 412
- XXIII. Applied Pharmaceutics & Immunology: PHAR 421; PHAR 422
- XXIV. Phytotherapy & Herbal Medicine: PHAR 431; PHAR 432
- XXV. Systems Pharmacology II & Chemotherapy: PHAR 441; PHAR 442
- XXVI. Pharmacotherapy & Disease Management: PHAR 451; PHAR 452
- XXVII. Final Year Project: PHAR 410; PHAR 420; PHAR 430; PHAR 440; PHAR 450

#### 1.8.4 Non-Pharmacy Subject

All non-pharmacy courses in non-pharmacy but related disciplines shall constitute subjects in a non-pharmacy category.

Non-pharmacy subjects currently offered in the B.Pharm programme are:

- I. Mathematics for Pharmacy : PHAR 121 and PHAR 122
- II. Human Anatomy and Physiology : PHAR 141 and PHAR 143
- III. Basic Biochemistry : PHAR 142 and PHAR 144
- IV. Computer Literacy : PHAR 151 and PHAR 152
- V. Biostatistics and Entrepreneurial Skills: PHAR 251 and PHAR 253
- VI. Academic Writing : UGRC 110 and UGRC 210
- VII. Social Studies: UGRC 150 and UGRC 220

#### 1.9. PROBATION AND WITHDRAWAL

- 1.9.1 A student who fails to obtain a grade point average of 1.50 (55%) in a subject shall be eligible for the Supplementary Examinations.
- 1.9.2 A student who fails to obtain the requisite pass in a subject after the Supplementary Examinations shall be asked by the Dean to repeat the year and the course, provided that not less than 2 courses shall be taken in the repeated year.
- 1.9.3 A student who fails to obtain the requisite pass in the subject after repeating the year shall be asked by the Dean to withdraw from the School of Pharmacy.

- 1.9.4 A student can proceed to the next stage of the programme if and only if he/she has passed all the courses of the preceding level, or has failed not more than one course.

## 2.0 **B.PHARM DEGREE PROGRAMME**

### 2.1 **DURATION OF PROGRAMME**

- 2.1.1 The minimum period for the B.Pharm Degree shall be 8 semesters and the maximum period shall be 12 semesters. These minimum and maximum periods are calculated from the date of first registration.

- 2.1.2 A candidate who is unable to complete his/her programme within the maximum period allowed shall lose all credits accumulated. Such a candidate shall not be allowed to re-apply for admission into the B.Pharm degree programme.

### 2.2 **INTERRUPTION OF STUDY PROGRAMME**

- 2.2.1 A student may break his/her study programme but may not break for more than 4 continuous semesters, so however that the maximum period allowable for the completion of the programme is not exceeded. Such a student shall be allowed to continue the programme from where he/she had left off.

- 2.2.2 A student who wishes to interrupt his/her course of study shall apply in advance to the Dean of the School of Pharmacy, stating reasons why he/she wants to interrupt his/her study programme, and permission duly granted before he/she leaves the University. The decision of the Dean shall be communicated to the applicant before he/she leaves the University.

- 2.2.3 A student who breaks his/her studies for more than 4 continuous semesters shall be deemed to have lost any accumulated credits. Such a student may be allowed to re-apply for admission to the School of Pharmacy.

- 2.2.4 Where the ground for interruption of studies is medical, the Head of the Medical School Clinic/Director of Health Services, University of Ghana shall be required to advise the Dean on the propriety and length of period of interruption. The Dean shall cause the Head of the Medical School Clinic to investigate any medical report reaching his office from any health delivery facility outside the Medical School Clinic/University Hospital and advise accordingly.

### 2.3 **SCHEME OF EXAMINATION FOR B.PHARM DEGREE**

- 2.3.1 A final (end-of-semester) examination shall normally be required as a part of every course. An examination schedule showing time and place of examination for each course shall be published each semester.

- 2.3.2 The marks obtained in the end-of-semester examination shall contribute 70% of the grade for the course while continuous assessment shall contribute the remaining 30% (except for practicals or other courses which may be assessed entirely by continuous assessment).

- 2.3.3 Time allotted to examination papers shall be as follows:

1-Credit Course	-	1 hour
2-Credit Course	-	2 hours
3-or more Credit Course	-	2 to 3 hours.

2.4 **ELIGIBILITY FOR EXAMINATIONS**

- 2.4.1 A student shall attend all such lectures, tutorials, seminars and practicals and undertake all other assignments as approved by the University.
- 2.4.2 Each Department shall, with the approval of the Academic Board, determine the requirements for the subjects they offer.
- 2.4.3 Further to 2.4.1 above, a student shall attend lectures, tutorials, practicals and other activities prescribed for the courses/subjects for which he/she has registered, and execute all assignments given.
- 2.4.4 A student who does not fulfill the requirements for any course/subject shall not be allowed to take the examination for that course/subject.
- 2.4.5 In any case, a student who is absent for a **cumulative period of 21 days** from all lectures, tutorials, practicals and other activities prescribed for any subject in any semester shall be deemed to have withdrawn from the course/subject. Such a student shall not be permitted to sit for the semester examination.

2.5 **REGISTRATION FOR EXAMINATIONS**

- 2.5.1 Registration for a School of Pharmacy Examination shall require endorsement of the Registration Form by the Head of Department to the effect that the candidate has pursued satisfactorily the approved course(s) of study being offered over the prescribed period, and has attended at least 85% of lectures, tutorials, practicals and other activities prescribed for the course(s)/subjects. A candidate's registration shall not be valid unless it is so endorsed.
- 2.5.2 Endorsement as in (2.5.1) above shall be withheld if a candidate is not deemed to have followed satisfactorily the approved course of study (as in Section 2.4).
- 2.5.3 In any event of the withholding of an endorsement, the Head of Department shall request the confirmation by the Board of the School of Pharmacy.

2.6 **SUPPLEMENTARY EXAMINATIONS**

- 2.6.1 The Examiners' Board shall decide whether a student who fails in any course shall be allowed to re-write the examination in the failed course as a Supplementary Examination (to be held in the Long Vacation). If he/she re-writes and passes that examination, he/she shall be awarded the full grade earned on that occasion. The student's transcript will show the number of occasions the candidate took the examination for that particular course and the grades earned on all such occasions.
- 2.6.2 Supplementary Examinations shall not include continuous assessment marks.
- 2.6.3 Supplementary Examinations shall be held six weeks after the main examination.
- 2.6.4 A student shall be allowed to take not more than 5 courses in all subject areas at any one time as the Supplementary Examinations.
- 2.6.5 A student who at any time would be required to re-write University Examinations in more than 5 courses in all the subject areas shall repeat the year.
- 2.6.6 See also Regulation 1.9 (Probation and Withdrawal)

- 2.7 **Deferment Of Examination**
- 2.7.1 **On Grounds of Ill-Health:** A student who has satisfied all the requirements as specified in Section 2.5, but is unable to take the main (end of semester) examination on grounds of ill health, shall, on application to the Dean, and on provision of a Medical Certificate issued or endorsed by the Head of the Medical School Clinic/Director of Health Services, Legon, be allowed to take supplementary examination as his/her main examination. He/she shall be credited with the grade obtained in the supplementary examination.
- 2.7.2 Subsequent application for deferment, on grounds of ill-health, shall be subject to a Medical Certificate issued by a properly constituted Medical Board.
- 2.7.3 **On Grounds other than Ill-Health:** In cases of deferment on grounds other than ill-health, the Dean of the School of Pharmacy shall invite the applicant for interview. It shall be the student's responsibility to satisfy the School of Pharmacy beyond reasonable doubt why he/she wishes to defer the examinations.
- 2.7.4 In all cases of deferment of examinations, the applicant(s) shall obtain written responses from the Dean before leaving the School.
- 2.8 **EXAMINERS' BOARD**
- 2.8.1 There shall be Examiners' Board for the main and supplementary examinations which shall comprise the following:  
Dean – Chairman  
Heads of Department  
Internal Examiners for the various courses  
Senior Assistant Registrar (SAA) – Secretary
- 2.8.2 Examiners' Board shall receive, consider and determine the results of the respective examinations.
- 2.8.3 The Board shall be required to make appropriate recommendations on any candidate based on his/her performance and also on any aspect of the examination as it deems fit.
- 3.0 **DECLARATION OF RESULTS**
- 3.1 Results of semester examinations, taken at the end of each semester shall normally be published by the Dean on the School Notice Board before the commencement of the next semester.
- 3.2 A results slip indicating the student's performance in the examination shall be made available to the student.
- 3.3 **ELIGIBILITY FOR THE B.PHARM DEGREE**
- 3.3.1 The B.Pharm degree shall be awarded to a candidate who has been properly admitted to the University, has followed the approved courses of study over the prescribed period and has satisfied the conditions as stated in Regulations 3.3.2 and 3.3.3 below.
- 3.3.2 **UNIVERSITY REQUIREMENTS**
- i. evidence of regular enrolment in the degree programme
  - ii. discharge of all obligations owed to the University

- iii. a pass in all University required courses
- iv. satisfactory performance in the appropriate University Examinations.

### 3.3.3 **SCHOOL/DEPARTMENTAL REQUIREMENTS**

Satisfactory discharge of such requirements as may be prescribed for the degree.

### 3.3.4 **REQUIREMENTS FOR GRADUATION**

3.3.4.1 A candidate shall be deemed to have:

- i) satisfied all General University and School requirements;
- ii) obtained at least 55% in each course featured in the examinations;

### 3.4 **CONFIRMATION OF AWARD OF DEGREE**

3.4.1 A list of candidates who are deemed eligible as in Regulations 3.3 and 3.4 shall be laid before the Academic Board of the University for approval as soon as practicable.

3.4.2 No award shall be confirmed unless the Academic Board of the University is satisfied that the candidate has satisfied all the conditions for the award of a degree.

### 3.5 **CANCELLATION OF AWARD**

3.5.1 Notwithstanding previous confirmation of an award of a degree as in Regulation 3.4, the Academic Board of the University may at any time cancel an award even with retrospective effect if it becomes known that:

- (i) a candidate has entered the University with false qualifications
- (ii) a candidate has impersonated someone else
- (iii) a candidate has been guilty of examination malpractice for which a grade Z would have been awarded
- (iv) there are other reasons that would have led to the withholding of confirmation of the award in the first place.

3.5.2 In any such event, the decision of the Academic Board of the University shall be published on the University Notice Boards and the candidate notified. Such cancellation and the reasons for it shall be entered on the candidate's transcript.

### 3.6 **TRANSCRIPT OF ACADEMIC RECORD**

At the end of a student's programme, the University shall, on the payment of an appropriate fee, issue to the particular student a complete transcript of his/her academic record. This transcript shall be marked Student's Copy and shall record all courses attempted and all results obtained.

### 3.7 **CLASSIFICATION OF DEGREE**

The end-of-semester examination results from Level 100 except specified University and Faculty required courses shall be taken into account in the computation of the Final Grade Point Averages (FGPA) for the classification of the bachelor's degree.

3.7.1 The GPA at Levels 100, 200, 300 and 400 shall be weighted in the proportions 1:1:2:2.

3.7.2 In the determination of the FGPA, a weighted average of all repeat courses shall be used, as for instance, a 3-credit course with a 'D' at first attempt and an 'A' at the second attempt shall attract a total of 6 credits in the computation of the grade Point Average of that particular course.

- 3.7.3 The FGPA for FIRST CLASS shall be 3.60 or better.
- 3.7.4 The full scheme of classification shall read as follows:
- |                      |   |                        |
|----------------------|---|------------------------|
| First Class          | - | FGPA of 3.60 or better |
| Second Class (Upper) | - | FGPA of 3.0 – 3.59     |
| Second Class (Lower) | - | FGPA of 2.0 – 2.99     |
| Third Class          | - | FGPA of 1.50 – 1.99    |
| Pass                 | - | FGPA of 1.0 – 1.49     |
| Fail                 | - | FGPA of 0.0 – 0.99     |
- 3.7.5 University and Faculty required courses shall continue to remain ancillary subjects and a pass in every subject shall be required by all undergraduate degree students for the award of a Bachelor's degree; marks obtained shall be entered on the student's transcript, but shall not count towards the classification of the degree.
- 3.8 **UNIVERSITY OF GHANA REQUIRED COURSES**
- i) Academic Writing I & II (UGRC 110 & UGRC 210)
  - ii) Critical Thinking and Practical Reasoning (UGRC 150)
  - iii) Liberal and African Studies (UGRC 220)
- 3.9 **FACULTY REQUIRED SUBJECTS**
- i) Mathematics for Pharmacy
  - ii) Human Anatomy and Physiology
  - iii) Basic Biochemistry
  - iv) Computer Literacy.
- 3.10 **NAME OF AWARDING INSTITUTION**  
University of Ghana
- 3.11 **NAME OF DEGREE**  
Bachelor of Pharmacy (Honours) degree
- 3.12 **ELIGIBILITY FOR POSTGRADUATE DEGREES**
- 3.12.1 Eligibility for Pharm.D, MPhil and PhD degrees shall be determined when the Departments are fully operational.
- 4.0 **EMPLOYMENT PROSPECTS OF STUDENTS**  
The Pharmacy programme is structured to ensure that upon successful completion the graduates from the School will satisfy the current requirement of the Pharmacy Council of Ghana for entry into the pre-registration training programme for registration as pharmacists in Ghana. They will thus be eligible to practice as clinical pharmacists, community pharmacists, regulatory pharmacists, industrial pharmacists or, after appropriate post-graduate training, as pharmaceutical scientists in academia and research establishments.
- 5.0 **CURRICULA OF COURSES**  
In developing the curricula and syllabuses for the School the aims and objectives of academic programmes of the School were established.

## 5.1 AIMS

The purpose of the degree programmes of the School of Pharmacy is to produce pharmacy graduates who:

- are committed to life-long learning
- having a sufficient understanding of the principles and techniques of pharmaceutical sciences (and after appropriate internship) are able to communicate and deliver pharmaceutical care in the community and hospital settings;
- are able to take professional responsibility in pharmaceutical industry for the manufacture and testing of medicinal products
- are able, after appropriate postgraduate training, to pursue careers in academia and research establishments.

Special attention is focused on the development of skills that will enable the graduate to produce therapeutic substances of plant origin. This is intended to accelerate the scientific development of herbal medicine in Ghana.

## 5.2 Objectives

At graduation the student will:

- (i) understand how medicines are developed, manufactured and made available for pharmaceutical care
- (ii) have a basic understanding of medicine formulation and the capability to prepare extemporaneously any medicine for which this would be regarded as the normal means of provision of pharmaceutical care
- (iii) be able to supply medicines in accordance with pharmaceutical knowledge, legislation and codes of professional conduct and practice
- (iv) have sufficient academic knowledge to interpret and evaluate prescriptions and other orders for medicines and to underpin a role in advising patients and other health care professionals about medicines and their usage
- (v) be able to recognize common disease states and make appropriate interventions to presented symptoms
- (vi) have an appreciation of the principles of medicinal products, quality assessment and quality assurance mechanisms in all aspects of scientific and professional activities
- (vii) have an appreciation of research methodologies relevant to natural, clinical and social sciences.

