

FEDERAL UNIVERSITY OYE-EKITI,

EKITI STATE, NIGERIA



FACULTY OF SCIENCE

DEPARTMENT OF MICROBIOLOGY

UNDERGRADUATE ACADEMIC PROSPECTUS

2017 – 2020

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P.M.B.373, Oye Ekiti. Ekiti State



Professor Olayide.S. Lawal
Dean ,
Faculty of Science



Prof. B. Ogeneh
*Head of Department,
Department of Microbiology
Federal University Oye Ekiti,
Ekiti State.*

FORWARD

The Department of Microbiology is a fully fledged department in the faculty of science. We operate a 4 -year degree programme leading to the award of Bachelor of Science in Microbiology. As one of the first departments in the faculty, the department published the first edition of the departmental handbook in 2015. However, with the increasing number of our students and coupled with the need to formulate a microbiology curriculum that truly reflects the current trends in the field of Microbiology, we consider it necessary to update our curriculum and this handbook is an update to the first edition earlier published.

This students' prospectus contain all relevant information for both academic staff and students in the department of Microbiology. It is a compendium of our philosophy and objectives, admission requirements, relevant extant academic regulations of the university and our courses with their synopsis. We urge our students to read and understand this prospectus as it contain useful guide for their successful stay in this university.

We wish all our students a successful period of study in this University and successful future endeavours.

Thank you.

Prof. B. Ogenh.

HOD (Microbiology)

Federal University Oye-Ekiti

Ekiti-State

Nigeria.

CONTENTS

Foreword by the Acting Head of Department	v
Content	vi
History of the Department	1
Philosophy and Objectives of the Programme	1
Admission Requirements	2
General Academic Regulations	5
Quality Assurance	10
Outline of Course Structure	11
Examination Regulation and Guidelines	12
Staff List	22
Departmental Administration	25
List of Teaching and Research facilities	26
The Curriculum	29

1.0 HISTORY OF THE DEPARTMENT

The Department of Microbiology is one of the first departments on the 11th February, 2011. Academic activities commenced in October 2012 with initial staff strength of 5 lecturers. Twenty four students, who are now graduates, were admitted as first set and are currently doing their National Youth Service Corp. Scheme. The Department has since grown in staff strength and number of students. The pioneer head of Department was Dr. (Mrs.) M. Oyarekua while the current head of department is Prof. B. Ogeneh.

The department currently has 15 academic staff and 205 students: 97 students in 100 level, 54 students in 200 level and 28 students in 300 levels and 26 students in 400 level. It currently has 4 administrative and 8 technical staff. The Department is strongly committed to teaching and mentorship to ensure that the students acquire the necessary knowledge and skill in all aspects of Microbiology. The Department also places huge emphasis on the current trends in Microbiology, incorporating the need to teach the students advance molecular biology techniques. In addition, great efforts have been expended in bridging the gap between the various units of the profession, in order to produce students that have strong grip in medical microbiology, environmental microbiology, food and industrial microbiology, petroleum microbiology, soil microbiology etc. The academic programme of the Department operates academic curricular that are tailored along the stipulation contained in the National Universities Commission (NUC) Benchmark Minimum Academic Standards.

2.0 PHILOSOPHY AND OBJECTIVES

2.1 PHILOSOPHY

3.0. PHILOSOPHY OF THE PROGRAMME

The Department of Microbiology trains students in various aspects of microbiology such as agricultural microbiology, environmental microbiology, food and industrial microbiology, medical and public

health microbiology, microbial biotechnology, microbial genetics, mycology, microbial ecology, microbial physiology and pharmaceutical microbiology. The programme is designed to equip graduates to undertake careers in public, private and economic sectors, including medical, agricultural, industrial, food and dairy industries, sanitary and other scientific fields. The training will enable our students to be employed in various fields of research in the university system, hospital, biotechnology and or allied setup.

2.1 OBJECTIVES

Our fundamental aim in the Microbiology department is to meet human needs to improve quality of life and contribute to national development. The programme is designed to equip graduates with knowledge and skills to take up positions in both private and public employments; to be initiators of scientific ideas that will drive the Nigerian economy forward; microbiologists who can be self employed in this era of recession.

3.0 ADMISSION REQUIREMENTS

The admission requirements into the microbiology undergraduate program of the Federal University Oye –Ekiti are as stipulated below:

3.1. UTME ENTRY REQUIREMENTS:

- i. Admission into the University shall be open to all irrespective of religion, ethnic group, gender, creed and disability.
- ii. All admissions into the University shall be through the Joint Admissions and Matriculation Board (JAMB). The subject combinations for those seeking admission to the department shall be Physics, Chemistry and Biology and English language. The minimum score for entry shall be as stipulated by the university admissions committee.
- iii. For admission to 100 Level (via UTME), candidates must obtain at least five (5) credits at SSCE (or equivalent) in relevant subjects at not more than 2 sittings including credit passes in English,

Mathematics, Physics, Chemistry and Biology; and attain acceptable point in UTME in relevant subjects.

3.2. DIRECT ENTRY REQUIREMENTS:

- i. For admission by direct entry into 200 Level, candidates shall, in addition to having five (5) SSCE credits (as stated in iii above), obtain at least two (2) A' level (or its equivalent) passes in relevant subject(s), or possess ND, NCE, HND, with upper credit; or a good first degree (with a minimum of second class lower division) in another field as the case may be.
- ii. Credit passes in English Language and Mathematics shall be compulsory for admission into all courses;
- iii. Those who meet the requirements for admission shall be subjected to screening interview to be conducted by the University; and
- vii. The University shall not accept transfer students until after at least the first two years of its existence.

Potential students must, in addition to meeting the general admission requirements, also satisfy the faculty and departmental requirements detailed below:

SUMMARY OF ADMISSION REQUIREMENTS

Programme	Admission Requirements		Remarks
	UTME	Direct Entry	
Microbiology	Five Credits at SSCE (or its equivalent) including English, Mathematics, Physics, Biology and Chemistry. Students must have the minimum UTME score stipulated by the university.	Two 'A' level passes in Physics, Biology or Chemistry. For those with OND and HND, candidates must have a minimum of upper credit while those with first degree in other courses must have a minimum of second class lower division.	UTME subjects are; Physics Chemistry and Biology.