## 6.0 COURSE MODULES

### 6.1 LEVEL 100

### YEAR ONE

#### SEMESTER 1

COURSE CODE	COURSE TITLE	CREDITS
PHAR 111	General Chemistry I	3
PHAR 113	General Chemistry I (Practical)	1
PHAR 121	Mathematics for Pharmacy I	1
PHAR 123	Introduction to Principles of Pharmacy	3
PHAR 125	Principles of Pharmacy (Practical)	1
PHAR 131	Pharmacognosy	2
PHAR 133	Pharmacognosy (Practical)	1
PHAR 141	Human Anatomy & Physiology	2

PHAR 143	Human Anatomy & Physiology (Practical)	1
PHAR 151	Computer Literacy I	1
PHAR 153	Orientation to Pharmacy	2
UGRC 110	Academic Writing I	3
<b>TOTAL CREDITS</b>		<b>21</b>

#### **SEMESTER 2**

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 112	Organic Pharmaceutical Chemistry I	3
PHAR 114	Organic Pharmaceutical Chemistry (Practical)	1
PHAR 122	Mathematics for Pharmacy II	1
PHAR 124	Pharmaceutical Microbiology I	3
PHAR 126	Pharmaceutical Microbiology I (Practical)	1
PHAR 142	Basic Biochemistry	3
PHAR 144	Basic Biochemistry (Practical)	1
PHAR 152	Computer Literacy II	1
PHAR 154	Psychology & Behavioural Science	2
UGRC 150	Critical Thinking and Practical Reasoning	3
<b>TOTAL CREDITS</b>		<b>19</b>

### **6.2 LEVEL 200 YEAR TWO**

#### **SEMESTER 3**

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 211	Physical/analytical chemistry	3
PHAR 213	Physical/analytical Chemistry (Practical)	1
PHAR 221	Pharmaceutical Microbiology II	2
PHAR 223	Pharmaceutical Microbiology II (Practical)	1
PHAR 241	General Principles of Pharmacology	3
PHAR 243	General Principles of Pharmacology (Practical)	1
PHAR 251	Biostatistics	2
PHAR 253	Entrepreneurial Skills (Practical)	2
UGRC 210	Academic Writing II	3
<b>TOTAL CREDITS</b>		<b>18</b>

#### **SEMESTER 4**

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 212	Organic Pharmaceutical Chemistry II	3
PHAR 214	Organic Pharmaceutical Chemistry II (Practical)	1
PHAR 222	Physical Pharmacy	3
PHAR 224	Physical Pharmacy (Practical)	1
PHAR 232	Phytochemistry	2
PHAR 234	Phytochemistry (Practical)	1
PHAR 242	Autonomic Pharmacology	3
PHAR 244	Autonomic Pharmacology (Practical)	1
PHAR 252	Chemical Pathology	2
PHAR 254	Chemical Pathology (Practical)	1

UGRC 220	Liberal and African Studies	3
<b>TOTAL CREDITS</b>		<b>21</b>

**6.3 LEVEL 300 YEAR THREE**

<b>SEMESTER 5</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 311	Medicinal Chemistry I	3
PHAR 313	Medicinal Chemistry I (Practical)	1
PHAR 321	Pharmaceutical Technology	2
PHAR 323	Pharmaceutical Technology (Practical)	1
PHAR 331	Natural Drug Production and Evaluation	2
PHAR 333	Natural Drug Production and Evaluation (Practical)	1
PHAR 341	Endocrine and Immunopharmacology	3
PHAR 343	Experimental Pharmacology I (In vitro, Practical)	1
PHAR 351	Clinical Pharmacokinetics and Bioavailability	3
PHAR 353	Pharmacoepidemiology and Pharmacoeconomics	2
<b>TOTAL CREDITS</b>		<b>19</b>

<b>SEMESTER 6</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 312	Drug / Spectroscopic analysis	4
PHAR 314	Drug / Spectroscopic analysis (Practical)	1
PHAR 322	Principles of Immunology	3
PHAR 324	Principles of Immunology (Practical)	1
PHAR 342	Systems Pharmacology I	3
PHAR 344	Principles of Toxicology	2
PHAR 346	Experimental Pharmacology II (In vivo, Practical)	1
PHAR 352	Social and Behavioural Pharmacy	3
PHAR 354	Community Pharmacy Practice (Practical)	1
<b>TOTAL CREDITS</b>		<b>19</b>

**6.4 LEVEL 400 YEAR FOUR**

<b>SEMESTER 7</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 410	Pharmaceutical Chemistry Project	*
PHAR 411	Medicinal Chemistry II	3
PHAR 420	Pharmaceutics Project	*
PHAR 421	Applied Immunology	3
PHAR 423	Principles of Pharmaceutics	2
PHAR 430	Pharmacognosy/Herbal Medicine Project	*
PHAR 431	Plant Poisons and Pesticides	3
PHAR 440	Pharmacology Project	*
PHAR 441	Systems Pharmacology II	3
PHAR 450	Pharmacy Practice Project	*
PHAR 451	Pharmacotherapy and Disease Management	3

PHAR 453	Logistics and Health Supply Chain Management	2
<b>TOTAL CREDITS</b>		<b>19</b>

\* Students are eligible to select only one project

<b>SEMESTER 8</b>		
<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>CREDITS</b>
PHAR 410	Pharmaceutical Chemistry Project	*
PHAR 412	Drug Design, Development and Quality Assurance	4
PHAR 420	Pharmaceutics Project	*
PHAR 430	Pharmacognosy/Herbal Medicine Project	*
PHAR 432	Advances in Phytotherapy and Herbal Medicine	3
PHAR 440	Pharmacology Project	*
PHAR 442	Chemotherapy and Anti-infective Agents	3
PHAR 450	Pharmacy Practice Project	*
PHAR 452	Patient Treatment Assessment	4
<b>TOTAL CREDITS</b>		<b>14</b>
<b>Add 6 Credits for Project</b>		<b>20</b>

## 7.0 COURSE DESCRIPTIONS (B. PHARM)

### Department of Pharmaceutical Chemistry

#### PHAR 111: General Chemistry I

The student will be expected to appreciate the relevance of chemistry to pharmacy practice. The course will focus on chemical structure, bonding and shape as exemplified in the classical model of the atom, Bohr's models, quantum mechanics and Schrödinger equation, relation to atomic structure, Aufbau, Hund's and Pauli's exclusion principles: MO and VB approaches to bonding, shapes of atomic and molecular orbitals e.g. H<sub>2</sub>O, NH<sub>3</sub> and CH<sub>4</sub> and Hybridization of atomic orbitals. The Periodic Table, Equilibria in Electrolytes, Acids and Bases, Buffers, Handerson Hasselberg equation.

**Bio-Inorganic Chemistry;** metals in the body, electrolytes and transition metals-roles in biological functions, iron in haemoglobin, zinc in some enzymes, identification, assay and uses of metals in pharmacy e.g. Fe, Mg, Al, Zn, Ca etc.

**Organic chemistry:** Introduction to organic chemistry: Alkanes and cycloalkanes; bonding, nomenclature, isomerism, preparations, reactions, free radical chain reaction: Alkenes; Preparation and reactions, geometric isomerism, carbonium ions, addition reaction. Markonikov's and anti Markonikov's addition, polymerization, substitution and oxidation reactions, dienes, 1, 4- addition reaction. Alkynes; preparations, addition reactions, tautomerism and acidity.

#### PHAR 113: General Chemistry Practical

Students will develop the ability to identify laboratory equipment. The course will enable students to develop practical skills for the preparation of stock solutions, weighing techniques and calibration of a burette, perform basic volumetric analysis, acid/base, double indicator and back titrations, redox titrations, permanganate and iodine/thiosulphate titration and complexometric titrations.

**PHAR 112: Organic Pharmaceutical Chemistry I**

In this course students will acquire the ability to classify organic compounds into groups, predict their chemical and physical properties, method of synthesis, the reactions they undergo and their significance to pharmacy and medicine. Functional group Chemistry including; Benzene and its aromaticity, Arenes: Organometallic compounds including **Grignard reagents and the reactions, Alcohols**, Alkyl halides: preparation and reactions; Aryl halides: Glycols: Ethers and epoxides, Aldehydes and ketones, their properties, preparation and reactions; Carboxylic acids; Amines; Diazonium salts;

**PHAR 114: Organic Pharmaceutical Chemistry Practical**

Students will acquire practical skills for basic techniques in simple synthesis, basic and limit tests, determination of melting points and boiling points, recrystallization, solvent extraction and reduced pressure evaporation.

**PHAR 211: Physical/Analytical Chemistry**

Appreciation of physical chemistry concepts, ability to derive reaction rates, determine the order of reactions and apply these concepts to drug stability in pharmaceutical formulations and other relevant pharmaceutical systems. Characteristics of weak acids, bases and their salts, amino, buffer solutions. Polarimetry and Refractometry. Electrolytic conduction. Electromotive Force. Polarography and Amperometry, Chemical kinetics – Definition of basic terms, order of reaction: derivation of Zero, first and second order Laws. Factors affecting rate of a chemical process - temperature, ionic effect. Arrhenius' and Eyring's equation, theory of rate process. Thermodynamics: First and Second Laws, Thermochemistry, Enthalpy, Entropy, Free Energy. Introduction to chromatography; Introduction to spectroscopy: Light absorption and the use of filters to select various types of light. The electromagnetic spectrum and its separation, i.e. R O Y G B I V.

**PHAR 213: Physical Chemistry Practical**

In this course the student will be trained to use basic laboratory equipment such as polarimeter, conductimeter and refractometer. By the application of physical chemistry principles the student will be enabled to identify and analyze given compounds and solutions.

**PHAR 212: Organic Pharmaceutical Chemistry II**

Students will be exposed to the Chemistry of Biologically important macromolecules and their interactions. Review of functional group Chemistry, Dicarboxylic acids, Condensation polymerization, Keto acids and esters, Hydroxy acids, lactides, lactones, Stereochemistry, Optical isomerism; Heterocyclic compounds (Pyrrole, Furan, Thiophene, Pyridine Fused ring heterocyclics including Quinoline, isoquinoline, purines etc), properties, synthesis and their reaction Alicyclic compounds and Carbohydrates, Amino acids, peptides proteins including 1°, 2°, 3° & 4° structures and their synthesis, Nucleosides, nucleotides and Nucleic acids including RNA, DNA, their replication and protein biosynthesis.

**PHAR 214: Organic Pharm. Chemistry II Practical**

This course will enable students develop the practical ability to carry out synthesis, extraction, purification and re-crystallization to obtain very pure compounds. Volumetric analysis of organic compounds and related pharmaceuticals. Determination of elements and functional groups in organic compounds.

**PHAR 311: Medicinal Chemistry I**

Introduction to Medicinal Chemistry. Physicochemical principles of drug action. Drug

metabolism including bio-transformation and conjugation, mechanisms and therapeutic significance. The Pharmacodynamic and miscellaneous agents to be encountered in this course will include Analgesics (Narcotic and non-narcotics), antipyretics, anti-tussives; central nervous system depressants; psychotherapeutic agents; drugs acting on the cardiovascular, renal and haematopoietic systems; hormonal and related drugs e.g. steroids, peptides, phospholipid metabolites; autonomic nervous system agonists and antagonists; Neurotransmitters in the adrenergic and cholinergic systems.

**PHAR 313: Medicinal Chemistry I Practical**

The practical skills acquired in course PHAS 214 will be used for standardization of selected solutions; iodimetric assay of penicillins by the BP method; Assay of selected drugs by BP methods; synthesis, purification and analysis of selected drugs and pharmaceutical products.

**PHAR 312 Drug /Spectroscopic analysis**

**Introduction to spectroscopy**

Spectroscopic methods of analysis and structural determination of drugs: flame photometry and atomic absorption spectroscopy; instrumentation, underlying processes and applications in the pharmaceutical industry; interpretation of spectra and identification of compounds using spectroscopic techniques. Techniques involving UV and Visible spectroscopy (including fluorimetry), Infra Red Spectroscopy, Nuclear Magnetic Resonance, Proton & Carbon 13 NMR, Mass Spectroscopy and X-ray crystallography will be considered. Correlation of these methods and techniques for structure elucidation will also be considered. Preparation of monographs. Chromatography in Pharmaceutical analysis (GLC and HPLC). Review of titrimetric methods for quality assurance of drugs. Non-aqueous titrations, acid/base titrations, oxidation-reduction titration etc.

**PHAR 314: Drug Analysis Practical**

This course will enable students to assay, identify and estimate the purity of drugs and other pharmaceutical products using basic equipment like UV and IR spectrophotometers. Students will learn techniques involving titrimetric, gravimetric, potentiometric, chromatographic and spectroscopic methods of analysis of drugs.

**PHAR 411: Medicinal Chemistry II**

Students will be required to demonstrate ability to relate chemistry of medicinal compounds to their physicochemical properties, structural features, stability, assay and mode of action. They will also be able to relate stereochemistry to biological activity. The course will provide approaches to synthesis of medicinal compounds and the chemistry of chemotherapeutic agents such as: antimalarials, trypanocides, antischistosomal agents, amoebicides, trichomonocides, leishmanicides, filaricides and anthelmintics. Also included are drugs acting against infectious diseases; commonly used antibiotics and related agents of clinical importance, antineoplastic and anti-viral agents.

**PHAR 410: Pharmaceutical Chemistry Project**

In the final year of the B.Pharm degree programme students will be assigned one research project to be undertaken in both Semesters 7 and 8. The project will be designed to enable the students to demonstrate the scientific skills they have acquired in the preceding three years. A problem of relevance in pharmaceutical science or pharmacy practice which will require literature search, choice of appropriate methodology, experimental design and execution, data generation or collection, compilation, analysis and discussion of results using acceptable statistical methods will be assigned to students. Upon completion of the project, which will be

carried out under the mentorship of an academic supervisor, the student will present a seminar and a final bound report for assessment.

NB;

**Project I;** Introduction to report writing, selection of research topic, Literature search on topic, design of experiment and collection of reagents and chemicals for the work.

**Project II;** experimental work, analysis of data and writing and oral presentation of report.

#### **PHAR 412: Drug Design, Development and Quality Assurance**

In this course, students will appreciate principles of drug development including drug design concepts. It will also provide an awareness and appreciation of the significance of drug quality in pharmacotherapy. – Quantitative Structure Activity Relationships (QSAR) and appropriate formulation with pharmacologically inert excipients and additives. Students will be assigned one case study each of a therapeutic class of drugs to illustrate the design and development of specific drugs in that class. Theory and practice of quality assessment of drugs and pharmaceutical products. Good Manufacturing Practices to promote quality assurance and ensure quality control. Laboratory methods and techniques for drug quality assessment and assurance. The student will be expected to appreciate the relevance of chemistry to pharmacy practice. The course will focus on chemical structure, bonding and shape as exemplified in the classical model of the atom, Bohr's models, quantum mechanics and Schrödinger equation, relation to atomic structure, Aufbau, Hund's and Pauli's principles: MO and VB approaches to bonding, shapes of atomic and molecular orbitals e.g. H<sub>2</sub>O, NH<sub>3</sub> and CH<sub>4</sub> and Hybridisation of atomic orbitals. The Periodic Table; Equilibria in Electrolytes; Acids and Bases; Bio-inorganic chemistry; metals in the body, electrolytes and transition metals-roles in biological functions, iron in haemoglobin, zinc in some enzymes, identification, assay and uses of metals in pharmacy e.g. Fe, Mg, Al, Zn, Ca etc. Organic chemistry: Introduction to organic chemistry: Alkanes; bonding, nomenclature, isomerism, preparations, reactions, free radical chain reaction: Alkenes; Preparation and reactions, geometric isomerism, carbonium ions, additions. Markovnikov's and anti Markovnikov's addition, polymerization, substitution and oxidation reactions, dienes, 1, 4- addition reaction. Alkynes; preparations, addition reactions, tautomerism and acidity.

### **Department of Pharmaceutics and Microbiology**

#### **PHAR 121: Mathematics for Pharmacy I**

This course will establish the relevance of mathematics in pharmacy. Application of mathematical concepts in pharmaceutical systems and phenomena will be made clear.

*Differentiation:* Limits, definition, product, quotient, function of a function, implicit differentiation, stationary points, turning points, points of inflection and function sketching.

*Logarithmic Plots:* Exponential and logarithmic functions, semi-logarithmic and logarithmic plots.

*Integration Methods:* By parts, algebraic substitution and partial fractions.

*First-order Rate Processes:* Definition, different physical processes obeying the Law (e.g. radioactive decay, chemical reaction, microbial growth, and elementary pharmacokinetics), half-life and semi-logarithmic plots.

#### **PHAR 122: Mathematics for Pharmacy II (Prerequisite PHAS 121)**

*Zero, second and third-order reaction:* The rate equations, their solutions and half-life.

*Triangular Charts:* Graphical representation of three component systems.

*Partial Differentiation:* Functions of several variables, first and second partial derivatives, geometric interpretation.

*Integration:* Definite integrals, area under the curve, infinite limits, approximate integration methods (trapezoidal rule).

*Differential equations:* Solution of ordinary differential equations by separation of variables and integrating factor methods. Partial differential equations, the unsteady state diffusion equations. Fick's Law of Diffusion.

**PHAR 123: Introduction to Principles of Pharmacy**

This course will explain the fundamental principles of pharmacy as the procurement, storage and delivery of medicines in accordance with the ethics and laws of pharmacy practice. The course will provide students with the knowledge of the theory and practice of pharmacy by the following processes: Formulation, compounding and extemporaneous preparation of various dosage forms of medicines. Dispensing and counseling in a comprehensive pharmaceutical care delivery system.

**PHAR 124: Pharmaceutical Microbiology I**

This course will introduce students to the fundamentals of the biology of micro-organisms and their significance in pharmacy.

*Bacteriology:* history; classification and nomenclature; structure and function; culture media; growth requirements, dynamics of growth; mode of reproduction; simple identification procedures. Gram staining and important biochemical diagnostic methods.

*Virology:* Structure of virus, bacteriophage cultivation techniques. Assay: Mode of replication of animal virus and bacteriophage; in virulent or avirulent form.

Phenomenon of lysogeny in bacteria and latency in human cells. Transduction and recombination interference. Comparative study of virus with other submicroscopic infective agents; oncogenic viruses and tumours.

*Mycology:* Basic principles in mycology: Yeasts and moulds. Morphological characteristics, growth requirements, multiplication and reproduction; isolation, cultivation (culture media) and microscopic examination; economic importance.

*Parasitology:* Morphology, life cycles and classifications of human and animal parasites. Parasite infections of humans e.g. nematodes, trematodes, cestodes and protozoa.

**PHAR 125: Principles of Pharmacy Practical**

Introduction to dispensing prescriptions – labeling, sources of information, pharmaceutical compounding, posology and dosage calculations, pharmaceutical calculations, measurements and weighings. Pharmaceutical dosage forms; Routes of administration, Basic incompatibilities in dispensing; colouring and flavouring agents, pharmaceutical solvents, diluents, antioxidants and buffers, common waxes, oils and fats. Precision and accuracy in dispensing. Various calculations used in dispensing. Preparation of percentage solutions, aromatic solutions, mixtures, emulsions, suspensions, syrups, lotions creams and suppositories.

**PHAR 126: Pharmaceutical Microbiology I Practical**

This course seeks to provide students with practical skills in microbiology through the following sources of micro-organisms: soil, atmosphere, water bodies, humans and pharmaceutical containers, etc. Microscopic examination of prepared slides – fungi, bacteria etc. Staining techniques: simple, differential (Gram) stain, spore and motility. Culture media; Liquid/Solid; aerobic/anaerobic media; routine and diagnostic media (include McIntosh Fields' Jar, Anaerobic Jar). Isolation of micro-organisms: Serial dilution, pour plate, streaking, spreading etc. Bacteria and Fungal enumeration: Total count turbidometrics microscopic count, viable count, pour plate, roll tube, over dried (Miles and Misra) agar plate techniques. Statistical evaluation of counting techniques.

**PHAR 221: Pharmaceutical Microbiology II**

In this course students will be made aware of the significance and implications of microbial contamination of pharmaceutical products and the need for disinfection and sterilization. The course will provide for an understanding of the physicochemical methods for controlling microbial contamination of pharmaceutical products and for total elimination of microbial contaminants from products and creation and maintenance of sterile work environment.

*Methods of Sterilization:* Dry heat; moist heat (autoclave-various types); Heating with a bactericide (HWAB); Filtration (various types); High efficiency particulate air filters (HEPA filters); Testing of filters. Gaseous sterilization, ethylene oxide sterilization. Radiation sterilization. Monitoring of sterilization efficiency by physical, chemical and bacteriological methods.

*Principles of Disinfection:* Types of disinfectants; dynamics of disinfection; factors influencing efficiency of disinfection process; evaluation of disinfectant activity.

*Preservation:* Basic principles; Types; choice (factors to consider); Preservation of sterile pharmaceutical products.

**PHAR 222: Physical Pharmacy**

This course provides for an understanding of the physical concepts applicable to pharmacy and an appreciation of the scientific basis of pharmaceutical formulation, compounding and mixing.

The course deals with the following characteristics of matter pertaining to pharmacy.

Introduction to States of Matter – liquid, solid, gaseous states, polymorphism, intermolecular forces such as phase equilibria and phase rule; surface and interfacial phenomena; liquid state (liquefaction of gases, aerosols, vapour pressure of liquid, boiling point); solid and crystalline state: crystalline solids, X-ray diffraction, polymorphism, crystallization, efflorescence, Desiccation, Hygroscopic substances, Deliquescence. Solid and Liquid Equilibrium: Melting point and intermolecular forces, sublimation, cooling of liquid mixtures, eutectic mixtures. Surface and Interfacial phenomenon -viscosity and rheology. Disperse Systems – Suspensions and emulsions will be covered in detail including stabilization processes. Reaction Kinetics and drug stability.

**PHAR 223: Pharmaceutical Microbiology II Practical**

In this course, students will become familiar with the types of equipment used for sterilization and disinfection in formulation and manufacture of sterile pharmaceutical products. Students will acquire hands-on practical experience with the formulation and preparation of the following sterile pharmaceutical products: parenteral products, ophthalmic solutions, ophthalmics, (in single and multiple dose forms); surgical dressings. Students will learn aseptic techniques applicable to the preparation of thermolabile sterile products. Students will learn biochemical characteristics of micro-organisms; perform antibiotic sensitivity tests and sterility testing protocols.

**PHAR 224: Physical Pharmacy Practical**

This course will provide students with an understanding of the practical aspects of the relevance of the following phenomena in pharmacy: Thermodynamics; solutions and phase Equilibria. Ionic solutions and Electrolytic Equilibria; Reaction kinetics; Disperse Systems and Rheology.

**PHAR 321: Pharmaceutical Technology**

In this course students will learn the theoretical basis of processes employed in the pharmaceutical industry for the manufacture and quality assurance of pharmaceutical products.

The course will cover good manufacturing practices in general, and specifically, the following processes: Bioavailability and Bioequivalence Testing; Separation; Packaging; Stability of products. Quality Assurance and Control. The following product types will also be considered: Solutions, Emulsions, suspensions, and Extractives; Powders; Oral solid dosage forms; coated dosage forms; sustained-release drug delivery systems.

**PHAR 322: Principles of Immunology**

This course will provide an awareness of the immunological basis of disease and an understanding of immunotherapy as an aspect of pharmaceutical science. The course will involve a consideration of: the immune system-characteristics of antigens and antibodies, Humoral immunity, cellular immunity; Tumor immunology; Immunogenetics; Immunological deficiencies; Types of immunity and hypersensitivity reactions. *Active Immunization:* Vaccines, Toxoids.

*Passive Immunization:* Human immune sera, Animal immune sera

**PHAR 323: Pharmaceutical Technology Practical**

This course will enable students acquire practical skills necessary for small and medium scale manufacture of pharmaceutical products in the laboratory. In addition, students will be exposed to real industrial conditions of pharmaceutical product manufacture through supervised industrial attachments. Students will become familiar with various industrial equipments and obtain operational experience in their use. Students will be given practical manufacturing exercises to enable them develop competencies in pharmaceutical technology applicable to: Tableting, Capsuling, Rheology, Solubilization, Particle size analysis, drug stability assessment etc.

**PHAR 324: Principles of Immunology Practical**

In this course students will learn practical aspects of the production of immunopharmaceuticals. These will include: Biologic Immunogens for Active Immunity-vaccines and Toxoids; Biologic Immunogens for Passive Immunity-Human Immune Sera (Homologous Sera) and Animal Immune Sera (Heterologous Sera). Students will also learn the clinical conditions for use and the criteria for storage of these products.

**PHAR 420: Pharmaceutics Project**

This is a final year project in pharmaceutics which will be taken in Semesters 7 and 8. The format of the course is similar to PHAS 410, PHAS 430, PHAS 440 and PHAS 450. (Please see PHAS 410).

**PHAR 421: Applied Immunology**

This course will highlight aspects of the applications of immunology in pharmacotherapy. Students will appreciate the immunological basis of the use of immunodiagnostic drugs, immunosuppressant drugs, immunostimulant drugs and immunoassay of drugs. The phenomenon of drug induced allergy will also be part of this course.

**PHAR 423: Principles of Pharmaceutics (Prerequisite PHAS 123)**

In this course, the student will appreciate the principles of drug design as outlined in preformulation and formulation studies. The course will highlight various techniques in drug formulation studies including micro and nano-formulations, biotechnology, as well as methods of testing the quality of the formulations. The course will cover all dosage forms, and also consider medicated topical applications and aerosols.

## Department of Pharmacognosy and Herbal Medicine

### **PHAR 131: Pharmacognosy**

In this course students will study the following:

Plant morphology, plant cell types and structure, organized cell inclusions, introductory taxonomy, isolation techniques for tissues and cells. In addition students will study the history and scope of pharmacognosy and classification of crude drugs. Students will appreciate the pharmacognostical features of powders of natural origin, fibres and surgical dressings, plant physiology, basic plant physiology, basic plant metabolism and secondary plant metabolites.

### **PHAR 133: Pharmacognosy Practical**

In this course students will be introduced to the structural and functional features of the light microscope and its accessories. Students will appreciate the principles, techniques and reagents that are used in microscopy. Students will use the microscope to examine unicellular products of pharmaceutical interest e.g. chalk, diatomite and yeast. Cell contents to be examined will include: calcium oxalate, silica carbonate crystals, starch and aleurone grains. Microscopic techniques will be applied using chemo-microscopic reagents to identify cell wall constituents such as lignin, lipids, carbohydrates, amino acids, proteins and oil droplets. Students will acquire practical skills in the techniques of microscopical analysis, measurements in microscopy and in the preparation of permanent microscope slide mounts. Students will be enabled to identify the descriptive features of plant parts such as flowers, fruits, leaves, stems, barks, roots and seeds.

### **PHAR 232: Phytochemistry**

This course will introduce students to medicinal plants and their secondary metabolites as potential therapeutic agents. Students will be enabled to identify active chemical constituents of medicinal plants in terms of their structure and biological characteristics. The pharmaceutical significance of the active constituents will be emphasized. The occurrence, extraction, detection and physico-chemical characterization of the following classes of plant constituents will be considered: complex carbohydrates; glycosides; saponins; alkaloids; lipids; volatile oils and related substances; phenolic compounds; benzopyrans and enzymes.

### **PHAR 234: Phytochemistry Practical**

In this course students will apply standard phytochemical tests to establish the chemical identity and evaluate the pharmaceutical potential of medicinal plant products. Students will be enabled to perform standardisation and quality assessment of natural products of plant origin. Students will learn techniques of extraction, separation and isolation of plant constituents.

### **PHAR 331: Natural Drug Production and Evaluation**

This course will ensure appreciation and understanding of factors which influence cultivation, collection, preparation and storage of medicinal plants and also the scientific and technological processes of analysis of natural drugs of plant origin. The course will consider the following: *Crude drug production*: Endogenous and exogenous factors affecting cultivation and preparation of plant drugs; collection, processing and storage of natural drugs. *Adulteration*: Forms of adulteration, choice of adulterants and their detection in natural drugs. *Evaluation of natural drugs*: Methods of evaluation, including chemical, physical, microscopic and biological methods; quantitative microscopic methods, fluorescence analysis and polarographic techniques. *Separation techniques*: Materials for chromatography, the various types including, column chromatography (CC), paper chromatography (PC), thin layer chromatography (TLC),

gas liquid chromatography (GLC), High Performance Liquid Chromatography (HPLC), gel filtration and ion exchange chromatography; electrophoresis; and their application in isolation of compounds in plant extracts.

**PHAR 333: Natural Drug Production and Evaluation Practical**

In this course students will acquire practical skills for the evaluation, standardization and quality assessment of natural drugs of plant origin. The course will entail the application of microscopy, quantitative microscopy, fluorescence phenomena and chromatography. Students will develop ability to assay natural drugs by the use of standard assay procedures.

**PHAR 430: Pharmacognosy/Herbal Medicine Project**

(As for PHAS 410, PHAS 420)

**PHAR 431: Plant Poisons and Pesticides**

In this course students will be made aware that plant products are not only potentially therapeutic in humans but can also be toxic to both humans and animals including pests. The course will inform students to recognize biological sources, physico-chemical characteristics and toxicity profile of plant products that are poisonous (including poisonous mushrooms), allergenic, carcinogenic, hallucinogenic, teratogenic and pesticidal. Students will be enabled to appreciate the need for identification and care in handling such plant products to ensure personal safety and also to propose antidotal measures in cases of accidental contamination or ingestion.

**PHAR 432: Advances in Phytotherapy and Herbal Medicine**

Students will be made aware of recent developments in phytotherapy and herbal medicine. This will be achieved through illustration of phytotherapy of specific chronic and acute diseases with selected medicinal plants and herbal preparations. Through comparative study of orthodox and traditional medicine, students will appreciate advantages and disadvantages of both systems. Aspects of complimentary medicine will be considered. This will include principles of homeopathic and chiropractic medicine and acupuncture. The course will highlight recent promotion of the use of traditional medicine by the WHO particularly in Developing Countries and the strategic plans for achieving integrated pharmacotherapy using both orthodox and traditional medical practices. Current trends in plant medicine research and the role of research in promoting Traditional Medicine will be emphasized. Socio-cultural implications of the use of Traditional Medicine will be considered. Provision will be made for students to interact with practitioners of traditional medicine to appreciate the intricate psychical aspects of the practice.

**Department of Pharmacology and Toxicology**

**PHAR 141: Human Anatomy and Physiology**

Appreciation of the action of drugs in human subjects requires a sound knowledge and understanding of the structure and functions of the body at the cellular, tissue, organ and system levels. In this course students will learn the micro-anatomical features and physiological functions of cells, tissues and organs in the following systems of the body: musculo-skeletal system, blood and cardiovascular systems, renal system, endocrine system, reproductive system, digestive system, respiratory system and the nervous system. Details of the structure and function of these systems will be presented and treated in a manner that would ensure that students can recognize the normal state and be able to detect deviations that constitute disease.

**PHAR 142: Basic Biochemistry**

Biochemistry and biochemical concepts form an important basis for an understanding of the mechanisms of drug action. This course will therefore provide the essential biochemistry base for the development of the principles of pharmacology and toxicology. Students will study and gain understanding of the structure and molecular properties of the following biomolecules: amino acids, proteins, enzymes, simple and complex carbohydrates, fatty acids, lipids, nucleotides, RNA and DNA. The course will further provide a basis for understanding: The principles of metabolic pathways; The role of glycolysis and citric acid cycle in oxidative phosphorylation and energy production; The integration of carbohydrate and fat metabolism; Bioenergetics; mitochondrial respiration and oxidative phosphorylation; Metabolism of amino acids, haem and nucleotides; Hormonal regulation of metabolism. Students will develop an appreciation of biological information transfer and molecular biology within the context of: Genome organization and gene structure; DNA replication, repair and recombination; RNA synthesis and processing; Mechanisms of gene regulation; Recombinant DNA technology in medicine and pharmacy

**PHAR 143: Human Anatomy and Physiology Practical**

Students will be exposed to experimental methodology to enable them acquire skills for defining the structure (histological features) of various tissues and organs and appreciating the functional characteristics of skeletal and cardiac muscle. Further skills will be developed in observing cardiovascular and respiratory functions. *Haematology*: erythrocyte count; total and differential leucocyte count; estimation of haemoglobin in blood by Sahli's method; determination of colour index; determination of blood group – ABO system and Rhesus Factor. *Nerve-muscle preparation*: the simple muscle twitch; effect of temperature on simple muscle twitch; effect of different strengths of shock; velocity of nerve impulse; effect of fatigue; summation of responses and genesis of tetanus. *Histological examination of various tissues*: nervous tissue, skeletal tissue, smooth muscle, cardiac muscle, kidney and liver. *Cardiovascular system*: Frog heart model (*in situ* contractions) – effect of acetylcholine and adrenaline; blood pressure measurements before and after exercise; effect of change of posture on blood pressure. *Respiratory system*: Spirometry-measurement of lung capacities; the Forced Expiratory Volume (FEV<sub>T</sub>).

**PHAR 144: Basic Biochemistry Practical**

In this course students will acquire practical skills in biochemistry and appreciate biochemical concepts. The course will entail the following laboratory exercises: isolation of glucose from fruits and urine; determination of lactose content of cow's milk; tests for vitamin A and Thiamine; paper chromatography of amino acids; characterization of pigments in leaves; passive transport; simple demonstration of the activity of dehydrogenases; Urine analysis – determination of protein in urine, glucose in urine, abnormal constituents of urine; glucose tolerance test; cholinesterase stability test.

**PHAR 241: General Principles of Pharmacology**

In this course students will be introduced to fundamental concepts pertaining to drug action. Historical development of pharmacology will be addressed. Students will gain appreciation and understanding of the following: Basic pharmacological and toxicological terminology – definitions; Pharmacokinetics – administration, absorption, distribution, biotransformation and elimination of drugs; pharmacodynamics – drug receptor theory, mechanisms of drug action, relationship between drug concentration and effect; measurement in pharmacology (quantitative aspects of pharmacology); Factors influencing response to drugs; Principles of toxicology; Pharmacogenetics.

**PHAR 242: Autonomic Pharmacology**

Students will acquire understanding of the structure and function of the autonomic nervous system. This will form the basis of appreciation of the pharmacological significance and therapeutic application of the following: cholinergic-activating and cholinesterase-inhibiting drugs; cholinergic-blocking drugs; adrenergic-activating and other sympathomimetic drugs; adrenergic antagonist drugs.

**PHAR 243: General Principles of Pharmacology Practical**

In this course students will acquire experience in basic principles of experimental pharmacology. Students will become familiar with laboratory equipment, materials, methodology and techniques in experimental pharmacology. Simple experiments will be designed to illustrate routes of administration of drugs, dose-response relationships, agonists and their sites of action, the phenomenon of antagonism (types, qualitative and quantitative aspects), biological assay (types and presentation-graphical or mathematical).

**PHAR 244: Autonomic Pharmacology Practical**

Students will acquire the ability to perform simple experiments to illustrate concepts of autonomic pharmacology. Experiments will demonstrate pharmacology of cholinergic and sympathomimetic agents, antagonists acting on cholinergic and adrenergic receptors, enzyme inhibitors and their effects on drugs acting within the autonomic nervous system. Experiments will involve the use of intestinal smooth muscle of the rabbit and guinea-pig (isolated tissues) and the respiratory system of the guinea-pig (bronchodilators and bronchoconstrictors in the whole animal).

**PHAR 341: Endocrine and Immunopharmacology**

This course will ensure an understanding of the pharmacology of the following: Autacoids – histamine, 5-hydroxytryptamine (serotonin), vasoactive peptides, the eicosanoids; Nonsteroidal anti-inflammatory drugs; Disease-modifying antirheumatic drugs; Drugs used in gout; Drugs used in allergy and antagonists of autacoids. Immunomodulators: immunostimulants and immunosuppressive agents. Endocrine drugs; hypothalamic and pituitary hormones, thyroid and antithyroid drugs, adrenocorticosteroids and adrenocortical antagonists, pancreatic hormones and antidiabetic drugs, agents that affect bone mineral homeostasis.

**PHAR 342: Systems Pharmacology I**

Students will acquire understanding of drugs acting on the following systems: *Cardiovascular and renal system* - antihypertensive agents, vasodilators and antiangina agents, drugs used in heart failure, agents used in cardiac arrhythmias, diuretic agents. *Gastrointestinal system* - drugs used to inhibit or neutralize gastric acid secretion e.g. H<sub>2</sub>-receptor antagonists, antacids, muscarinic receptor antagonists, proton-pump inhibitors; drugs that affect reflex mechanism of vomiting e.g. emetics and antiemetics; drugs that affect gastrointestinal motility e.g. laxatives, purgatives. *Respiratory System* – drugs used in the treatment and management of asthma, mucolytics, antitussives, respiratory stimulants. *Blood* – coagulants, anticoagulants, drugs used in anaemia, anti-hyperlipidaemic agents. In the study of all these drugs students will be expected to know the mechanism of pharmacological action, undesired side effects, clinical indications and clinically significant interactions with other drugs.

**PHAR 343: Experimental Pharmacology I Practical (In vitro)**

Students will be expected to acquire practical skills in isolating tissues and organs and preparing them in appropriate experimental conditions for various types of study. Emphasis will be placed on the choice of experimental tissue or organ and the maintenance of suitable

ambient conditions for the experiment. In this course students will gain hands-on experience with the following isolated tissues and organs: *Intestinal smooth muscle (Rabbit duodenum)* to study smooth muscle relaxation or contraction in response to selected agonists; *Guinea-pig tracheal chain preparation* to study the effects of various spasmogens in a cumulative dose-response manner; *Isolated Phrenic-nerve-hemidiaphragm preparation of the rat* to study the pharmacological properties of neuromuscular blocking drugs; *Rat isolated uterus preparation* to study the effects of selected drugs on the uterine smooth muscle in the non-pregnant and pregnant state. *Frog rectus abdominis muscle preparation* to perform a bioassay (STTS assay) of acetylcholine.