Post UTME Screening

All Candidates seeking admission into the University irrespective of their UTME scores shall be required to pass the University post UTME Screening test before being admitted.

Registration Procedure

- a) Students shall normally complete registration at the beginning of the semester.
- b) Any addition or deletion from the courses for which a student is formally registered must be made with the consent of the course coordinator.
- c) A student may be allowed to withdraw from a course by the course administrator before a third of lectures have been given. Such a student who withdraws after this time or who fails to sit for examination without reasons acceptable to the appropriate Faculty Board shall be deemed to have failed the course.

Duration of Degree Programme

The minimum numbers of years to be spent to be awarded a first degree in a programme of study in non-professionals area in the University shall be four years (or three years minimum for direct entry candidates). Registration shall not exceed an additional 50% of the duration of the programme if the student fails to graduate within the minimum number of years.

Graduation Requirements

To qualify for the award of a degree of the Federal University Oye Ekiti, a student is required to have:

- i. Completed and passed the prescribed number of units including all compulsory courses specified by the University.
- ii. Completed and met the standards for all required and optional courses.
- iii. Obtained the prescribed minimum CGPA.

4.0 GENERAL ACADEMIC REGULATIONS

4.1 Student Work Load/ Contact Hours

In compliance with the stipulations in the NUC “Course system and Grade point Average” document, every full-time student of Federal University Oye Ekiti shall be required to register for a minimum of 15 Credit Units per semester and a maximum of 24 credit units.

The Credit Unit is used as a measure of course weighting as well as an indicator of student’s workload. The number of credit hours for the award of a degree shall be approved by senate on the recommendation of the appropriate Faculty Board.

4.2 Academic Year and Scheduling

The University shall operate a two semester year (First and second semesters) for regular courses and a long vacation period for vacation courses. The first and second semester shall last for 17 to 18 weeks, (including registration, teaching and examination period). Not less

than 13 weeks shall be devoted to actual teaching with about 2-3 weeks for examinations.

4.3 Instructional Method

The University shall take full advantage of the leverage and versatility provided by advances in Information & Communication Technologies (ICT) in its teaching and learning activities within a learner-centred pedagogic framework.

Academic staff of the University is being specifically trained on a continuous basis, in the use of ICT which shall be fully integrated into all facets of the academic activities in the University. Furthermore, lectures shall be actively encouraged to adopt appropriate combinations of Instructional methods (lectures, tutorials, seminars, laboratory/workshop/studio practice) in the implementation and delivery of the various curricular in different academic disciplines to be taught in the University.

4.4 Assessment, Scoring And Grading System: student performance in the various courses shall be assessed as follows:

- **Assessment and scoring for Class work and Practical courses**
 - I. Final theory Examinations 60%
 - II. Continuous assessment test (Quizzes, assignments, Term paper etc) 40%

4.5 Grading System

The University shall ensure the use of common assessment scale and grading system for all courses taught throughout the University. The grading system shall be as indicated in the table below:

Percentage Score	Letter Grade	Quality Point	Level of Achievement
70-100	A	5	Excellent
60-69	B	4	Very Good
50-59	C	3	Good
45-49	D	2	Satisfactory
40-44	E	1	Fair
0-39	F	0	Fail

Cumulative Grade Point Average (CGPA) which is an important assessment parameter is used to determine the level of the final pass grade obtained by a student in all programmes in the university as follows:

Cumulative Grade Point Average (CGPA)	Class of Degree
4.50-5.00	1 st Class Honour
3.50-4.49	2 nd Class Honours Upper Division
2.40-3.49	2 nd Class Honours Lower Division
1.50-2.39	Third Class
0.00-1.49	Fail

Department wishes to clearly state that there is no PASS degree for this programme

4.6 Academic Standing

4.6.1 Good Academic Standing

To be in good standing, a student must maintain a cumulative grade-point average (CGPA) of not less than 1.50 at the end of any session during his/her study in the University.

4.6.2 Probation

A student whose CGPA is below 1.50 at the end of a particular semester of study, goes on probation the following semester.

4.6.3 Withdrawal

A student would be required to withdraw from the University if:

- I. He/she maintain a Cumulative Grade Point Average (CGPA) that is **below** 1.50 for three consecutive semesters
- II. He/she has spent the maximum period of study allowed for his/her programme of study and still has one or more courses outstanding.

4.6.4 Termination of Studentship

A student may have his/her studentship terminated and be required to withdraw from the University if he/she fails to register for the required minimum number of courses/units of instruction for two consecutive semesters without due approval.

4.7 Semester Examination

Each course shall normally be completed and examined at the end of each semester in which it is offered. The examination shall be conducted as prescribed by senate.

4.7.1 Dissatisfaction with Examination Result

- I. A student who is dissatisfied with the result of an examination affecting him/her may request for a review by submission of an application to the Senate through the appropriate academic board of studies of the University within three (3) weeks of release of the result.
- II. The senate of the University has the full prerogative to, or not to, effect any amendment of the result after the cross examination of it.
- III. Any student with frivolous, ill motivated or speculative complaint(s) on result(s) shall be sanctioned.

4.8 Transfer

Any student who seeks transfer from the university to another is free to do so. Request for transcript for this and any other relevant purpose should be directed to the Admission Officer on fulfilment of every necessary requirements.

5.0 PROGRAM STRUCTURE

OUTLINE OF COURSE STRUCTURE AND GRADUATION REQUIREMENTS

To be eligible for the award of Bachelor of Science Degree in Microbiology, candidate must have satisfied:

- a) The normal University requirements and Faculty of Science requirements that is, 164/166 units must be passed from 100 to 400 level. This includes 6-8 units of electives for a 4 year degree programme before graduation. The minimum units for direct entry candidates shall be 120-124 units.
- b) Student must pass all core/compulsory courses, including departmental, faculty and university requirements. The total credit units of compulsory and required courses shall be 158, and this includes the General Studies courses which shall be 16 units. Students must pass between 6 and 8 units of electives for graduation.
- c) The Department of Microbiology requirements are by satisfactory completion of the courses schedule as the minimum requirement for B Sc. Degree in Microbiology.
- d) Students cannot graduate until they are found worthy in character and learning.