**PHAR 344: Principles of Toxicology**

This course will seek to provide knowledge of fundamental concepts of toxicology to students. Aspects of toxicology to be treated will include: introduction to Toxicology: occupational and environmental; heavy metal intoxication and chelators; antidotes in poisoning; Tissue and organ manifestations of chemical poisoning; characteristics of acute and chronic poisoning.

**PHAR 346: Experimental Pharmacology II Practical (in vivo)**

This course will provide the student with skills in pharmacological experimentation in whole or intact subjects as opposed to isolated tissues and organs. The student will acquire techniques in preparing the subject for the study. The subject may be conscious or anaesthetized. The procedure may be invasive or non-invasive. Students will be expected to carefully note the conditions for the experiment and observe and learn the outcome of every procedure. The course will include the following: *The human eye* – effects of selected drugs on the eye to illustrate the autonomic innervation and clinical relevance; *the guinea-pig skin* - effects of selected drugs on the micro-circulation and innervation of the skin and clinical significance; *the anaesthetized cat* - effects of selected drugs on the arterial blood pressure of the cat in the anaesthetized state; *The conscious guinea-pig* – effects of selected drugs on pulmonary function of the guinea-pig in the conscious state to demonstrate bronchodilation and bronchoconstriction with clinical implications; *sleeping time in rats and neuro-behavioural experiments* – effects of selected centrally acting drugs (barbiturates) on sleeping time in rats and the interaction with other drugs, *Sulphonamide metabolism in man* - determination of urinary output of a sulphonamide after oral ingestion in man, clinical implications.

**PHAR 440: Pharmacology Project**

(As for PHAS 410, PHAS 420)

**PHAR 441: Systems Pharmacology II**

This course will consider drugs that affect central nervous system (CNS) Functions and Disorders. Students will be expected to acquire understanding of the classification, general pharmacological properties, including pharmacokinetics, pharmacodynamics, clinical uses and contraindications and undesirable side effects of CNS drugs. The course will provide a broad pharmacological knowledge of the following: Chemical transmission and drug action in the central nervous system; sedative-hypnotic drugs; the alcohols; antiseizure drugs; general anaesthetic agents; local anaesthetics; skeletal muscle relaxants; pharmacologic management of parkinsonism and other movement disorders; antipsychotic agents; antidepressants; opioid analgesics and antagonists and drug and substance abuse.

**PHAR 442: Chemotherapy and Anti-infective Agents**

In this course students will be expected to develop knowledge and understanding of the

classification, general pharmacological properties including pharmacokinetics, pharmacodynamics, clinical uses, contraindications and undesirable side effects of the drugs. The course will deal with the following: basic principles of chemotherapy; cancer chemotherapy; antibacterial agents; antiviral drugs; antifungal drugs; antiprotozoal drugs; anthelmintic drugs; drug resistance.

### **Department of Pharmacy Practice and Clinical Pharmacy**

#### **PHAR 151: Computer Literacy I**

This course provides students with fundamental knowledge by way of introduction to informatics. This will include the following: Historical development of computers and computer networks – digital computers and analog computers; Basic parts of a computer system, how the computer system works, hardware and software of computer system. Basic computer applications – word processing, computer graphics, calculations and simulations e.g. Spreadsheet, statistical software and data representation; information management, search algorithms and databases; Global information infrastructure – structure and organization of the world wide web (www), www browsers, information search in www, search engines educational resources in www, pharmaceutical resources in www, molecular and bioinformatics.

#### **PHAR 152: Computer Literacy II (Prerequisite: PHAS 151)**

Will provide the students with the requisite knowledge that would enable them develop further computer literacy skills. The course will prepare students to develop competence to describe the structure and functions of an operating system and apply software in the practice of pharmacy and healthcare delivery. **Application software vrs system software (operating system) with suitable examples.** The learning opportunities in this course will include the following: Robotics and automation in pharmacy; integrated healthcare information systems; legal and ethical aspects of information technology; commercial applications of information technology and the use of computer technology in drug information and pharmaceutical error prevention.

#### **PHAR 153: Orientation to Pharmacy**

In this course students will be introduced to pharmacy as a discipline in Science, as an industry, as a profession in healthcare delivery and as a social service to the community. Students will be expected to understand and appreciate the scope, evolution of pharmacy globally and in Ghana, the ethics of the profession, the branches of Pharmacy: Hospital Pharmacy, Community Pharmacy, Industrial Pharmacy, Academic and Research Pharmacy and Regulatory Pharmacy. Students will be made aware of career opportunities and responsibilities in the job market and the requirements for training and registration for practice.

#### **PHAR 154: Psychology and Behavioural Science**

In this course students will learn the relevance of psychology in pharmacy practice. The role of the pharmacist in getting patients to accept pharmaceutical care will be emphasized. The course will entail: definition, brief history and scope of psychology, illness behaviour, understanding the patient, effective counselling to ensure therapeutic confidence and patient compliance. Students will be enabled to appreciate the significance of good inter-personal relationships in healthcare delivery. Aspects of behavioural science and industrial and social psychology will be considered.

**UGRC 110: Academic Writing I**

The main objective of Academic Writing I is to equip students with the language skills that will enable them to read and write effectively. Students will be taken initially through fundamental issues in grammar and composition in order to consolidate their language skills in these areas. Subsequently, reading and writing skills relevant to university work will be introduced. These will include the structure of the essay, unity, completeness and coherence in essay writing; summarizing as a skill basic to exposition, writing from sources, referencing skills and avoiding plagiarism. The course will be taught in small groups and class activities are characterised by group work, oral presentations and extensive practical assignments.

**UGRC 150: Critical Thinking and Practical Reasoning**

An essential element in the training of social studies and humanities students is providing a corrective and diagnostic skill set that enables students to discriminate logically between: rhetorical ploys that give *motives* vs. arguments providing *good logical reasons* for believing an assertion. Students need to recognize the contrast between *inductive* and *deductive* reasoning and the different types of support yielded by each, to evaluate the quality of evidence confirming an empirical hypothesis about human conduct, to maintain individual professional and scholarly discretion in the face of peer pressure and mob mentality. Those enrolled in this course will be provided the vocabulary and techniques to employ critical thought and practice within the academic arena and beyond.

**PHAR 251: Biostatistics**

This course will offer students learning opportunities to acquire knowledge in the principles of statistics, especially as they apply to analysis and evaluation of biomedical systems including pharmacotherapy. Evaluation of pharmaceutical interventions in public health issues, using appropriate statistical methods, will be given prominence. The course will emphasize the following: Presentation of sample data; Measures of central tendency and dispersion; Probability distribution; Sampling procedures; Estimation – application of Student's t Test, the Chi-Square Test, Analysis of Variance (ANOVA) and Experimental Design; Hypothesis testing; Fitting a line; Regression theory; Correlation and Contingency tables. Students will be expected to develop competencies in the application of these statistical principles for the assessment of pharmacotherapy in the management of diseases. The practical significance of biostatistics in health care delivery systems will be emphasized.

**PHAR 252: Chemical Pathology**

An awareness of the nature and extent of deviation from normal values and features of physiology, biochemistry and micro-anatomy in disease is an essential pre-requisite for effective pharmaceutical care. This course will provide the necessary knowledge in chemical pathology for determining remedial measures to be taken. Students will acquire an understanding of normal and disease – related changes in biochemical and physiological parameters occurring in tissue and body fluids, cells and tissues, organs and systems of the body. Students will be expected to know relevant terminology and pharmaceutical mechanisms underlying procedures that are employed to restore normalcy to these parameters.

**PHAR 253: Entrepreneurial skills (Practical)**

This course will enable students to acquire skills as entrepreneurs in pharmacy practice particularly in a highly competitive technological and economic environment. Students will be expected to develop the ability to: Recognize and assess their entrepreneurial potential; Appreciate the need to be creative and innovative in their profession, Recognize the importance of action planning and effective communication to ensure prudent decision-making and develop

attitudes that will make them focused, motivated and open to change. Students will also develop the ability to apply basic concepts and tools involved in the creation and functioning of a new and profitable technology-based venture. The course will entail: Evaluation of opportunities, assessment and acquisition of resources; development of a business plan and Assessment of the implications of prevailing business climate and economic and professional environment for establishing a new enterprise.

**PHAR 254: Chemical Pathology Practical**

This course deals with the practical aspects of PHAS 252. Students will gain practical experience in methodology for measuring parameters in chemical pathology. Students will be expected to be familiar with equipment, reagents and histopathological techniques employed in chemical pathology. Diagnostic value and clinical significance of changes in the biochemical and physiological parameters will be discussed.

**UGRC 210: Academic Writing II**

Academic Writing II is a follow-up to Academic Writing I and builds upon the skills acquired in the first year. Students will be required to read and critique a variety of academic essays in their areas of study. Writing activities will derive from these reading tasks and students will be guided to develop their writing through process writing which involves: pre-drafting, drafting, re-writing and revising. In this broad context, students will revise and consolidate their grammar through proof reading and editing activities. The course will also involve training students to write from multiple sources as a preparation for doing research-based writing. Activities will be geared towards getting students to develop the skills of extracting and sorting information from multiple sources and synthesizing them into coherent arguments in an essay. Students will be required to write such a synthesis essay for assessment. Subsequently, students will be introduced to academic presentation skills.

**UGRC 220: Liberal and African Studies**

**Course Structure**

The Liberal and African Studies course seeks to provide basic background knowledge of Africa, its histories, people and cultures. After a general introduction to African Studies, General Studies and Leadership in Africa, students will be required to take one of these five modules: Gender and Culture, Gender and Development, Leadership in Africa, African Art, its Philosophy and Criticism, and Philosophy in African Cultures.

The general introduction takes two weeks and involves **four** hours of lectures, **one** hour of tutorial and a practical activity – film show. This module is examinable through the electives.

**Description of Modules:**

**General Introduction to African Studies**

This introduction aims to provide basic background knowledge of Africa, its histories, peoples and cultures. It serves as the spring board from which to launch the elective courses on African and Liberal Studies.

**Introduction to Gender**

The main objective of the two week introduction is to help students appreciate the gendered nature of African societies, how this impacts development and state as well as state and civil society responses to gender inequalities. The course will cover topics such as why we deal with gender issues in African studies and key gender concepts and make a case for transforming gender relations on the basis of three justifications - citizenship rights and the constitution, development imperatives and the promotion of gender equitable cultures. Week two will focus

on state and civil society responses to gender inequalities focusing on legal and cultural reforms, affirmative action, gender and development and civil society activism. The role of individual and group agency and leadership in changing gender relations will be highlighted.

### **Introduction to Leadership in Africa**

Good leaders are expected to solve new problems which arise in their domain and the changing landscape of business. Leadership is a complex process by which the leader influences others to perform and achieve. Leadership attributes – beliefs, values, ethics, character, knowledge and skills – are all traits which can be learned. This course provides the basis for understanding what leadership is and what leaders do to be successful. The course particularly seeks to make students understand traditional and contemporary concepts and practices of leadership in Africa.

### **Gender and Culture in Africa**

This module examines how culture shapes the positions of women and men in African societies and analyses cultures and cultural practices as dynamic, contested and rooted in socio-economic conditions and power relations. Key concepts in gender studies are analysed in relation to debates about accepted notions of culture. Students will be encouraged to reflect on their own experiences of gender and their role in reinforcing and transforming the nature of gender relations in society.

### **Gender Issues in Africa's Development**

This module will introduce students to key concepts and issues in gender and development with specific reference to Africa. It argues that development is not a neutral process, but impacts men and women differently. Key topics will include men and women's access to resources in Africa such as land, labour, credit, time and social capital, production and reproduction. The module will also examine the gendered implications of natural resource management and sustainable development as well as decision making. It will further examine state and civil society responses to gender issues in Africa. The main objective of this foundation course is to sensitize students to gender issues and enable students recognize and understand the relevance of gender as a development issue and how gender inequalities negatively affect development.

### **Leadership in Africa**

This course encompasses leadership styles and models, leadership in management, a history of chieftaincy and traditional leadership in Africa, African leadership and democracy, as well as challenges confronting African traditional leadership.

### **African Art, its Philosophy and Criticism**

This module is designed to introduce students to an understanding of African art and its conceptual framework as evidence of material culture actively involved in the historical process and life of the African. As a cultural practice, it forms the bedrock of African aesthetic expression. The course argues that the environment, availability of materials for producing art, different histories and external influences have affected African art and its development. The course proposes that African art is reflective and representative of African belief, philosophy, values and taste, and that it is used in several social, political and religious functions. As a fairly new field, the course introduces students to the forms of art, historical and theoretical enquiries and approaches to the subject such as art as history, history as an art, aesthetics, style, subject and subject matter interpretations and meanings, visual narratives, gender perceptions, roles and representations, art criticism and contemporary discourses on the practice of art on

the continent.

### **Philosophy in African Cultures**

This course aims to introduce students to philosophical thought in African cultures emphasizing its relation and relevance to contemporary African cultures and development. Topics will include African cosmologies, concepts of God, deities, ancestors, African communal and individualist values, the concept of the human being, destiny, evil and ethics/morality, gender and race.

### **PHAR 351: Clinical Pharmacokinetics and Bioavailability**

This course is designed to equip students with the appreciation of patient-based clinical pharmacotherapy. Although an overview of basic concepts of pharmacokinetics including absorption, distribution, metabolism, elimination, half-life, elimination rate, area under the curve and their mathematical interpretations will be reviewed, specific case-studies will remain the main focus so that at the end of the course, students would be able to explain compartmental models given their clinical correlates and describe the principle of superposition and how it applies to multiple drug dosing. Define the model-independent pharmacokinetic parameters. Students will be able to determine appropriate drug regimen of patients receiving aminoglycosides, vancomycin, theophylline, phenytoin and digoxin and construct plasma drug concentration versus times curves of typical patients and use properties of the curve to determine patient's pharmacokinetic parameters and calculate alpha ( $\alpha$ ), beta ( $\beta$ ), and intercepts A and B for a drug conforming to a two compartment model.

### **PHAR 352: Social and Behavioural Pharmacy**

This course will provide students with knowledge of the principles involved in pharmacy practice. Students will be expected to understand the legal and ethical principles of the practice of pharmacy. They will be expected to acquire full knowledge of the provisions of the Pharmacy Act 489, 1994 and its Legislative Instrument (L.I.1645 of 1998) and also the Food and Drugs Law 1992, PNDC L 305B and amendments. Students will be introduced to the code of Ethics of the Pharmaceutical Society of Ghana: Professional ethics, professional characteristics and responsibilities. They must also acquire thorough knowledge of the following: Institutional patient care, Ambulatory patient care, Long-term patient care facilities, the role of the pharmacist in public health, behavioural determinants of the patient, patient communication, drug education and information, patient compliance, the prescription, drug interactions, clinical drug literature, the pharmacist and the National Health Insurance Scheme.

### **PHAR 353: Pharmacoepidemiology and Pharmacoeconomics**

Pharmacoepidemiology is the discipline that seeks to understand the use of and the effects of medicines in large numbers of people. Pharmacoepidemiological studies aim to quantify the risks and benefits of drug treatment in different populations and findings can be used to decide on the most effective medicine in a patient or populace. The course will introduce students to the description and concept of pharmacoepidemiology and its relevance to pharmacy practice. Pharmacoeconomics entails evaluation of ways and means of applying limited resources to provide the best pharmacotherapy. In other words, the study encompasses analysis of costs and outcomes associated with the use of pharmaceutical products and services. It is closely related to outcomes research which is the scientific measurement of the impact of antecedent health care.

During this course general knowledge and methods of analysis of both above mentioned disciplines will be given. Upon completion of this course the student will: Understand fundamental statistical concepts and methods in Pharmacoepidemiology; Appreciate the role of

the statistical concepts and methods in drug development, drug use, drug safety monitoring and drug safety research; Appreciate and be able to report on adverse reactions; Compare and contrast cost-effectiveness, cost-minimization, cost-utility and cost-benefit analyses; Describe at least two sources of cost data; Describe how to obtain clinical and humanistic outcomes data; Compare and contrast the decision-analytic and statistical methods of modeling a disease intervention; Be able to calculate an expected cost and an expected outcome using a decision tree.

**PHAR 354: Community Pharmacy Practice Practical**

In this course students will be exposed to real life situations of Community Pharmacy Practice. The School will link up with selected Community pharmacies where students will be assigned short periods of professional mentorships under identified pharmacists. The School will set up a Model Community Pharmacy for teaching in an actual professional setting. Students will be expected to gain supervised experience in the Model Pharmacy practice. Students will present written reports of case studies assigned to them.

**PHAR 450: Pharmacy Practice Project**

(As for PHAS 410, PHAS 420)

**PHAR 451: Pharmacotherapy and Disease Management**

In this course students will learn the general application of drugs to the treatment of diseases. The course will entail identification and recognition of: Pathophysiology of Diseases; Factors influencing the choice of appropriate pharmacotherapeutic intervention; Medication Implications e.g. drug interactions, adverse drug events and iatrogenic effects; Patient compliance issues; Patient counseling issues; Therapeutic outcomes; and Follow-up pharmaceutical care.

**PHAR 452: Patient Treatment Assessment**

In this course students will be given access to selected patients on drug treatment on ward rounds and at the OPD Pharmacy. Students will have opportunity to determine the patient's response to therapy. This will be done in consultation with health-care providers. Subsequent to this, students will be expected to evaluate the merits and demerits of the treatment given in the context of the broad principles of pharmacotherapy.

**PHAR 453: Logistics and Health Supply Chain Management**

In this course, students will learn the principles of drug supply management. The course will entail:

- Selection and procurement of drugs (appreciation of treatment guidelines, formularies and Essential Drug Lists (EDL)).
- Distribution of drugs (this involves medical stores management, drug management at health facilities, transportation and storage facilities). Packaging, storage and quality assurance of drugs and medicines.
- Concept of commodity security.
- Logistics system and its components (data pipeline, lead time, issue data, dispensed-to-user data).
- Description of allocation (push) and requisition (pull) distribution systems.
- Description of Ghana pipeline and identification of the different levels involved.

## SCHOOL OF PUBLIC HEALTH

### BACKGROUND

The Bachelor of Public Health programme was developed in collaboration with the Ministry of Health and Ghana Health Service. The programme was planned to run for FIVE years in the first instance. In the first five years only candidates with diploma certificates who are already working in the health service are considered and admitted to Level 200. This undergraduate programme is to offer opportunities for middle level health professionals to upgrade themselves and promote continuing professional development. The programme content is designed with the view to developing capacity to improve the implementation of public health programmes and interventions. It is intended to help develop mid-level public health practitioners who will work at the district and programme levels in the Ghana Health Service and its Allied institutions. The first batch of student enrolled in October of the 2010/2011 academic year.

### CENTRAL ADMINISTRATION

<b>Richard M. Adanu</b> <i>MB.ChB (Ghana) MPH(Johns Hopkins) FWACS</i>	-	Professor <b>(Dean)</b>
<b>Godfred Amoah</b> <i>BEd(Winneba), MEd(Cape Coast)</i>	-	Senior Assistant Registrar (School Administrator)
<b>Angelina Lily Armah</b> <i>BA, Grad. Dip., M.Phil (Ghana)</i>	-	Assistant Librarian
<b>Abdulai Faruku</b> <i>BSc(Ghana), MBA(UPSA), CA</i>	-	Assistant Accountant

### DEPARTMENT OF HEALTH POLICY PLANNING AND MANAGEMENT

<b>Reuben Esena</b> <i>BSc(Ghana) M.Phil(Kumasi), PhD(UK)</i>	-	Senior Lecturer <b>(Head of Department)</b>
<b>Moses K. Aikins</b> <i>BSc(Ghana) MA, PhD(London)</i>	-	Associate Professor
<b>Patricia Akweongo</b> <i>BA(Ghana) MA, PhD(South Africa)</i>	-	Senior Lecturer
<b>Justice Nonvignon</b> <i>BA(UCC), MA(Da es salaam), PhD(Ghana)</i>	-	Senior Lecturer
<b>Genevieve C.N.O. Aryeetey</b> <i>BA (Ghana) MA (Japan) PhD (Netherlands)</i>	-	Senior Lecturer
<b>Augustine Adomah-Afari</b> <i>BSc, MBA(Ghana) MA, PhD(UK)</i>	-	Lecturer
<b>Ibrahim Abdallah</b> <i>BA(Ghana), MA (Canada), DrPH (USA),</i>	-	Lecturer

### DEPARTMENT OF EPIDEMIOLOGY AND DISEASE CONTROL

<b>Bismark Sarfo</b> <i>BSc (Ghana), MPH(USA) PhD(Ghana)</i>	-	Lecturer <b>(Ag. Head of Department)</b>
<b>Francis Anto</b> <i>BSc, M.Phil, PhD (Ghana)</i>	-	Senior Lecturer
<b>Priscillia Awo Nortey</b> <i>B.Pharm (Kumasi), MPH (Ghana), PhD(Nottingham)</i>	-	Lecturer
<b>Ernest Kenu</b> <i>BSc. MB.ChB, MPH, PhD (Ghana), FGCP</i>	-	Lecturer

<b>Anthony Danso-Appiah</b> <i>BSc (Ghana), MSc, PhD, DSc (Rotterdam)</i>	-	Lecturer
<b>Adolphina Addo-Lartey</b> <i>BSc (Ghana), MSc. (Iowa), PhD (USA)</i>	-	Lecturer

#### DEPARTMENT OF SOCIAL AND BEHAVIOURAL SCIENCE

<b>Philip Baba Adongo</b> <i>BA (Ghana) MSc (Keele) PhD (London)</i>	-	Associate Professor <b>(Head of Department)</b>
<b>Phyllis Dako-Gyeke</b> <i>BA (Cape Coast) MA (Ohio) PhD (Bowling)</i>	-	Senior Lecturer
<b>Emmanuel Asampong</b> <i>BSc. M.Phil/PhD (Ghana)</i>	-	Senior Lecturer
<b>Mercy Ackumey</b> <i>BA, MA, MPH (Ghana) PhD (Bowling)</i>	-	Lecturer
<b>Franklin Glozah</b> <i>BA (Ghana), M.Phil (Norway), PhD (UK)</i>	-	Lecturer
<b>Kwabena Opoku-Mensah</b> <i>BA, M.Phil (Ghana)</i>	-	Research Fellow

#### DEPARTMENT OF POPULATION, FAMILY AND REPRODUCTIVE HEALTH

<b>Emmanuel K. Torpey</b> <i>MBChB (Ghana) MPH (Netherlands) PhD (Antwerp), FGCP</i>	-	Associate Professor <b>(Head of Department)</b>
<b>Augustine K. Ankomah</b> <i>BA (Ghana) MSc (Ife) PhD (Exeter)</i>	-	Associate Professor
<b>Richmond N.O Aryeetey</b> <i>BSc. MPH (Ghana) PhD (Iowa)</i>	-	Senior Lecturer
<b>Amos K. Laar</b> <i>BSc, MPH, PhD (Ghana)</i>	-	Senior Lecturer
<b>Agnes M. Kotoh</b> <i>Dip., BA, (Ghana), PhD (Netherlands)</i>	-	Lecturer
<b>Ernest Tei Maya</b> <i>MB.ChB/MPH (Ghana), FWACS, FGCS</i>	-	Lecturer
<b>Abubakar A. Manu</b> <i>BEd (UCC) MBA, PhD (Ghana)</i>	-	Lecturer
<b>John K. Ganle</b> <i>BA (KNUST), MPhil (Oxford), MSc. (UK) DPhil (Oxford)</i>	-	Lecturer
<b>Deda Ogum Alangea</b> <i>PhD, MPhil, BSc (Ghana)</i>	-	Lecturer

#### DEPARTMENT OF BIOSTATISTICS

<b>Alfred F. Yawson</b> <i>MBChB (Ghana) MSc (LSE, London), FWACP, FGCP</i>	-	Senior Lecturer <b>(Head of Department)</b>
<b>Samuel Bosomprah</b> <i>BSc (Ghana), MSc PhD (London)</i>	-	Senior Lecturer
<b>Pasmor Kuranchie</b> <i>BSc (Ghana), MA, PhD (Rochester)</i>	-	Lecturer
<b>Omar B. Ahmad</b> <i>MBChB (Kumasi) MSc (Florida), ScD (Johns Hopkins)</i>	-	Lecturer
<b>Duah Dwomoh</b> <i>BSc (UCC), MPhil (Kumasi), PhD (Ghana)</i>	-	Lecturer

<b>Seth K. Afagbedzi</b> <i>BSc(UCC),MPhil (Ghana)</i>	-	Assistant Lecturer
<b>Samuel K. K. Dery</b> <i>BSc, MPhil (Ghana)</i>	-	Assistant Lecturer
<b>Chris B. Guure</b> <i>B.Ed(UCC), MSc(Malaysia)</i>	-	Assistant Lecturer
<b>Frances B. Da Costa Vroom</b> <i>BIS(Canada) MSc (Ghana)</i>	-	Tutor

### **DEPARTMENT OF BIOLOGICAL, ENVIRONMENTAL AND OCCUPATIONAL HEALTH**

<b>Julius Fobil</b> <i>BSc MPhil(Ghana)DrPH DTM(Germany)</i>	-	Associate Professor <b>(Head of Department)</b>
<b>Mawuli Dzodzomenyo</b> <i>BSc,MPhil(Ghana), PhD(Japan)</i>	-	Senior Lecturer
<b>Reginald Quansah</b> <i>BSc.(Ghana), MSc.(Sweden), PhD(UK)</i>	-	Lecturer
<b>John Arko-Mensah</b> <i>BSc. M.Phil(Ghana), PhD(Sweden)</i>	-	Lecturer
<b>Uri S. Markakpo</b> <i>BSc. M.Phil/PhD (Ghana)</i>	-	Research Fellow

### **THE BACHELOR OF PUBLIC HEALTH PROGRAMME**

#### **1.1 Available Tracks**

The programme tracks available are:

- Public Health Nursing
- Nutrition
- Applied Environmental Health Sciences
- Disease Prevention and Control
- Health Information Systems
- Health Promotion

#### **1.2 Fieldwork**

Field practice in June – August is mandatory every year for students at level 300. Students are required to participate in a field practicum of at least 8-10 weeks duration. Experiences to be gained include: community diagnoses, report writing, developing implementation strategies, and presenting reports at community meetings.

During this period, students are given the opportunity to work at a district or health department. Students will then develop papers relevant to their practicum experience, into a project.

The student will be provided with an opportunity to take a principal role in the development and conduct of a project within a community or a health department. The student will apply the principles learned in the classroom to planning,

implementation, analysis and interpretation of the project. The project is to be completed within one academic year. The amount of time the student will spend at the agency or health department is expected to vary according to the needs of the project. The student will generally be expected to spend a greater time conducting background research, collecting and analysing data, writing up results and interpretation for the final report. Examples of field work projects could include programme evaluations, needs assessments, surveys, intervention implementation and analysis of existing data. Each student will conduct this field work under the direction of a faculty member.

## **2.1 ADMISSION REQUIREMENTS**

The general University Admissions regulations and requirements shall apply in addition to the following:

### **2.1.1 DIPLOMA**

Candidates with Diploma in health or related sciences who satisfy the requirements for admission shall enter at Level 200 (the second year of the 4-year bachelor's degree programme). Students admitted to Level 200 may be given exemption for some courses based on previous studies.

### **2.1.2 CREDITS FOR COURSES UNDERTAKEN.**

Candidates who have taken prescribed level 200 courses at the Diploma level will be credited with such courses.

The Requirements:

- (i) Candidates with Diplomas awarded by University of Ghana, Institutions recognized by or affiliated to the University of Ghana and Institutions under the Ministry of Health shall require an FGPA of 3.2 or better/equivalent and shall attend a selection interview.
- (ii) Diplomas awarded by institutions other than those indicated in (i) above may be considered eligible on recommendation by a special committee to be appointed by the Dean.

The committee shall assess the candidate's transcripts and the course content of the diploma to determine the suitability of his/her previous training and make recommendations accordingly, to the Dean. Shortlisted candidates shall be required to sit an entrance examination and attend a selection interview.

## **2.2 ACADEMIC SESSION/ STRUCTURE**

The academic year shall be two semesters. The First Semester session covers the period of August – December and the Second Semester runs from January – May. Each Semester is structured as follows:

- 13 weeks of Teaching
- 1 week of Revision
- 3 weeks of Examination

### **2.2.1 REGISTRATION**

For a student to obtain credits in any course, he or she must be admitted into the School and must be properly registered for that course during the official registration period at the beginning of each semester. The student shall plan his/her courses in consultation with his/her course Advisor.

### **2.3 INTERNSHIP TRAINING**

Students shall be affiliated to relevant institutions for their internship training during the long vacation of Level 300.

### **2.4 DURATION OF PROGRAMME**

The duration of the Bachelor of Public Health Programme for individuals entering at various levels shall be as follows:

Level 100 entrants: Minimum of 8 semesters and maximum of 10 semesters

Level 200 entrants: Minimum of 6 semesters and maximum of 8 semesters

A Student who is unable to complete the programme within the stipulated maximum period shall forfeit all accumulated credits and lose his/her studentship.

Such a student may however re-apply for admission into the University.

The minimum and maximum periods are calculated from the date of first registration.

### **2.5 STUDY PROGRAMME FOR THE BACHELOR'S DEGREE**

The Total Study Programme for the Bachelor of Public Health shall comprise the following:

- i. General University Requirement
- ii. Faculty Requirement
- iii. Core Courses as determined by the school
- iv. Elective Courses as determined by the School/Department

#### **2.5 General University Requirement**

African Studies is a requirement for graduation by all students irrespective of their level of entry.

1. UGRC 220-African Studies
2. UGRC 110- Academic Writing I
3. \*UGRC 210- Academic Writing II
4. UGRC 150- Critical Thinking and Practical Reasoning
5. \*UGRC 130- Understanding Human Societies

These are requirements for graduation by all students irrespective of their level of entry.

*Note: UGRC 130 – Understanding Human Societies will be replaced by GSPH 106- Health Behaviour and Society and UGRC 210 - Academic Writing II will be replaced by GSPH 214 – Writing for Public Health*

## **2.6 MINIMUM AND MAXIMUM WORKLOAD PER SEMESTER**

- 2.6.1 A full-time student shall be required to carry a minimum workload of 18 credits per semester and a maximum of 21.
- 2.6.2 Under special circumstances, a student may, with the approval of the Dean of School, be allowed to carry a workload outside these limits, provided that the minimum workload will not fall below 15 credits per semester.

## **3.0 EXAMINATIONS**

### **3.0.1 Continuous Assessment**

There shall be a continuous assessment of each course taken and marks obtained shall contribute 30% towards the final grade while the end of semester examination contributes 70% of the final mark. (Except for practicals or related courses which may be assessed entirely by continuous assessment).

### **3.0.2 Long Essay/Project Work**

Wherever applicable, Long Essay/Project Work shall be submitted for assessment before the date of the last paper of the second semester examination. In default the candidate shall be asked to submit the Long Essay/Project Work the following semester and shall be treated as a Repeat Examination, with all its implications.

### **3.0.1 End of Semester Examinations**

- (i) Each course, with the exception of a Project, shall normally be completed in one semester.
- (ii) A final (end-of-semester) examination shall normally be required as a part of every course. An examination schedule showing time and place of examination for each course shall be published each semester.
- (iii) The time allotted to the examination papers shall be as follows:
- |                        |   |              |
|------------------------|---|--------------|
| 1 – Credit Course      | - | 1 hour       |
| 2 – Credit Course      | - | 2 hours      |
| 3 or 4 – Credit Course | - | 2 to 3 hours |

## **3.1 ELIGIBILITY FOR EXAMINATION**

- (i) A student shall attend all such lectures, tutorials, seminars and practicals and undertake all other assignments as are approved by the University.
- (ii) Further to (3.1(i)), a student shall be expected to attend lectures, tutorials, practicals and execute all assignments given.
- (iii) Each Department shall, with the approval of the Academic Board, determine the requirements for the courses they offer. A student who does not fulfil the requirements shall not be allowed to take the examination for that course.
- (iv) In any case, a student who is absent for a Cumulative Period of 25% from all lectures, tutorials, practicals and other activities prescribed for any course in any semester shall be deemed to have withdrawn from the course. Such a

student shall not be permitted to sit for the semester examination.

#### **4.0 Credit Hours Required to Graduate**

##### **4.1 Requirement**

A candidate shall be deemed to have:

1. Satisfied all General University and School requirements;
2. Obtained passes in all courses and subjects;
3. Accumulated all the credits for all the courses at Levels 100, 200, 300 and 400 as appropriate for the candidate's level of entry.

##### **Entry into Level 100**

1. Students can take a maximum of 142 credits hours and pass at least 132 credits hours including all core courses.

##### **Entry into Level 200**

2. Students can take a maximum of 112 credits hours and pass at least 102 credit hours including all core courses.

##### **4.2 Eligibility**

- (a) A Bachelor's Degree appropriately designated shall be awarded to a candidate who has been properly admitted to the University, has followed the approved courses of study over the prescribed period and has satisfied the conditions.
- (b) University requirements:
  - i. Evidence of regular enrolment
  - ii. Discharge of all obligations owed to the University
  - iii. A pass in all University required courses
  - iv. Satisfactory performance in the appropriate University Examination.
- (c) School/Department Requirement(s)  
Satisfactory Discharge of such requirement(s) as may be prescribed for the degree.

#### **4.3 CLASSIFICATION OF BACHELOR'S DEGREE**

- 4.3.1 All end-of-semester examination results from Level 300 shall be taken into account in the computation of the Final Grade Point Averages (FGPA) for the classification of the bachelor's degree.
- 4.3.2 The GPAs at Levels 300 and 400 shall be weighted in the proportions 2:2
- 4.3.3 In the determination of the FGPA, a weighted average of all repeat courses shall be used, as for instance, a 3-credit course with a 'D' at first attempt and an 'A' at the second attempt shall attract a total of 6 credits in the computation of the Grade Point Average of that particular course.

**SUMMARY OF COURSES FOR THE BACHELOR OF PUBLIC HEALTH PROGRAMME**

The study programme will comprise the following

- a. General University Requirements
- b. Core Courses
- c. Prescribed Electives

General University Requirements

UGRC 110 Academic Writing I

UGRC 150 Critical Thinking and Practical Reasoning

UGRC 220 African Studies

\*UGRC 130 Understanding Human Societies will be replaced by GSPH 106 Health Behaviour and Society and UGRC 210 Academic Writing II will be replaced by GSPH 214 Writing for Public Health.