The following are the definitions of the different categories of courses in the Department of Microbiology:

- (a) Core course: These are courses that are domiciled in the Department that students must pass before graduation.
- (b) Required course: These are courses that are not domiciled in the department but are required for graduation.
- (c) Elective courses: These are courses that are not mandatory for graduation but students are required to satisfy a minimum number of units of electives for graduation.

6.0. QUALITY ASSURANCE

The Department shall comply with and support the University Quality Assurance Programme, which is essential in assessing the performance of lecturers in the courses they teach. Students' opinion will be sought on the conduct of the courses by their teachers using a set of questionnaire to assess certain parameters including: regularity and punctuality of lecturers; mastery of subjects' knowledge, presentation and delivery skills, relationship with students, appearance and use of teaching aids and regularity of continuous assessment.

7.0. PROGRAMME STRUCTURE

7.1. DURATION OF PROGRAMME: The programme duration shall be for a minimum of 3 years (6 semesters for direct entry candidates) or 4 years (8 semesters for UTME candidates) and shall run for a maximum of 5/6 years (10/12 semesters) depending on the mode of entry.

OUTLINE OF COURSE STRUCTURE

Level	Semester	Compulsory courses (Domiciled Courses)		Required courses and General Studies		Electives		Total	
		No. of courses	No. of credit units	No. of courses	No. of credit units	No. of courses	No. of credit units	No. of courses	No. of credit unit
100	First	8	17	3	5	-	-	11	22
	Second	8	17	3	5	-	-	11	22
200	First	2	5	6	13	1	2/3	9	20/21
	Second	2	6	7	15	1	2/3	10	23/24
300	First	8	23	-	-	-	-	8	23
	Second	7	19	-	-	1	2	8	21
400	First	5	14	1	2	-	-	6	16
	Second	5	17	-	-	-	-	5	17
TOTAL	8th	40	118	20	40	3	6/8	68	164/166

8.0 EXAMINATION REGULATION AND GUIDELINES

8.1 Appointment of Examiners

1. University examiners for degree programme shall be appointed by the Senate on the recommendation of the appropriate Faculty Board.
2. The Faculty board shall be responsible for the details of organisation and administrative arrangements for University examinations.
3. University examinations shall be conducted by Departmental Boards of Examiners.
4. The Head of Department, as Chief Examiner, shall make arrangement for the invigilation of examinations in the Department.
5. Each examination room shall have a minimum of two invigilators, one of whom shall be designated senior invigilator.

8.2 Eligibility to Write Examination

1. Only candidates who have registered for courses are eligible to take the Semester examination.
2. In order to qualify to sit for an examination, a student must have attended a minimum of 70-75% of the lectures.
3. To be qualified to take an examination, a student must have paid 100% of the prescribed fees at the beginning of the first semester during the registration period.

8.3 Examination Time-Table

1. The Sub-Committee on Examination Time-Table shall make available the Semester Teaching and Examinations Time-Table at the beginning of each Semester to guide students in the selection of courses.
2. The Academic Affairs Unit shall re-circulate the examination Time-Table for all courses at least 4 weeks before the examination date to avail students the opportunity of submitting complaints on

clashes .All clashes shall be submitted to the Head of Department who shall remit same to the Examination Time-Table Committee

3. The final time-table shall be displayed on all notice-boards two weeks before the examination after which there shall be no adjustments without the permission of the Registrar.
4. The time and venue for each examination shall be strictly adhered to and when it is absolutely necessary to reschedule an examination, the Head of Department will do so after due consultation with the Dean and such a change shall be published giving the affected candidates a minimum of 48 hours notice of the change.

8.4 Invigilation Arrangements

1. It is misconduct for an invigilator to arrive late to the venue of an examination. It is the responsibility of the Head of Department and Chief invigilator to ensure that all invigilators are aware of their responsibility.
2. One hour before an examination, all examination halls shall be vacated and prepared for the examination. Candidates shall be checked into examination halls by invigilators who will determine the sitting arrangement of candidates.
3. No student without an identity card will be allowed into an examination hall.
4. Checking-in of candidates into the examination hall shall commence 30 minutes before commencement of an examination.
5. Candidates who arrive late shall not be allowed extra time except in special circumstances such as instances of unresolved clashes of which the candidate had duly notified the Chief Examiner in writing.
6. In case a candidate has to leave the examination room temporary, he shall be accompanied by an invigilator.
7. Invigilators shall maintain vigilance throughout the examination period and at no time will an examination hall be without an invigilator.

8. Until the time when candidates are allowed to leave the examination hall at the end of the examination, no copy of the examination question paper shall be removed from the examination hall. If for any reason a candidate has to leave the examination hall one or two hours into the examination for a three hour paper, he shall hand over both the answer script and examination question paper to the invigilator before leaving.
9. Invigilators shall complete attendance sheets in duplicate and the signed sheets shall be considered as the final list of candidates in the examination. One copy will be forwarded to the Registrar while the other copy will be enclosed in the envelope containing the answer scripts.
10. At the end of an examination, candidates shall hand over their answer scripts to the invigilator who shall check the candidates' answer script against the attendance list to ensure that the scripts are complete. The invigilator shall then seal the envelope containing the answer scripts together with copies of the relevant question paper and a copy of the attendance sheets and deliver them to the Examination Officer.
11. Where an examination malpractice is committed, the candidate involved shall be required to make a statement by completing the required examination malpractice form. The candidates shall however be allowed to complete the examination. Under no circumstance shall an invigilator seize a candidate's answer script, tear answer script or forcibly eject a candidate from an examination hall. Where a candidate's behaviour constitutes a breach of the peace, the security official on duty shall intervene.
12. Where a candidate falls ill in an examination hall, the invigilator shall contact the medical officer on duty for immediate medical attention. Telephone numbers of the security and medical personnel shall be made available to all invigilators.