**LIST OF COURSES**

<b>Code</b>	<b>Course Title</b>	<b>Credit</b>
*GSPH 106	Health Behaviour and Society	2
*GSPH 202	Ecological Approach to Health	2
*GSPH 203	Epidemiology: Principles and Methods	2
*GSPH 204	The Health Care System in Ghana	2
*GSPH 205	Medical Anthropology: Cultural Foundation for Health and Illness	2
*GSPH 207	Introduction to Biostatistics	2
*GSPH 208	Population, Health and Development	3
*GSPH 209	Introduction to Microbiology	3
*GSPH 211	Introduction to Pharmacology	2
*GSPH 212	Introduction to Research Methods	2
*GSPH 213	Introduction to Public Health Ethics	2
*GSPH 214	Writing for Public Health	3
*GSPH 215	Basic Principles of Environmental Health	2
UGRC 220	African Studies	3
*GSPH 301	Child Survival Programme: Expanded Programme of Immunization	2
*GSPH 302	Infant and Young Child Feeding	2
*GSPH 304	Fundamentals of Public Health Surveillance	2
*GSPH 305	Principles of Disease Control	3
*GSPH 306	Child Survival: Management of the Sick Child	2
*GSPH 307	Public Health Nutrition	2
*GSPH 309	Primary Health Care System	2
*GSPH 311	Environmental Health and Sanitation	2
*GSPH 312	Management and Leadership of Health Services	2
*GSPH 313	Monitoring and Evaluation of Health Programmes I	2
*GSPH 314	Health Management Information Systems	2
*GSPH 322	Research Methods II	2

*GSPH 324	Public Health Seminar I	2
GSPH 303	Reproductive Health: Maternal Health Care	2
GSPH 308	Family Planning Methods and Practice	2
GSPH 315	Research Methods I	2
GSPH 316	School Health Services I	2
GSPH 317	Introduction to Health Policy	2
GSPH 318	Introduction to Occupational Health and Safety	2
GSPH 319	Neglected Tropical Diseases	2
GSPH 321	Zoonotic Infections	2
GSPH 323	Non-Communicable Diseases	2
GSPH 325	Environmental Quality and Sanitary Inspection	2
GSPH 326	Global Climate Change and Health Effects	2
GSPH 327	Municipal Sanitary Services and Amenities	2
GSPH 328	Control of Emerging and Re-emerging Diseases	2
GSPH 329	Hygiene of Food Processing and Handling	2
GSPH 331	Introduction to Population and Health	2
GSPH 332	Integrated Disease Surveillance Systems	3
GSPH 333	Database System Management I	3
GSPH 334	Geographic Information Systems I	2
GSPH 335	Health Data Management	2
GSPH 336	Water Supply and Treatment	2
GSPH 337	Information Security	2
GSPH 338	Solid Waste Management	2
GSPH 339	Nutrients and their Metabolism	2
GSPH 341	Assessment of Nutritional Status	3
GSPH 342	Pest and Vector Control	2
GSPH 343	Malnutrition and Food Security	2
GSPH 344	Environmental Exposure Assessment	2
GSPH 345	Contemporary Issues in Health Promotion	2
GSPH 346	System Analysis and Design	2
GSPH 347	Health Communications Theory and Practice	2
GSPH 348	Data Analysis and Presentation (HMIS) I	3
GSPH 349	Research Methods in Social and Behavioural Sciences	2
GSPH 351	Information Technology Application in Health Care management	2
GSPH 352	Applied Nutrition	2
GSPH 354	Nutritional Surveillance	2
GSPH 356	Life style and Nutrition	2
GSPH 358	Behaviour Change Communication	2
GSPH 362	Mass Communication in Health Education and Public Health	2
*GSPH 405	Introduction to Gender and Health Care	2
*GSPH 410	Project Work	8

*GSPH 413	Scientific Communication including Report Writing	2
*GSPH 414	Public Health Seminar II	2
*GSPH 415	Public Health Ethics Care for HIV and AIDS	2
*GSPH 420	Field Attachment	2
GSPH 401	Biostatistics for Public Health	2
GSPH 402	Health Promotion and Education	2
GSPH 403	Reproductive Health IV – Comprehensive	2
GSPH 404	Health Care for Aged and Elderly	2
GSPH 406	Mental and Social Health Care	2
GSPH 407	School Health Services II	2
GSPH 408	Monitoring and Evaluation of Health Programmes II	2
GSPH 409	Reproductive Health and Culture	2
GSPH 411	Health problems of infants and children	2
GSPH 412	Health Promotion and Disease Prevention	2
GSPH 416	International Health Regulations	3
GSPH 417	Database Management II	2
GSPH 418	Global Health Security	2
GSPH 421	Public Health Surveillance of Chronic Diseases	2
GSPH 422	Environmental Health Promotion and Education	2
GSPH 423	Emergency/ Preparedness and Outbreak Investigation	2
GSPH 424	Institutional Development and Sector Management	2
GSPH 426	Environmental Epidemiology	2
GSPH 427	Domestic and Industrial Waste Water Disposal	2
GSPH 429	Health Aspects of Housing	2
GSPH 431	Gender and Environmental Health	2
GSPH 432	Medical Records and Management	2
GSPH 433	Public Health Legislation, Regulation and Enforcement	2
GSPH 434	Public Health Programme Planning and Evaluation	2
GSPH 435	Human Excreta and Sewage Disposal	2
GSPH 436	Clinical Data Classification and Coding II	2
GSPH 437	Introduction to Field Epidemiology	2
GSPH 438	Nutrition Rehabilitation Programmes	2
GSPH 439	Geographic Information Systems II	2
GSPH 441	Clinical Data Classification and Coding I	2
GSPH 442	Food Laws and Regulations	2
GSPH 443	Electronic Health and Data Systems	2
GSPH 444	Nutrition Seminar	2
GSPH 445	Data Base Systems and Management	2
GSPH 446	Change Interventions for Chronic Disease	2
GSPH 447	Food and Nutrition Policy	2
GSPH 448	Rights for the Health of Women and Children	2

GSPH 449	Communication for Nutrition and Healthy Lifestyle	2
GSPH 451	Nutrition Transition in Ghana	2
GSPH 452	Reproductive Health in Developing Countries	2
GSPH 453	Diet and Disease	2
GSPH 454	Mental Health as a Public Health Issue	2
GSPH 455	School Feeding Programmes	2
GSPH 457	Food Safety and Hygiene	2
GSPH 459	Intervention Strategies for Health Promotion	2
GSPH 461	Principles and Practice of Community Organisation	2
GSPH 463	Psychological Influence on Health	2
GSPH 465	School Based Nutrition Education	2
GSPH 467	Adolescent Health: Social and Behavioural Perspective	2

*\*Candidates must pass all these core courses to qualify for graduation.*

### Course Descriptions

**GSPH 106: Health Behaviour and Society**

Define health, society, social groups, illness, sickness, health care, mental illness. Interface of social system and culture, levels of social change, social dimension of healthcare system meaning for the individuals and institutions. The functions and structures of politics and religion and its effects on society and individuals will also be examined.

**GSPH 202: Ecological Approach to Health**

Environment and human biology, climate, chemical pollution, food production, food conservation; poisons and toxic agents, organic pollution of water; effects of environmental degradation: greenhouse effect of ozone layer depletion, desertification.

**GSPH 203: Epidemiology: Principles and Methods**

Measures of disease frequency, rates, ratios; descriptive studies, analytic studies geographic comparisons, temporal comparisons ;survey sampling ;epidemiological study design; surveillance

**GSPH 204: The Health Care System in Ghana**

This course will cover the concepts of health systems and public health, national health systems, historical development of Ghana's health system, challenges and strategies for health systems. Measures to meet challenges of the health system.

**GSPH 205: Medical Anthropology: Cultural Foundation for Health and Illness**

This course will help the student to understand the societal and cultural determinants of health. The content of the course will include the definition and concept of culture and health; the practice of medical anthropology; Social structures and conceptions of disease; treatment and outcome; influence of culture and religion on behavior in relation to health and diseases; health decision making, modern and traditional systems for health care and culture and social epidemiology.

**GSPH 208: Population, Health and Development**

Factors affecting population distribution, implications of population distribution,

Components of population change, factors in historical decline and mortality and morbidity, general overview of demographic analysis, vital registration, population growth and distribution, mortality measurements, fertility measurements; population policies and programmes in Ghana

**GSPH 207: Introduction to Biostatistics**

Descriptive statistics; sampling techniques, summary measures, measures of central tendency, measures of dispersion, normal distribution, data presentation, measures of association.

**GSPH 209: Introduction to Microbiology**

Foundation and overview of microbiology, the structure and functioning of fungi, bacteria and viruses, the methods used to culture, control and study these organisms in the laboratory, Isolation, Classification and Identification of Microbes.

**GSPH 211: Introduction to Pharmacology**

General principles of pharmacology; mechanism of drug action; classification, drug metabolism and pharmacokinetics, introduction to toxicology, principles of adverse drug reactions; poisoning including insecticides and agrochemicals. Reactions to common domestic chemicals including corrosives and heavy metals such as in the digestive, neurological, cardiovascular systems. Introduction to safety monitoring.

**GSPH 212: Introduction to Research Methods**

The course will introduce the formulation of research questions, research objectives, describe the qualitative methodology, purposive sampling, sample size determination, Construct variables, and discuss the generalization, validity and reliability. Data analysis including thematic and network analysis and presentation

**GSPH 213: Introduction to Public Health Ethics**

Traditions and values in public health, social determinants of health, ethical analysis and decision making, ethics and pandemic power, participation and disparities, research with human subjects, professional ethics, cross-cultural ethics.

**GSPH 214: Writing for Public Health**

Writing readable health messages, summarizing, important points, write lists, choosing a style that is easy to follow; using the active voice; defining difficult words by context clues.

**GSPH 215: Basic Principles of Environmental Health**

The course will include the following: 1. Definitions: Environment, health, environmental health, environmental health hazards. 2. Classification of the elements of the environment (physical, biological, chemical, radiological). 3. Sources of environmental health: waste materials (human, industrial, etc) and support media (food, water, soil, air). 4. Methods of transmission of environment hazards from source to objects at risk. 5. Impacts of environmental hazards on man, animals and the environment. 6. Methods of control of environmental hazards. 7. Applications of concepts and principles.

**GSPH 301: Child Survival Programme: Expanded Programme on Immunization**

Global and national immunization strategy; types of vaccines; vaccine management, maintenance of the cold chain system, organization of immunization sessions, improving access and coverage of immunization; community mobilization for vaccination programmes, monitoring and supervision of immunization activities; immunization surveillance, vaccination

coverage survey

**GSPH 302: Infant and Young Child Feeding**

Nutritive needs of infants and young children, Breastfeeding and its challenges, Supplementary and complementary feeding, International code for breastfeeding, feeding of the low-weight-birth infant, weaning practices, effects of early feeding on later life. Goals of nutritional management of infant and young children.

**GSPH 303: Reproductive Health: Maternal Health Care**

Maternal health care : antenatal care, labour and postnatal care; emergency obstetric care strategies, appropriate technologies for monitoring pregnancy and labour; Definitions of maternal death, identifying maternal deaths, facility based maternal deaths review, verbal autopsy for maternal death, epidemiology of maternal mortality in Africa; near miss obstetric events. Issues relating to reproductive morbidities in women.

**GSPH 304: Fundamentals of Public Health Surveillance**

Historical development of surveillance; planning a surveillance system, sources of health related information, collecting surveillance data, analyzing and interpreting surveillance data, use of surveillance data for public health action. Evaluating public health surveillance system.

**GSPH 305: Principles of Disease Control**

Burden and trends of infectious diseases, Determinants of infectious disease, natural history of infectious disease, management and control strategies, problems and challenges, specific interventions for selected infectious diseases

**GSPH 306: Child Survival: Management of the Sick Child**

Define IMCI, Improving case management skills of health-care staff, Improving overall health systems, Improving family and community health practices, algorithms for diagnosis and treatment of Acute respiratory Infections, Diarrhoea, malaria, ear infection, malnutrition and vaccination status. Community IMCI.

**GSPH 307: Public Health Nutrition**

Various food groups, carbohydrates, proteins, fats, vitamins, trace elements; specific micronutrient deficiencies, Vitamin A deficiency , iron deficiency and anaemia, iodine deficiency disorder ; nutritional requirements of pregnant and lactating women, infants and children; obesity and related conditions; growth monitoring and promotion; under- nutrition; community based nutrition programmes; nutritional surveillance, growth monitoring and promotion. Retrieval of medical data, develop and modify questionnaires.

**GSPH 308: Family Planning Methods and Practice**

Description of various contraceptive methods, mechanisms of action, failure rates, safety issues and warnings, barriers to increased use, a management of unsafe abortion, emergency contraception, approaches to delivery conducting situational analysis, family planning and HIV positive women.

**GSPH 309: Primary Health Care System**

Definition of primary care and history, common health problems, maternal and child health care, including family planning, nutrition, immunization, safe water supply, basic sanitation, locally endemic diseases and what can be done to prevent and control them. Treatment of common diseases and injuries. Preventive, promotional, and rehabilitative services for the

individual, family and community. Community involvement in the formulation and implementation of health care activities. Discussion on continued dialogue with the community and health care professional. The role of primary care in the National health care system.

**GSPH 312: Management and Leadership of Health Services**

This course will cover the nature of management, different management skills, roles in the management model, planning and the planning process; organizing, division of work, delegation and coordination; leading and understanding and managing conflict for health services. The importance of leadership, the leading process, and leadership traits and styles. Interpersonal conflict, beneficial and dysfunctional aspects of conflict, sources of conflict, managing and resolving conflict.

**GSPH 311: Environmental Health and Sanitation**

The course will introduce students to the basics of environmental health and sanitation and will cover environmental epidemiology, toxicology, policy and regulation. Students will have the opportunity to study various agents of environmental diseases- including zoonotic and vector-borne diseases, toxic metals and elements, pesticides and other organic chemicals. Students will also be introduced to the application of environmental health and sanitation in the area of water and air quality, food safety, solid and liquid waste and occupational health.

**GSPH 313: Monitoring and Evaluation of Health Programmes**

Formative evaluation research, project monitoring-process evaluation; evaluation-effectiveness evaluation, framework for evaluation-inputs, outputs, outcome and impact, programme indicators, data collection methods, types of analysis, key elements of evaluation plan, scope of the evaluation, methodological approach, implementation plan, dissemination and utilization of results

**GSPH 315: Research Methods**

The course introduces the basic concepts of research including a historical perspective. Discusses the scientific method for research, advantages and disadvantages, describes the research process and explains the various components of the research process. It explores several methods of formulating a research question. It introduces the formulation of general objectives and specific objectives. The courses address the formulation of research hypothesis and its relations with the research question.

**GSPH 317: Introduction to Health Policy**

Factors influencing public social policy development, Environmental context of reform, the role of different players within the policy process, effective use of modern tools in policy making, forging consensus in policy making research., Agenda setting, Policy design factors, policy background, policy process variables, policy participation, policy implementation

**GSPH 319: Neglected Tropical Diseases**

Burden of neglected tropical diseases, prevalence of trachoma, soil transmitted helminthes, schistosomiasis lymphatic filariasis, treatment of neglected tropical diseases. Prevention of NTDs and global effort to control and eliminate NTDs.

**GSPH 321: Zoonotic Infections**

The burden of zoonotic diseases, prevalence and control of zoonotic diseases, surveillance and control of emerging and re-emerging diseases and the challenge of veterinary public health, global trends in emerging infectious diseases, wildlife and zoonoses.

**GSPH 323: Non-Communicable Diseases**

Definitions, Types of non-communicable diseases and the burdens especially those relevant to Ghana. Risk factors and their management and strategies for prevention and control. Non-communicable diseases; cancer registers and other registers used in disease control.

**GSPH 325: Environmental Quality and Sanitary Inspection**

Concepts of environmental quality (hygiene); Practice at community level (prevention of contamination of land, premises and infrastructures and pollution of water infrastructures (roads, drainage systems, parks, etc.) and the pollution of water bodies.(beaches, river banks, etc).Identification of environmental hygiene problems at premises level (residential, commercial, industrial, institutional), public places (markets, lorry parks, beaches, river banks, lagoons, stadia, and open undeveloped lands).

Legislation: Role of legislation in environmental quality (hygiene) promotion; procedures for the making and review of national and local legislation; practices in Ghana. Sanitary Inspection: Environmental hygiene monitoring by Sanitary Inspection; hygiene education; compliance enforcement and procedures. Institutional Arrangements: Institutional and development concept and principles; structure of appropriate department/units; sanitary inspection in Ghana. Identification of the sources of air pollution both indoor and outdoor.

**GSPH 327: Municipal Sanitary Services and Amenities**

Concept of provision of municipal sanitary services and amenities. Elements of municipal services: Public cleansing (streets, drains, markets, lorry parks, stadia, etc); maintenance of hygienic conditions at waste storage and disposal sites; pest control (mosquitoes, flies, rodents).

Elements of Municipal Amenities: Litter bins; waste storage site/containers and final disposal; Sites and facilities; public urinals and toilets; cemeteries; food and meat markets; public spots (parks and seats); developed beaches. Strategies for Financing Municipal Programmes (financing, modernization, maintenance, expansion, etc).Standards of design operation and maintenance. Institutional arrangements for the municipal programmes.

**GSPH 329: Hygiene of Food Processing and Handling**

Definitions: Food-borne Diseases, Food hygiene, food infection, food intoxication. Principles: Food and nutrition; food-borne diseases: classification of diseases (infection, intoxication), causative agents, transmission mechanisms, manifestation; incriminating food; preventive measures.

Food and Safety Practices: (i) Raw food and meat (prevention of contamination, meat hygiene) (ii) Primary processing (hygienic practices, milling, packaging, storage, etc) (iii) Prepared foods (hygiene in preparation, storage, serving, etc).

Food establishments: Approval of sites, facilities, design of layout, display equipment, permits and certificates of operation. Food Inspection and Hygiene Education: (i) establishment of departments/units (ii) design of appropriate educational programmes.

Legislation: National and local; permits/certificates, enforcement of legislation (notices, prosecution, sanctions).