8.5 Examination malpractices

The following procedures shall apply in handling all suspected cases of examination malpractice in the university.

- 1) The attention of any other invigilator present should be drawn to the suspicious circumstance(s), if an invigilator suspect that a candidate has committed an examination malpractice offence, if another student suspects that there is misconduct he/she should alert invigilators.
- 2) The invigilators should approach the suspected candidate and inform him or her of the suspicion and give the candidate an opportunity to make a written statement.
- 3) The invigilator(s) should withdraw the candidate's script and issue a fresh script for him/her to continue the examination. If any unauthorized material is discovered it should be confiscated by the invigilators and tender in the evidence against the candidate.
- 4) Within 24hours the invigilator(s) should make a written report to the Chief Examiner, who is the Head of the Department.
- 5) Written account of the incident by the invigilator(s), suspect's script, any unauthorized materials by the invigilators, the Chief Examiner and other candidates and the student's statement must be submitted under confidential cover to the Registrar who shall forward it to the Central Student Disciplinary Committee within 24hours at the end of the course examination.
- 6) If however, during the marking, moderating or collating of examination materials, an examiner or any member of staff suspects that malpractice has taken place, the examiner or member of staff must confer with the Chief Examiner. As soon as a prima facie case has been established, the examiner or member of staff must submit written reports with the student's script and other corroborating evidence to the Dean of faculty through the Chief Examiner within 72 hours. The student so affected must be informed immediately of the allegation and made to submit a written statement.

- 7) The suspect will be invited to appear before, and be heard by the Examination Misconduct Committee.
- 8) The decision of the examination misconduct committee as approved by Senate shall be conveyed to the candidate.
- 9) All cases of examination malpractice must be disposed off within the shortest possible time but not longer than 6 months.
- 10) All materials confiscated from students in proven cases of malpractice shall be kept by the university until punishment has been served.

8.6 Absence from Examination

1. Any student who fails to register for courses during the semester without permission shall be scored zero (OF) in 15 units which is the minimum number of units required for registration for full-time students.
2. Candidates who registered for courses, attended classes, and took the required tests but failed to take the required semester examination without permission should be given grade of Zero (0) in the examination.
3. When a student falls ill before an examination, he is under obligation to send a medical report countersigned by the medical doctor of the University Health Centre not later than one week after the examination to the Chief Examiner. Cases of submission of medical reports outside this period shall be considered on their merit.
4. A candidate applying for leave of absence on medical grounds must forward his application through his Head of Department to the Faculty Board. The medical report must be countersigned by the medical doctor at the University Health Centre.
5. Absence from examination other than on medical grounds may be considered on its own merit.
6. A candidate who is permitted to discontinue with an examination by the medical officer on health grounds shall not be penalized

and shall be allowed to take the examination at the next available opportunity.

8.7 Guidelines for Processing of Results

1. Course Lecturers shall collect sealed packaged of answer script from the Examination Officers within 24 hours of completion of examination.
2. Computed grades must be submitted to the Departmental Examination Committee for consideration within two weeks after the completion of the last examination paper.
3. The Departmental Examination Committee comprising the following membership shall meet within three weeks after examination.
 - a) Head of Department- Chairman
 - b) University Examiners as approved by Senate for the Department.
4. The Faculty Board shall meet to consider recommendations from the Departmental Examination Committee four (4) weeks after examinations.
5. The grades of students from other Departments including grade for Special Electives shall be forwarded through the Head of Department within two days of the meeting of the Departmental Examination Committee.
6. The Faculty Board shall meet to consider the recommendations from the Departments which shall be presented by Heads of Departments and Departmental Examination Officers. Such meeting(s) shall be held within four weeks of the completion of the Semester Examination.
7. Matter arising shall be provided in all cases requiring explanation such as cases of students with no results in some or all courses, students with zero (OF) in some courses as well as students who registered for less than 15 Units and students on leave of absence or with no registration information.

8. All presentations of results shall include the master mark sheet, reflecting grades, pass list by name, the summary of results and key to courses.
9. Semester results shall be ready for the consideration of Senate not later than six weeks after the completion of the last paper.

8.8 Examination Related Offences and Corresponding Penalties

Misconduct Before Examination

S/N	OFFENCES	PENALTY
1	Involvement in and bearing responsibility for examination question leakage	Expulsion from the University.
2	Participating in or benefiting from question leakage.	Expulsion from the University.
3	Attempting to participate in or benefit from examination question leakage	Suspension for two (2) semesters.
4	Coming into the examination hall after thirty (30) minutes of the commencement of an examination	The candidate should not be allowed into the examination hall and he/she should be scored 0 (F) in the course examined.

Misconduct During Examination

S/N	OFFENCES	PENALTY
5	Sitting for an examination for which a candidate did not register for or is not qualified to sit for.	The result of the candidate in the course should be nullified. He/She should be scored 0 (F) and be issued a letter of warning.

6	Representing/ Standing in for another in the course of an examination.	The candidates representing and the represented should be expelled from the University.
7	Conniving with another candidate/ Student/ person to represent/ stand in for another in an examination.	Expulsion from the University.
8	Destroying, defacing, mutilating, and swallowing of potentially incriminating material relating to a course of an examination.	Expulsion from the University.
9	Displaying inappropriate or antisocial behaviour (e.g smoking, singing, cat calls etc) capable of causing delay and/or disrupting of an examination process.	Suspension for one (1) semester.
10	Displaying of inappropriate or antisocial behaviour leading to disrupting and suspension of an examination.	Suspension for two(2) semesters.
11	Giving, receiving, or in any way benefitting from information relating to a course in an examination through electronic, personal dress material, part of the body in any manner or form whatsoever.	Suspension for two(2) semesters
12	Leaving the examination hall without the permission of the invigilator.	Letter of warning. In addition, the candidate should be scored 0 (F) in the course examined.

13	Leaving the examination hall with examination before the end of the examination without the permission of the invigilator.	Suspension for two(2) semester
14	Substitution or exchanging the answer script given to a candidate in whatever manner or form during the examination.	Expulsion of all the students involved from the University
15	Exhibiting insulting, rude, impolite behaviour to another student during course of an examination without the permission of the invigilator.	Suspension for two(2) semesters
16	Exhibiting insulting, rude, impolite behaviour to another student during course of an examination.	Expulsion of all the students involved from the University.
17	Physical assault or battery on staff during the course of an examination.	Expulsion from the University.
18	Physical assault on another student during the course of an examination.	Suspension for two(2) semesters.
19	Talking to or communicating with another candidate without due permission during the course of an examination.	Suspension for two(2) semesters.
20	Bringing in unauthorized material(s) into the examination hall by a candidate	Suspension for two(2) semesters. The candidate should also be scored 0 (F) In the course.
21	Bringing in unauthorized material(s) into the examination hall by a candidate with proven	Suspension for two(2) semesters. The candidate should also be scored 0 (F) in the course.

	evidence of using material(s) or any part therefore.	
22	Failure by a candidate to submit his/ her answer script after taking part in an examination.	Suspension for two (2) academic semesters. In addition, the candidate should be scored 0 (F) in the course.
23	Giving / receiving irregular assistance, cheating or aiding and abetting by a candidate/ student in an examination.	Suspend for two(2) semesters.
24	Refusal to sign the Attendance Register	Letter of Warning.
25	Involvement in an attempt to substitute or change or remove or effect changes in Examination script(s), record sheet(s), attendance register or any examination related material/ document	Expulsion from the University.
26	Exertion of influence with a view to obtaining undue advantage in the grading of scripts or award of marks by an internal or external examiner	Expulsion from the University.

9.0 STAFF LIST

9.1 Academic staff list

Academic Teaching Staff				
S/N	Names	Qualification(s)	Designation	Area of Specialization
1	Prof. B. Ogeneh	<i>B.Sc. (1975, Nsukka)</i> <i>M. Sc. (1980 Otago)</i> <i>PhD (2001 Enugu)</i> <i>PGD Community Health (1982-1983 Otago)</i>	Professor	Medical Microbiology/Public Health
2	Prof. B. O. Omafuvbe	<i>B. Sc. Microbiology, (1984 Ife)</i> <i>M.Sc. Microbiology (1987 Ife)</i> <i>PhD Microbiology (1998 Ife)</i>	Professor	Food Microbiology
3	Prof. F. K. Agboola	<i>B. Sc. (Ile Ife)</i> <i>PhD. (Ile Ife)</i>	Professor	Biotechnology
4	Dr. R. A. Gabriel-Ajobiewe	<i>B.Sc (1988, Ilorin)</i> <i>M.Sc (2002, Akure)</i> <i>PhD(2009, Akure)</i>	Senior Lecturer	Food & Applied Microbiology
5	Dr. L. E. Okoror	<i>B.Sc (1990, Ekpoma)</i> <i>M.Sc (1997, Lagos)</i> <i>PhD (2008, Ekpoma)</i> <i>Certificate (Manchester 2007; USA, 2008)</i>	Senior Lecturer	Medical Microbiology (Virology), Bioinformatics
6	Dr. S. A. Adegoke	<i>B.Sc. Unilag (1990)</i> <i>M. Sc. Unilirin (1997).</i> <i>Phd. Nnamdi Azikwe (2014)</i>	Senior Lecturer	Industrial Microbiology

7	Dr. S. I. Oyedeji	<i>B. Tech (1998 LAUTECH) M. Sc. (2003, UI) PhD (2012)</i>	Senior Lecturer	Molecular Genetics and Parasitology
8	Dr. Omodele	<i>B. Sc. OAU (1999) M. Sc. OAU (2004) PhD. Fort Hare (2011)</i>	Senior Lecturer	Molecular Biology/Biotechnology
9	Dr A.O. Ajayi	<i>B.Sc (2001, Ado-Ekiti) M.Sc (2005, Ado-Ekiti) PhD (2011, Ado-Ekiti)</i>	Lecturer 1	Medical Microbiology
10	Dr H.A, Akinyele	<i>B.Sc (1990, Ibadan), M.Sc (1997, Ibadan), PhD (2014, Ibadan)</i>	Lecturer II	Industrial /Environmental Microbiology
11	Dr. S. K. Ojo	<i>BSc (2001,Ilorin) MSc (2005, Lagos) PhD (2015, Ekpoma)</i>	Lecturer II	Medical Bacteriology & Molecular Biology/Pharma. Microbiology
12	Mrs. Adesiyan Ibukun	<i>BSc (2006) OAU MSc (2012) OAU PhD. (2017) OAU</i>	Lecturer II	Environmental Microbiology
13	Mrs. M. D. Ajiboye	<i>B. Sc. (2005) FUNAAB M. Sc. (2012) UI</i>	Lecturer II	Mycology
14	Mr. E.O. Bankefa	<i>B.Tech (2009, Akure) M.Tech (2012, Akure)</i>	Asst. Lecturer	Food and Industrial Microbiology
15	Mr. S. A. Osanyinlusi	<i>B. Sc. (2011, Akungba) M. Sc. (2015, UNILAG)</i>	Assistant Lecturer	Medical Virology

9.2 Technical Staff List

Name	Rank/Designation	Qualification, Dates Obtained Membership of Professional Association
Mr E.A. Oke	Assistant Chief Technologist	NIST Final Diploma (1987) PGDE (2007) Associate member Nigerian Institute of Science Laboratory Technology ANISLT (1989)
Mr. J.O. Adeleke	Technologist I	B. Sc (2010), NILST
Mrs Adebisi Ifedayo. O.	Technologist II	HND (2007), AISLT (2012)
Mrs. Falade Taiwo S.	Technologist II	B. Sc. (SLT, Microbiology)
Mrs. O. E. Olatunde	Technologist I	B. Sc. (Microbiology)
Mrs O.A. Ojo-Owonifuja	Senior Laboratory Assistant	NCE (2010, Ila-Orogun)
Mrs B.C. Aisida	Senior Laboratory Assistant	NCE (2007, Adeyemi)
Miss D.F. Olabiyi	Senior Laboratory Assistant	SSCE (2010)

9.3 Administrative Staff List

Name	Rank/Designation salary scale and Date of First Appointment	Qualification, Dates Obtained
Mr O. A. Oladele	Admin Officer I	B.Sc. (Ekpoma, 2007)
Miss U. C. Nebo	Admin Officer I	B. Sc. Microbiology
Miss A. A. Shonde	HEO	B. Sc. EKSU (2010)
Mrs O. R. Adeyemo	Clerical Officer	N. C. E (Ikere, 2009)

10.0 DEPARTMENTAL ADMINISTRATION

10.1 General Administration of the Department

The Head of Department directs and coordinates the academic and administrative activities of the Department and he/she is responsible to the Vice - Chancellor through the Dean of the Faculty.