Institutional Arrangements: Roles of government, business association, etc; department/unit of local authority; mechanisms for inter-agency coordination and collaboration

**GSPH 331: Introduction to Population and Health**

Basic concepts of population growth and socio-economic development, rates and ratios, sources of demographic data, data evaluation, age-sex composition, ideal family size, fertility preference, measures of infant, foetal and perinatal mortality, construction of crude and

adjusted mortality rates, demographic transition and Hoover theory.

**GSPH 333: Database Management System I**

The evolution of database systems, early database management systems, overview of database management system components, the storage manager, the query manager, the client server architecture. Introduction to Data Protection, overview of storage technology, backup and restore, remote copy and replication, basic security concepts, storage system security, policy based data protection, Information lifecycle management

**GSPH 335: Health Data Management**

Collection, organization, analysis and presentation of health care data; vital and public health statistics; calculation of health care specific statistics, hospital utilization; mortality rates, autopsy rates, outpatient statistics; preparation of statistical reports; methods of ensuring data quality-accuracy, timeliness, completeness and validity

**GSPH 337: Information Security**

Information security management; information security culture; misuse and abuse of computer systems; computer ethics and security; authorization and access control; malicious software in ubiquitous computing; statistical database security; copy protection system; information security culture; security governance and compliance; data warehousing, data mining and security

**GSPH 339: Nutrients and their Metabolism**

Nutrient utilization: digestion, absorption and metabolism, metabolic relationships among carbohydrate, protein and fat in the major tissues of the body  
Reading List

**GSPH 341: Assessment of Nutritional Status**

Study the techniques used in assessing nutritional status of individuals and communities during health and disease using dietary, biochemical, and clinical and anthropometric measurements. Methods of measuring the dietary intake of individuals and communities; anthropometric measurements of individuals and communities and how to do them; biochemical assessments of individuals and communities; clinical and functional appraisal of nutritional status and vital statistics and nutritional surveillance as well as growth monitoring.

**GSPH 343: Malnutrition and Food Security**

Relationships between diseases; nutrition and diets. Epidemiology of diseases with dietary origins Vitamin A deficiency disorders, Iron deficiency anaemia, Iodine deficiency disorders, dental disorders, GIT disorders, Gallstones, Cardiovascular diseases, obesity and diabetes, cancers. Diet, nutrition and the prevention of chronic diseases. Dietary management in therapy. Food fads and disease prevention. Management of food fads.

**GSPH 345: Contemporary Issues in Health Promotion**

The course will deal with contemporary issues in promoting health and exploring concepts of health, wellness –illness continuum, levels of prevention, culture and values, sources of community information, health as a value, folk healing and professional care system. It will also introduce students to the communication process and ethics, barriers to effective communication, health care ethics, screening: advantages and disadvantages and sources and effects of stress.

**GSPH 347: Health Communications Theory and Practice**

Communicating is key to the implementation of public health programmes. The course will introduce students to the various communication theories including theories of communication impact on behaviour, various cognitive theories, social process theories, emotional response theories and mass media theories. The course will also provide students the opportunity to learn various frameworks for designing and producing communication strategies and how to introduce such strategies into intervention programmes and evaluate them.

**GSPH 349: Research Methods in Social and Behavioural Sciences**

The course will introduce students to research methods to improve knowledge, theory and practice in the field. It will provide students the epistemological and theoretical framework to both quantitative and qualitative research methods in the social sciences. The course will assess the principles and applications of both quantitative and qualitative methods. It will cover sampling methods, questionnaires, structured and unstructured interviews, ethnography, participant observation, participatory action research and ethical issues of research.

**GSPH 351: Information Technology Application in Health Management II**

Managerial-oriented approach to the use of IT in organizations to improve quality and productivity. Case studies highlight new technology and applications, including fuzzy logic, neural computing, and hypermedia, problems many district teams encounter.

**GSPH 314: Health Management Information Systems**

The course will aim at introducing students to the general concepts of health management information systems. Description of various health management information systems used at all levels of the health system and their linkage will be made.

**GSPH 316: School Health Services I**

School Health service, including role of the school teachers and parents, Child growth and development, basic hygiene including oral hygiene, sanitation, nutrition including common foods, fruits and their nutrient value. Physical exercise and health.

**GSPH 318: Introduction to Occupational Health and Safety**

Pre-placement screening; Occupational lung diseases, silicosis, asbestos-related diseases, occupational asthma, and byssinosis; health monitoring and investigation of a hazard; use of protective clothing; sickness absence, measuring absence, basic statistics and misconceptions, factors known to influence sickness absence; rehabilitation and settlement at work; principles of toxicology

**GSPH 322: Research Methods II**

The course will introduce proposal writing from formulation of research questions, research objectives, design of the study, data collection, analysis, discussion and presentation of results. Principle of ethical conduct of research, Grant writing and sourcing of funding to conduct research

**GSPH 324: Public Health Seminar I**

Global public health diseases affecting developing countries; control measures in place for global public health diseases affecting developing countries.

**GSPH 326: Global Climate Change and Health Effects**

Variety of effects associated with climate change in different regions on health, malaria,

contamination of water bodies, pollution adaptations of human communities to climatic change

**GSPH 328: Control of Emerging and Re-emerging Diseases**

Emerging infections in historical context, geographical spread of infections, human demographics and behavior, climate and weather, international travel and commerce, war and famine, technology and industry, microbial adaptation and change, economic development and land use, development of multiple-resistant bacterial pathogens, emerging issues in blood borne infections, resurgent vector borne diseases.

**GSPH 332: Integrated Disease Surveillance Systems**

Overview of surveillance, importance of surveillance, standard case definitions, standard methods for reporting priority diseases district –level indicators for monitoring quality of surveillance and response at the health facility, community –based surveillance, alert thresholds, information flow in integrated disease surveillance, developing public health bulletin, IDSR contribution to epidemic preparedness.

**GSPH 334: Geographic Information Systems I**

Definition of geographical information system; spatial data; database management; data input and editing; data analysis; data editing; data quality issues; GIS project editing and management, use of GISs in surveillance and monitoring vector-borne diseases, environmental health, children and pedestrian

**GSPH 335: Health Data Management**

Analysing public health data; validity of ICD 10 Hospital discharge data, applied spatial statistics for public health data, analysis of hospital data of chronic diseases such as cancer, diabetes.

**GSPH 336: Water Supply and Treatment**

Definition: Water resources, source of supply, portability, safeness etc.

Sources of Water Supply (Water resources): Sources: Surface water (rivers, lakes, dams, ponds, lagoons, sea water); Ground water (springs, water table); Rain water.

Uses of Water Resources: Human physiological requirement; Domestic (personal hygiene, food preparation, waste disposal); Industrial and commercial (manufacturing, food and drink services); Agricultural (irrigation, crop watering, etc); Public cleansing (drain cleansing); Firefighting.

Water Associated Diseases: (i) Water’s role in disease transmission (ii) Classification of water-associated diseases (water-borne, water-based, water-washed, water-related).

Water Purification: Purpose: Provision of safe water for drinking; production of water meeting industrial standards.

Methods of Source Protection: Protection of sources of supply (springs, rivers, etc); Household methods (boiling, cloth filtration, chemical disinfection, etc); Conventional water treatment

Drinking Water (Quality) Standards: Parameters (Bacteriological, physical, chemical, radiological); Indicators and limit setting.

Water Supply Development: Classification of schemes: Rural Water Supply (sanitary wells, bore-hole supply, springs); small town supply (limited pipe-borne distribution); Urban supply (pipe-borne supply).

**GSPH 338: Solid Waste Management**

The course will examine the following: Definition: Waste, refuse, rubbish, recycling, waste

management. Classification of solid wastes by characteristics and source. Sources of solid waste generation: domestic, commercial, industrial, agricultural, hospital, institutions, etc. Waste generation: Individual, community. Hazards of solid waste accumulation in the community (health, land, degradation, property devaluation, etc) Methods of Storage, collection, transportation, treatment and final disposal. Financing and tariff systems for solid waste management. Types of legislation and bye-laws needed for solid waste management. Institutional arrangements: Central, regional, district and town level organizations, human resource development.

**GSPH 339: Nutrients and their Metabolism**

Nutrient utilization: digestion, absorption and metabolism, metabolic relationships among carbohydrates, proteins and fat in the major body tissues, differences in digestibility of foods and physiologic implications, influence of food and non-nutrient food components, nutrient – nutrient interactions in foods, effects of macronutrients and fiber.

**GSPH 342: Pest and Vector Control**

Definitions: Pest, vector, vector control, pesticide, insecticide, larvicide, adulticide, bolarvicide, etc. Importance of pest and vectors: Agents of disease transmission Causes of nuisance (biting, irritation, itching. Droppings, odour, etc); General Control Principles: Identification and morphological characteristics Biology (Life cycle, behaviour, resting place, dispersal, ecology, food, etc) Public health importance: Diseases: Nuisance (irritation, biting, itching, droppings, odours, etc); Pest/Vectors and Disease Pesticide Classification, Formulation and Use Regulation of Pesticide Use: Legislation to control import and export, labelling, packaging, storage, transportation, safe use, etc. Institutional Arrangements: Central government (Agriculture, Health and Environment) Ministries, districts and local authorities; private sector (importers/retailers, pest control, service providers).

**GSPH 344: Environmental Exposure Assessment**

Environmental exposures to chemicals and biological contaminants; study design issues relating to air water sediment and soil sampling, water protection inspection, water management and protection of water quality, monitoring air quality, measures for the protection of farmland quality

**GSPH 346: Systems Analysis and Design**

The course will include the following: Basic definition-systems, systems analysis, information system, General overview of systems development, systems theory and relevance to information system, systems life cycle (SLDC)-preliminary investigation, the analysis phase, the design phase, development stage, implementation, systems evaluation. System design tool-systems flow charts, Entity relationship diagrams, data flow diagrams, Hipo chart, Warnier Orr diagram, decision tree, pseudo code, data dictionary, application of systems analysis/design, systems management, systems professionals, systems engineers, analysts, designer, architect, owner, developer user.

**GSPH 348: Data Analysis and Presentation (HMIS) I**

Review of the database structure, the Ministry of Health HMIS, coding system, the basic indicators and their definition, analysis of defined dataset from the HMIS, generate basic indicators and presentation of data.

**GSPH 352: Applied Nutrition**

Structure of nutritional programmes, mode of implementation and evaluation; effects of socio-

economic factors on nutrition; how urbanization affects nutrition; mode and objectives of nutrition education to the public and methods of delivery and the role of local and international organizations in combating hunger and malnutrition.

**GSPH 354: Nutritional Surveillance**

Principles of disease surveillance and how it applies to nutritional diseases. Nutritional diseases of public health importance and their epidemiology. Surveillance of nutritional diseases of public health importance. Standard indicators for nutritional surveillance and how to collect data.

**GSPH 356: Lifestyle and Nutrition**

Relationships between diseases, nutrition and diets. Epidemiology of diseases with dietary origins, Vitamin A deficiency disorders, Iron deficiency anaemia, Iodine deficiency disorders, dental disorders, GIT disorders, Gallstones, Cardiovascular diseases, obesity and diabetes, cancers. Diet, nutrition and the prevention of chronic diseases. Dietary management in therapy. Food fads in disease prevention and management.

**GSPH 358: Behaviour Change Communication**

The course will introduce students to definition of principles and concepts such as behaviour, communication and behaviour change communication. It will also deal with the various steps to behaviour change, health communication in cultural context, the challenges and considerations of behaviour change communication.

**GSPH 362: Mass Communication in Health Education and Public Health**

The course content will include mass communication theory and practice; community entry processes, media use as a health promotion/health communication strategy; use of radio, television, and the internet for health promotion; media use in health promotion campaigns (HIV prevention campaigns; malaria prevention campaign, tobacco campaigns); marketing and unhealthy advertising (alcoholic beverages); television and children's health; marketing and social marketing; working with the media and writing media releases; Writing for the print media; cross cultural communication; communication with people with disability; pre-testing developed media materials; health sponsorships; coalition building, political lobbying and media advocacy for health.

**GSPH 401: Biostatistics for Public Health**

The course focuses on basic statistical concepts especially on types of measurement in public health. Basic concepts in data analysis, presentation of data and reports. The course will be very practical using data from Ghana Health Service reports to illustrate the concepts and provide analysis of reports in public health

**GSPH 402: Health Promotion and Education**

The course will equip the student with basic knowledge on the theories and principles of health promotion and education. It will enable students to understand the complex and dynamic nature of health promotion processes, and how to relate these to underlying themes of social and health inequalities and to a broader societal values and practices. The course will provide a multidisciplinary approach to health promotion from a sub-Saharan Africa and an international perspective.

**GSPH 403: Reproductive Health: Comprehensive Care for HIV/AIDS**

Prevention of HIV transmission, HIV counselling and testing, opt out screening, prevention of

mother to child transmission, antenatal couple counselling; anti-retroviral therapy and prevention, perception of HIV risk; “3 by 5” initiative

**GSPH 404: Health Care for Aged and Elderly**

The course will introduce students to major public health problems (both communicable and non-communicable diseases) of the aged and elderly which include; foodborne diseases; emergence of antimicrobial resistant bacteria; sexually transmitted diseases; vector borne diseases; vaccine preventable diseases on the one hand and Diabetes mellitus, obesity, high blood pressure, hypertension, stroke on the other hand. Students will be introduced to the provision of palliative care for people with chronic conditions and complex care needs and provision of primary health care for the aged and elderly. The course will also deal with nutrition and healthy eating, health promoting physical activity and promoting healthy weight.

**GSPH 405: Introduction to Gender and Health Care**

Health and social construction of gender, gender stereotypes, health beliefs and behaviours: resources for constructing gender, the social construction of disease, medical Institution and its construction of gender and health, gender and utilization of health services, gender and responses to symptoms

**GSPH 406: Mental and Social Health Care**

The course will deal with the theories and principles of medicine, mental health and the socio-culture context of seeking care for mental health. In recent times, mental health has become an important public health issue. Student will get the opportunity to acquire the skills of taking history and assessing individual status of mental health. In addition to this, the course will teach students the various forms of mental health conditions including depression, mania and cyclic mood change, anxiety, psychosis, dementia and mild cognitive impairment and substance abuse and dependence. The course will stress on how to manage such conditions at the community level.

**GSPH 407: School Health Services II**

Basic cause of common childhood diseases such as malaria common cold, HIV/AIDs, TB, helminthes infection, cuts and wounds, and methods to prevent them. Alcohol use and smoking and their effects on health. Local foods and fruits and their nutrient value and use. Monitoring and evaluation of school health programmes.

**GSPH 408: Monitoring and Evaluation of Health Programmes II**

Framework for monitoring and evaluation of programmes; structure and responsibilities of the monitoring and evaluation systems of various control programmes; data collection, collation and management, Methodological frameworks for evaluating health programs, Health evaluation categories & indicators, Typologies of indicators for evaluation of public health services, Research designs for evaluative studies, How to quantify effects of health programmes, Reporting health evaluation.

**GSPH 409: Reproductive Health and Culture**

Define reproductive health, cultural context of sexuality, cultural factors & determinants of use of family planning, sexual violence, female genital mutilation, Reproductive tract infections, and treatment, effects of contraception and health of mothers and children, adolescent fertility and contraception

**GSPH 410: Project Work**

Students do individual project work under the supervision of faculty members and present a report at the end of the academic year.

**GSPH 411: Health problems of infants and children**

Definition of the childhood morbidity and mortality; causes of perinatal and neonatal mortality, prematurity and low birth weight; childhood diseases of public health importance.

**GSPH 412: Health Promotion and Disease Prevention**

The key challenge facing illness prevention today is how to effectively communicate public health messages to the population at risk of getting certain diseases. This course will seek to introduce students to health promotion theories and principles that will equip them to effectively communicate public health issues to the general population. Students will be given the opportunity to plan and implement community based health promotion activity and involve the mass media in the activity. Particular attention will be paid to communicable (malaria, tuberculosis, HIV/AIDS) and non-communicable diseases (heart disease, cancer, and diabetes). Issues relating to adopting responsible and health behaviours to avoid ill-health will be addressed.

**GSPH 413: Scientific Communication Including Report Writing**

Definition of scientific communication; writing a scientific paper; when to begin writing; preparing the text, abstract preparation, introduction, materials and methods, results, discussion, acknowledgments, citation of references, ethics in scientific publishing; The publishing process, conference communications, oral presentation, poster presentation, scientific style.

**GSPH 414: Public Health Seminar II**

Global public health diseases and developing countries, Poverty and health, measurements of poverty and health; indicators of the Millennium Development goals

**GSPH 415: Public Health Ethics**

Traditions and values in public health, social determinants of health, ethical analysis and decision making, ethics and pandemic power, participation and disparities, research with human subjects, professional ethics, cross-cultural ethics.

**GSPH 416: International Health Regulations**

Definition of International Health Regulations; Purpose and scope, principle and responsible authorities; information and public health response; points of entry; public health measures; communicable disease control; health documents; general provisions; core capacity requirements for surveillance and response; core capacity for designated airports, ports and ground crossings; international cooperation; legislation.

**GSPH 417: Database Management II**

Database concepts-database files, types, records field, advantages and disadvantages of DBMS, types of database organization, features of data-query, report data dictionary, utilities systems recovery, database application development; overview of storage and indexing; database profession, new developments in database management, data service delivery, diagnosis, health information management and administration, ethics of using databases, health database systems, features of application software, developing databases for health systems.