The Department disseminates information emanating from senate, University and Faculty Board meetings at Departmental meetings chaired by the Head of Department. Regular Departmental meetings are held to ensure that every staff member is part of the decision making process. At such meetings, decisions are taken and duties/responsibilities are shared among the members to ensure that the goals of the programmes and that of the Department are realized.

10.2 Students' Welfare

The welfare of students is of importance to the Department. Apart from the University Counselling Unit that handles cases requiring student counselling, the Department operates Staff/Students interactive forum

where students are properly guided on all aspects of their academic development. Every student is also allocated a staff adviser, who handles all aspects of the students' academic development. Students with complex cases bothering on emotional and physical problems are referred to the Students Affairs Unit of the University for appropriate counselling while those that have health problems are handled by the University Health Centre. Indigent and brilliant students are also recommended to the appropriate University Committee for consideration for University scholarships.

10.3 Handling of Academic Grievances

The Department has in place a robust system of handling academic grievances of students. These students are required to contact the Head of Department and after initial counselling are advised to write officially through the Head of Department to appropriate units of the University. Apart from endorsing such letters, HOD also monitors such students' requests to ensure appropriate responses from units concerned.

10.4 Student Academic Advising

At the beginning of every session, all students in the Department are attached to academic staff of the Department as Staff Advisers. The Staff advisers are required to counsel the students on all aspect of their academic work including courses to be registered for registration for carry over courses and attendance at lectures.

11.0 TEACHING AND LABORATORY FACILITIES AVAILABLE IN THE DEPARTMENT

S/N	FUNCTIONAL EQUIPMENTS	QUANTIY
1	50 liters natural oven	1
2	30 liters Incubator	2
3	Digital Incubator (75 Liters)	1
4	Incubator (50 Liters)	1
5	Colorimeter WPA Colour wave	1
6	Digital Colorimeter	1

7	Microscopic cordless and <u>binocular</u> complete (China)	1
8	<u>Binocular</u> biological microscopic	2
9	Microscope biological, <u>Monocular</u> complete (China)	8
10	Stereomicroscope complete with fittings	4
11	Overhead projector	1
12	Colony counter	2
13	Digital colony counter sc6	1
14	Autoclave(Giant size)	1
15	Autoclave(Portable)	1
16	Autoclave(Portable)	1
17	Refrigerator (50Liters)	1
18	Refrigerator (75Liters)	1
19	Big size deep freezer	1
20	Small size deep Freezer	1
21	Magnetic stirrer	1
22	Microbiological blender/homogenizer	1
23	Mini centrifuge	1
24	Large microbiology blender/homogenizer	1
25	Analytical Precision Balance	1
26	Electric Top loader Balance	1
27	Soxhlet extractor apparatus	1
28	Heating Mantle	1
29	Inoculating Chamber	1
30	Triple beam balance	4
31	Triple Beam Balance	3
32	Anaerobic Jar	1
33	Heamatocrit centrifuge	1
34	Electric Stirrer	1
35	Electrophoresis Machine	1

36	High-Speed Refrigerator Centrifuge	1
37	Membrane filtration unit	1
38	Multimedia Projector	1
39	Vacuum Desiccator	3
40	Vortex Mixer	1
41	Water Bath	1
42	Hot Plate/ Magnetic Stirrer	1
43	Lamina Air Flow	1
44	Thermostat Oven	1
45	Vacuum Oven	1
46	Stabilizer	1
47	PH/MV meter	1
48	PH Meter	1
49	Microscope Binocular	34
50	Vacuum Pump	1

12. 0 DEPARTMENTAL CURRICULUM

Curriculum for B.Sc. Degree in Microbiology

COURSE STRUCTURE BY SEMESTER 100 LEVEL

	Code	Title	Status	Units
	FIRST SEMESTER			
COMPULSORY COURSES	BIO 101	General Biology I	R	3
	BIO 107	Introduction to Experimental Biology I	R	1
	CHM 101	General Chemistry I	R	3
	CHM 107	Practical Chemistry I	R	1
	MTH 101	Elementary Mathematics I	R	3
	PHY 101	General Physics I	R	3
	PHY 107	Practical Physics I	R	1
	CSC 101	Introduction to Computer Science I	R	2
GENERAL STUDIES	GST 101	Communication in English I	R	2
	GST 103	Use of Library & ICT	R	2
	GST 105	Introduction to Entrepreneurship	R	1
TOTAL				22

	Code	Course Title	Status	Units
	SECOND SEMESTER			
COMPULSORY COURSES	BIO 102	General Biology II	R	3
	BIO 108	Introduction to Experimental Biology II	R	1
	CHM 102	General Chemistry II	R	3
	CHM 108	Practical Chemistry II	R	1
	MCB 102	Introduction to the Microbial World	C	2
	MTH 102	Elementary Mathematics II	R	3
	PHY 102	General Physics for Life Sciences II	R	3
	PHY 108	Practical Physics II	R	1
GENERAL STUDIES	GST 102	Communication in English II	R	2
	GST 106	Evaluating Opportunities & Business Concepts	R	1
	GST 108 or GST110	Government, Society and Economy or African Culture and Civilisation	R	2
TOTAL				22

Keys: R – Required, C – Compulsory, E - Elective

200 LEVEL

	Code	Title	Status	Units	
FIRST SEMESTER					
COCOMPULSORY COURSES	BCH 201	General Biochemistry I	R	3	
	CHM 203	Physical Chemistry	R	3	
	BIO 201	Introduction to Genetics	R	2	
	MCB 201	General Microbiology I	C	3	
	MCB 203	Microbiological Techniques	C	2	
	CHM 201	Basic Inorganic Chemistry I	R	2	
GEGNERAL STUDIES	GST 203	Feasibility Plan and Investment Decision-Making (start your business/practical skills acquisition)	R	1	
	GST 205	Introduction to Philosophy, logic and human existence	R	2	
ELECTIVES	AEB 201	Invertebrate Zoology	E	3	
	FST 201	Introduction to Food Science and Technology	E	2	
	CSC 201	Computer Programming I	E	2	
	BIO 207	Molecular Biology Techniques	E	1	
	BIO 201	Introduction to Genetics	E	2	
		Total credits (compulsory)			18
		Total credits (Electives)			2/3
TOTAL				20/21	

	Code	Title	Status	Units
	SECOND SEMESTER			
COCOMPULSORY COURSES	BCH 202	General Biochemistry II	R	3
	CHM 204	Organic Chemistry	R	2
	MCB 202	General Microbiology II	C	3
	MCB 204	Bacteriology and Bacterial Diversity	C	3
	MTH 234	Statistics for Biological and Agricultural Sciences	R	3
	BIO 202	General Ecology	R	2
	BIO 204	Biological Techniques	R	2
GENERAL STUDIES	GST 202	Peace studies and conflict Resolution	R	2
	GST 204	Resources Management and organizational Behaviour	R	1
	BIO 206	Introduction to Molecular Biology and Biotechnology	E	2
	CSC 208	Computer Programming II	E	3
	AEB 202	Chordate Zoology	E	3
	BIO 206	Introduction to Molecular Biology and Biotechnology II	E	2
		Total credits (compulsory)		21
		Total credits (Electives)		2/3
TOTAL				23/24

Keys: R – Required, C – Compulsory, E - Elective

300 LEVEL

	Code	Title	Status	Units
FIRST SEMESTER				
COMPULSORY COURSES	MCB 301	Virology and Tissue Culture	C	3
	MCB 299	Student's Industrial Work Experience	C	3
	MCB 303	Microbial Physiology and Metabolism	C	3
	MCB 305	Pathogenic Bacteriology	C	3
	MCB 307	Mycology	C	3
	MCB 309	Immunology	C	3
	MCB 311	Petroleum Microbiology	C	3
	MCB 313	Air Microbiology	C	2
ELECTIVES				
		Total credits (compulsory)		23
TOTAL				23

	Code	Title	Status	Units
	SECOND SEMESTER			
COMPULSORY COURSES	MCB 302	Microbial Genetics and Molecular Biology	C	3
	MCB 304	Principles of Public Health and Epidemiology	C	3
	MCB 306	Soil Microbiology	C	2
	MCB 308	Food Microbiology I	C	3
	MCB 310	Analytical Microbiology and Quality Control	C	3
	MCB 312	Microbial Ecology	C	3
	MCB 314	Research Design in Microbiology	C	2
ELECTIVES	MCB 316	Bioremediation	E	2
	AEB 302	Environment and Humans	E	2
		Total credits (compulsory)		19
		Total credits (Electives)		2
				21

Keys: R – Required, C – Compulsory, E - Elective

400 LEVEL

	Code	Title	Status	Units
	FIRST SEMESTER			
COMPULSORY COURSES	MCB 399	Students' Industrial Work Experience Scheme	C	3
	MCB 401	Seminar in Microbiology	C	2
	MCB 403	Pharmaceutical Microbiology	C	3
	MCB 405	Food Microbiology II	C	2
	MCB 407	Environmental Microbiology	C	4
	BIO 411	Bioinformatics	R	2
		Total Credit Units (Compulsory)		16
TOTAL				16

	Code	Title	Status	Units
	SECOND SEMESTER			
COMPULSORY COURSES	MCB 400	Research Project	C	6
	MCB 402	Industrial Microbiology and Biodeterioration	C	3
	MCB 404	Aquatic Microbiology and Algology	C	3
	MCB 406	Medical Microbiology	C	3
	MCB 408	Agricultural Microbiology	C	2
		Total Credit Units (Compulsory)		17
				17

Keys: R – Required, C – Compulsory, E - Elective

COURSE SYNOPSIS

100 LEVEL

BIO 101: GENERAL BIOLOGY I (3 units)

The scope of biology and its place in human welfare; including characteristics of life, concepts in biology, topical issues in biology and career opportunities. Diversity and classification of living things. Cell structure and organisation; functions of cellular organelles; diversity, general reproduction, interrelationship of organisms, heredity and evolution; elements of ecology and types of habitat. Differences between plants and animals. Variation and life cycles of plants to include non-vascular plants like algae, fungi, bacteria, viruses, bryophytes and petridophytes. Varieties and forms of life cycles and functions of flowering plants

BIO 102: GENERAL BIOLOGY II (3 units)

A generalized survey of the animal kingdom based mainly on study of similarities and differences in external features; ecological adaptation of these forms. Structural, functional and evolutionary study of protozoans, coelenterates, platyhelminthes, nematodes, annelids, arthropods, echinoderms and molluscs. Evolutionary sequence in the form and functions of protochordates and various classes of vertebrates. Introduction to ecology to include simple ecological factors affecting organisms in terrestrial and aquatic habitats such as biotic and abiotic factors and the relationships between an organism and its environment.

BIO 107: EXPERIMENTAL BIOLOGY I (1 unit) L0 TO P1

Introduction to laboratory techniques, rules and regulations, elementary precautions, safety and health in the laboratory. The students shall be introduced to microscopy, identification and classification of living things, cell structure, identification of unicellular and multicellular organisms, observation of plants and animals cells, drawing and labeling techniques in biology. Students shall also be introduced on the field to

aquatic, terrestrial and soil environments. Identification and drawing of algae, fungi, bryophytes and pteridophytes, dissection of flowers, bulbs such as onions. Structural features and differences between plants i.e. what makes each plant adapts to its habitat.