**GSPH 418: Global Health Security**

Definition of global health security, tropical infectious diseases, bioterrorism, trafficking of illicit drugs, smuggling of people, illegal weapons sale, dumping of unsafe and ineffective pharmaceuticals, food security

**GSPH 421: Public Health Surveillance of Chronic Diseases**

The course content will include the new public health priorities, characteristics of chronic disease surveillance, reporting of chronic disease surveillance, behavioural determinants of health and disease, determinants of population health, global burden of disease approach, risk factors for cardiovascular and cerebrovascular diseases. The epidemiology and prevention of diabetes mellitus, Neoplasms, HIV/AIDS and Tuberculosis will be reviewed.

**GSPH 422: Environmental Health Promotion and Education**

This subject will provide students with an opportunity to identify, develop and evaluate practical applications of health promotion with particular in environmental health. The subject introduces the principles and theory of health promotion within environmental and community development framework. Principles that guide education for health and planning education sessions will be critically examined.

**GSPH 423: Emergency/ Preparedness and Outbreak Investigation**

The course will investigate the steps in outbreak investigation and the importance of team work in the investigation of outbreak and the role of Laboratory in the disease outbreak investigation.

**GSPH 424: Institutional Development and Sector Management for Environmental Health**

Definition: Institution, sector, vision, mission statement, management; development; Institutional development process: stages of development, pressures for institutional developments, etc.; Diagnosis (assessment) of institutional strengths and weaknesses and management of change; Sector organizational development: Constraints to sectoral performance; pressures for sectoral change, etc; Framework for assessing sectoral organization; sector institutions and their roles; Special topics: Decentralization principles; local government system in Ghana; private sector participation.

**GSPH 426: Environmental Epidemiology**

Environmental epidemiology and assessment of chemicals and biological contaminants; study design issues relating to air water sediment and soil sampling, water protection inspection, water management and protection of water quality, monitoring air quality, measures for the protection of farmland quality, statistical methods for environmental epidemiology.

**GSPH 427: Domestic and Industrial Waste Water Disposal**

Principles: Definitions: Waste, Waste water, Sullage, Sewer, Soil pipe. Sources of waste water: Domestic, Commercial, Industrial, etc. Classification: Liquid, Semi-liquid, Turbidity, colour, Odour; Characteristics: 1) Composition (water, solids, dissolved matter Degradability (organic decomposition, clarification, gaseous emissions, etc)

Facilities/Infrastructures for disposal of waste waters: Street drains, Storm water drain (natural, built), house drains, open spaces, ponds, etc. Development and Management of Drainage: Drainage network design, construction and maintenance. Private and public premises' connections, Legislation and bye-laws and enforcement. Institutional Arrangements: Roles of District Assemblies and local councils; definition of the responsibilities of property owners;

monitoring and promotion of development.

**GSPH 429: Health Aspects of Housing**

Definitions: Housing, premises, workplace, ventilation, illumination, town planning, zoning, building code, building permit, etc; Health problems attributed to housing (diseases, injuries, nuisance, etc); Town planning (physical planning) principles for development of communities (layout, zoning, etc) Criteria for assessing healthfulness of housing: Fundamental physiological needs; Protection against contagion (diseases); Protection against accidents; Legislation: Building Code, permits, building inspection and enforcement of code; demolition; Institutional Arrangements: Establishment of department/unit for regulation of building construction; human resource development; logistics.

**GSPH 431: Gender and Environmental Health Care**

This course introduces students to the construction of gender and sex and gender as a theoretical concept. It also looks at the historical, international, and domestic perspectives of gender, the social structures that affect the development of individual and society's health, and how gender influences the construction of public health in different societies. The course will provide some understanding into societal patterns of health, disease, and well-being, and the socio-cultural determinants that affect people's experiences and expectations of health. This course examines some health issues where gender plays an important role: reproductive health, sexual health, health policy etc.

**GSPH 432: Medical Records and Management**

Evolution and the development of the health record; the context of health records management; the principles and practices of health records management; appraisal; storage and access issues; confidentiality and security issues; organization and management of health records service: patient identification and registration procedures, indexes and registers, filing and retrieval systems, admission and discharge procedures.

**GSPH 433: Public Health Legislation, Regulation and Enforcement**

Definitions: Legislation, Acts, Regulations, Bye-laws, enforcement, sanctions.  
Role of Legislation: Establish governmental institutions and agencies (eg. Local Government Administration, Food and Drugs Board, etc); Regulations, Standards and tariff systems.  
Pressures that initiate legislation: Problems with public cooperation, revenue mobilization, demand for projects and services, etc. Relevant legislation for Environmental Health (i) National (e.g. Environmental Health Policy of Ghana, Environmental Protection Agency), (ii) Local (e.g. District Assembly bye-laws on sanitation), Procedures for Enactment of Legislation, Monitoring and Enforcement: Establishment of department/office/unit for monitoring and enforcement; provision of appropriate courts (e.g. Sanitary courts); mechanisms for inter-agency coordination and collaboration.

**GSPH 434: Public Health Programme Planning and Evaluation**

The course will involve introducing students to the history of health program planning, planning and evaluation cycle, public health pyramid, use of public health pyramid in programme planning and evaluation, defining community, community needs assessment, sample construction, sample size and ethics and evaluation.

**GSPH 435: Human Excreta and Sewage Disposal**

Definitions: Human excreta, night soil, sanitary waste, degradability and sewerage.  
Principles: Prevention of risk of exposure (hygienic handling), treatment to reduce

hazardousness and facilitate disposal. Collection and transportation (cartage, sewerage). Treatment methods and systems: On/off site systems, types of facilities (toilets, urinals). Final disposal methods (land, water, sea disposal) Institutional Arrangements: Relevant organizations and stakeholders: Central Government (Ministry of Water Resources, Works and Housing, EPA, District/Local Government, Waste Collection Service Providers, Households, establishment of district departments/units to regulate services, sector organization.

**GSPH 436: Clinical Data Classification and Coding II**

Structure and applications of internal classification of health interventions; structure and application of the international classification of diseases for oncology (ICD-O); General principles and guidelines for the development of disease registry; Role of disease registry in health care delivery and research; specific development and implementation of registry system for non-communicable diseases such as cancers, development of communication and presentation skills.

**GSPH 437: Introduction to Field Epidemiology**

Definition of field epidemiology, operational aspects of epidemiologic investigations, conducting a field investigation, surveys and sampling, using a computer for field investigations, analyzing and interpreting data.

**GSPH 438: Nutritional Rehabilitation Programmes**

Protein-energy malnutrition in young children, under-nutrition, nutritional marasmus and kwashiorkor; hospital based rehabilitation of severe malnutrition, acute phase, rehabilitation phase, catch-up growth, methods to detect cases of severe malnourished children in the community, distribution of supplement foods to children,

**GSPH 439: Geographic Information Systems II**

Definition of geographical information system; spatial data; database management; data input and editing; data analysis; data editing; data quality issues; GIS project editing and management, use of GISs in surveillance and monitoring vector-borne diseases, environmental health, children and pedestrian

**GSPH 441: Clinical Data Classification and Coding I**

History and development of disease classification, the structure and conventions of the International Classification of Diseases and Related Health Problems; tenth Revision, Basic coding principles, retrieval of relevant information from health records for the classification of diseases and procedures in medicine.

**GSPH 442: Food Laws and Regulations**

International and national laws, regulations, policies and conventions related to processing, packaging, marketing, distribution, and usage of foods. Food standards and quality. Emphasis on public protection and safety aspects of food laws and regulations. Role of international and national level agencies in the application, enforcement and monitoring of food laws (WHO, FAO, Codex, WTO, FDB, GSB). Food laws and public safety advocacy.

**GSPH 443: Electronic Health and Data Systems**

Definition of electronic health record, difference between electronic health record and electronic medical record; structure of electronic health records, context of use of electronic health records, functions of an electronic health record, informed consent and electronic health

records; standardization of electronic health records; implementing security and access control for an electronic health record, access to electronic health records, security infrastructure and archives for electronic archives and electronic health records; secondary uses of electronic health records, medico-legal purposes, quality management, education research, policy development/health service management, health statistics analysis and trend analysis

**GSPH 444: Nutrition Seminar**

The course will attempt to expose students to the role nutrition plays in healthy living and longevity. It will provide students the opportunity to review and learn from both international and national research work on nutrition and health.

**GSPH 445: Data Base Systems and Management II**

Database concepts-database files, types, records field, advantages and disadvantages of DBMS, types of database organization, features of data-query, report data dictionary, utilities systems recovery, database application development; overview of storage and indexing; database profession, new developments in database management, data service delivery, diagnosis, health information management and administration, ethics of using databases, health database systems, features of application software, developing databases for health systems

**GSPH 446: Change Interventions for Chronic Disease**

The course focuses on understanding theory-based chronic and lifestyle interventions at different levels of change (individuals, networks/groups, organizations and communities). The course will deal with research aspects of change interventions and this will take students through formative (qualitative) research, Community-based participatory research, intervention Design and evaluation. Key theories that students will be introduced to will include transtheoretical model, social cognitive theory, theory of reasoned action/Planned behaviour, health belief model, social networks and social support, mass communication, social marketing

**GSPH 447: Food and Nutrition Policy**

The course is designed to help students know the role of policy in food and nutrition programming at the national level. The course will engage the students in discussing how policies are developed and evaluated.

**GSPH 448: Rights for the Health of Women and Children**

The rights for the health of women and children in Ghana; laws and legislations for women and children's rights ; lapses in the legislations on the rights and health of women and children; enforcement of legislations on the rights for the health of women and children, design and implementation of programmes to promote women and children health rights.

**GSPH 449: Communication for Nutrition and Healthy Lifestyle**

The premise of this course is that nutritional and life styles problems are caused by human behaviour and have long-term implications. To address and create long-term solutions to these problems, behaviour needs to change. This course provides students with a practical introduction to the strategies, methods and tools of nutrition and health life styles communication that effectively leads to changes in behaviour. The field-based skills gained through this course will provide students the skills of communicating nutritional and health life styles messages for changing behaviours. The course will focus on nutritional and healthy life styles social marketing strategies to ensure desired changes in behaviour.

**GSPH 451: Nutrition Transition in Ghana**

The concept of nutrition transition, obesity trends in the developing world, biological factors, genetic factors, ecological factors, food availability and dietary intake; obesity and cardiovascular diseases.

**GSPH 452: Reproductive Health in Developing Countries**

Healthy sexuality, sexual violence, reproductive tract infections, family planning including long term methods and services, pregnancy and child bearing, interventions to reduce maternal mortality. Organizational issues for reproductive health programmes.

**GSPH 453: Diet and Disease**

Nutritional measurement, chronic diseases, epidemiology of chronic diseases, relationship between nutrition and chronic diseases, public health impact of nutrition in chronic diseases.

**GSPH 454: Mental Health as a Public Health Issue**

The course will cover emerging and contemporary debates in mental health. mental health challenges facing both younger and older people, the influence of the life-course and life events on mental health alongside the development and significance of personality, the wider implications and possibilities for mental health services, the use of alternative and complementary approaches.

**GSPH 455: School Feeding Programmes**

History of school feeding, school health and nutrition recovery, school feeding as a nutrition intervention, school feeding to improve child cognitive development, school feeding and short and long term –food and security, designing school feeding programmes, evaluating school feeding programmes.

**GSPH 457: Food Safety and Hygiene**

Principles, science and technology of Food preservation, Food deterioration, food additives; food toxins, bacterial contamination. Food quality and acceptance; quality characteristics of foods and their measurement Development of specifications and standards of quality, sampling for quality control; Policies and guidelines for regulating and monitoring public food safety and hygiene; HACCP, Codex; Personal hygiene in food safety regulation; Pest management in food storage and transport; Food poisoning; epidemiology of food contamination Health effects of eating spoiled foods; toxins in food; Food chain and bioterrorism. Agencies involved in food safety and hygiene control: FDB, Standards board, Port Health.

**GSPH 459: Intervention Strategies for Health Promotion**

Health promotion interventions have become important aspect of health care provision in recent years. A number of health promotion programmes have failed to achieve their intended goals due to the fact that appropriate strategies were not put in place regarding the broader environment within which such programmes were implemented. Sometimes the effectiveness or ineffectiveness of a strategy is dependent upon time and season the intervention is implemented.

The course will deal with the following: Introduction to intervention strategies, definition of terms; (health promotion, intervention, strategy), strategic frameworks for health promotion, the Need for health promotion interventions, past and present health intervention strategies (planning, implementation, monitoring, sustainability, partnership building, evaluation), factors that determine the choice of strategies and communication as a strategy for intervention.

**GSPH 461: Principles and Practice of Community Organization**

Community involvement in the implementation of health interventions has become an important part of intellectual discourse. This course aims at providing a general understanding of the basic principles behind community organization for health. It is also intended to expose students to community entry processes towards community organization for health.

It will deal with the following: definition of terms and concept (Community, organization, community entry, community organization), the concept of community, types of community (geographical, professional, etc), principles of community organization, steps in community organization (stages of community organization), community analysis (strengths, weaknesses, available resources, potentials, etc), major stakeholders in the community (governmental and nongovernmental agencies, traditional institutions, youth, religious and other identifiable groupings), importance of community entry for health intervention (identification of community and group leadership, social marketing).

**GSPH 463: Psychological Influence on Health**

Health Psychology is an area that studies the social, behavioural, cognitive and emotional factors that influence the maintenance of health, development of illness and disease, course of illness or disease and client/patient as well as family's response to illness and disease. Generally, understanding how social factors relate to the promotion and maintenance of good health/wellness gives way to an appreciation of the causation, prevention and treatment of illness.

**GSPH 465: School Based Nutrition Education**

Nutrition, health and academic performance. The School as a vehicle for nutrition interventions. School-based nutrition interventions as a component of school health program. School-based nutrition education, nutritional status assessment of school age children, school feeding policy, program implementation and monitoring. Pre-school age feeding. Food choice and preferences of school-age children. School feeding dietary quality. Costs and benefits of school-based nutrition interventions.

**GSPH 467: Adolescent Health: Social and Behavioural Perspective**

This course is designed to assist students to learn about adolescent social and behavioural environmental of adolescent health using theoretical frameworks based on contemporary theories and strategies. Students will examine how adolescent behaviour impacts their health within the context of individuals, groups and communities and its Public health implication of adolescent health. It will also cover key issues that concerns adolescents including adolescence sexuality and sexual health, contraception, teenage pregnancy and abortion, peer influence, substance abuse, adolescent friendly programmes and recreational activities.

<b>ACADEMIC CALENDAR 2017-2018 ACADEMIC YEAR</b>	
<b>FIRST SEMESTER</b>	
<b>CERTIFICATE/LEVEL 100/POST-FIRST DEGREE LAW STUDENTS/LEVEL 200 LAW STUDENTS</b>	
	<b>DATE (13 WEEKS OF TEACHING)</b>
Students Report	Monday, August 28 - Saturday, September 2, 2017
Level 100 Orientation	Wednesday, August 30 - Saturday, September 2, 2017
<b>Teaching Begins</b>	<b>Monday, September 4, 2017</b>
Deadline for Registration	Friday, September 22, 2017
<b>Matriculation</b>	<b>Saturday, September 23, 2017</b>
<b>Teaching Ends</b>	<b>Friday, December 1, 2017</b>
Revision	Monday December 4 - Friday December 8, 2017
<b>First Semester Examinations</b>	<b>Monday, December 11, 2017 - Friday, December 22, 2017 (2 weeks)</b>
<b>Distance Education Examinations</b>	<b>Monday January 8, 2018 – Monday January 29, 2018</b>
<b>Inter-Semester Break</b>	<b>Saturday, December 23, 2017 - Wednesday, January 31, 2018 (5.5 weeks)</b>

<b>ACADEMIC CALENDAR 2017/2018 ACADEMIC YEAR</b>	
<b>SECOND SEMESTER</b>	
<b>ALL STUDENTS</b>	
Students Report	Thursday, February 1 - Monday, February 5, 2018
<b>Teaching Begins</b>	<b>Monday, February 5, 2018</b>
Deadline for Registration	Monday, February 12, 2018
Deadline for: Add/Drop of Courses/Deferment	Friday, February 23, 2018
Academic Prizes Ceremony	Friday, February 23, 2018
Interim Assessment	Monday, March 12 - Friday, March 30, 2018
<b>Aggrey-Fraser-Guggisberg Memorial lectures</b>	<b>March 2018 (Special Congregation)</b>
Students' Evaluation of Lecturers	Monday, April 16 - Friday, May 4 2018
Teaching Ends	Friday, May 4, 2018
Revision	Monday, May 7 - Friday, May 11, 2018
<b>Second Semester Examinations</b>	<b>Saturday, May 12 - Sunday, May 27, 2018 (2 weeks)</b>
Second Semester Ends	Sunday, May 27, 2018
<b>Long Vacation</b>	<b>Monday, May 28 - Wednesday, August 15, 2018 (11.5 weeks)</b>
<b>RE-SIT EXAMINATIONS for First Semester courses</b>	<b>Monday, May 28 - Friday, June 1, 2018</b>
<b>Distance Education Examinations</b>	<b>Monday July 9, 2018 – Monday July 30, 2018</b>
<b>Congregation:</b> <i>College of Basic and Applied Sciences, College of Health Sciences, (School of Nursing, School of Pharmacy, School of Medicine and Dentistry) College of Humanities (UGBS), School of Graduate Studies, College of Education</i>	Friday, July 20 and Saturday, July 21, 2018
<b>Public Holidays</b>	
Eidul-Fitr*	
Eidul-Adha*	
Founder's Day	- September 21, 2017
Republic Day	- July 1, 2018
Farmers' Day	- December 1, 2017
Christmas Day	- December 25, 2017
Boxing Day	- December 26, 2017
New Year's Day	- January 1, 2018
Independence Day	- March 6, 2018
Good Friday	- March 30 2018
Easter Monday	- April 2, 2018
May Day	- May 1, 2018
<b>*Dates: to be confirmed</b>	