BIO 108: EXPERIMENTAL BIOLOGY II (1 unit) L0 T0 P1

Identification, classification and drawing of vertebrates and invertebrates animals from the lowest to the highest phyla. The dissection and study of the internal organs of the vertebrates animals.

CHM 101: GENERAL CHEMISTRY I 2 + 1 +0 (3 units)

Physical quantities and units, Error treatments, States of matter: Derivation and calculations involving the use of the laws of gases. The mole concepts and determination of relative masses. Chemical equation and Stoichiometry: Modern electronic theory of atoms and electronic configuration. Building up of periodic table and the periodicity. Chemical bonding and intermolecular bonds. Concept of acid, base and salts. Chemical equilibrium. Chemical Kinetics. Thermochemistry. Electrochemistry. Introduction to Nuclear Chemistry.

CHM 102: GENERAL CHEMISTRY II 2+1+0 (3 units).

Introduction to Organic Chemistry: Hybridization in carbon sp^3 , sp^2 sp . Nomenclature and classes of organic compounds. Homologous series of hydrocarbons, functional groups. Types of organic reactions: elimination, addition, substitution and rearrangement. Isomerism: structural and stereoisomerism. Chemistry of benzene, alcohols, phenols, aldehydes, ketones, acids, amines and amides. Structure of simple sugars, polysaccharides such as starch and cellulose, peptides and proteins, fats and oils. Isolation and purification of organic compounds.

CHM 107: PRACTICAL CHEMISTRY I 0+0+3 (1 units)

A course designed to illustrate the principles covered in CHM 101 Viz; Measurements using measuring Cylinder and use of the Top loading Balance, Data treatments; Volumetric Analysis: titration of strong acid

against strong base/weak base, Standardization of Potassium tetraoxomaganate, Ethanoic acid; Back titration.

CHM 108: PRACTICAL CHEMISTRY (II) 0+0+3 (1 unit)

A course designed to illustrate the principle covered in CHM 102 Viz; Test for Organic functional groups: Unsaturated hydrocarbons, alcohols, aldehydes and ketones., carboxylic acids, Ester, Phenol. Determination of melting point; determination of suitable solvent for re-crystallization; separation by distillation

CSC 101: INTRODUCTION TO COMPUTING I (2 units)

History of computers, function of components of a computer, characteristic of a computer, problem-solving, flowcharts and algorithms. The internet, social, ethical and professional issues of computing, software, hardware and networking development trend. Social application of computing, network communication, internet piracy/crime and computing technologies. Computer applications.

GST 101: COMMUNICATION IN ENGLISH I (2 units)

Communication in English will focus on two language skills: listening and speaking as word classes. Listening skills: listening strategies, note-taking, Speaking skills: segmental consonants, vowels; supra-segment-stress, intonation; dictionary and pronunciation skills in English; grammatical structures and communication: nouns, verbs, pronouns, adverbs, prepositions and adjectives in communication, English, sentence types, punctuation marks, vocabulary development, common errors, figures of speech, and effective communication, spelling. Students are to read two recommended texts.

GST102 COMMUNICATION IN ENGLISH II (2 unit)

In communication in English II, two language skills, writing and reading in communication will be emphasized. In Writing: getting started, strategies in writing, planning a good writing, parts of an essay,

paragraph development, transitional devices, types of writing – definition, narrative, explanatory, argumentative, instructions; Report writing, its features, types, technical and non-technical reports; technical type laboratory, project report e.g. dissertation or thesis writing; non-technical report: term paper; Reading skills reading and literary appreciation–literature and its features, types, elements and relevance; genres of literature; Application of the literary features and genres to three recommended reading texts on the three genres of literature. A review or critique of a specified text must be submitted by each student shortly before the end of the semester.

GST103: USE OF LIBRARY AND ICT (2 units)

Brief history of libraries; Library and Education; University libraries and other types of libraries; Study skills (reference services); Types of library materials, using library resources including e-learning, e-materials etc.; Understanding library catalogues (cards, OPAC, etc) and classification; Copyright and its implications; Data base resources; bibliographic citations and referencing. Development of modern ICT; Hardware technology; Software technology; Input devices; Storage devices; Output devices; Communication and internet services; Word processing skills (typing, etc).

GST105: INTRODUCTION TO ENTREPRENEURSHIP (1 unit)

History and background of entrepreneurship. Theories of entrepreneurship thought, Definition of entrepreneurship, relationship between entrepreneurship, technopreneurship and management, Entrepreneurship theory and Nigeria experience, Approaches to entrepreneurship; psychological approach, sociological approach and distinctive competence, Understanding the entrepreneurship mindset, Business opportunities profile, Entrepreneurship case analysis/training workshop

GST 106: EVALUATING OPPORTUNITIES AND BUSINESS CONCEPTS (1 unit)

Perceiving market opportunities, sources of new ideas including census data. Method of generating ideas. Creative problem solving. Developing the business concept. Concluding market research. Product planning development process. Legal issues in developing a business. Creativity, business innovation and products development.

GST 108: GOVERNMENT, SOCIETY AND ECONOMY (2 units)

Concept of government, society, development and economy; the organization and structure of Government; Evolution of the state; Political philosophy; System of government, the rule of law; resources and resource system, Social mobility and social change; Environment and culture; social stratification.

GST 110: AFRICAN CULTURE CIVILIZATION (2 units)

Concept of Nigeria, Culture and Civilization, history of the Nigerian nation, pre-colonial cultural locations and characteristics (art, language, clothing and courtesy), traditional sixteen concept of economics, peace and development, indigenous administrative system and the evolution of Nigeria's political system, indigen/settler phenomenon and conflict in Nigeria, Moral, values, norms and Nigeria's perception of their world, indigeneity/citizenship and Nigeria's National identity crisis, social nobilities and social change in Nigeria, Nigeria's environment and Culture.

MCB 102: INTRODUCTORY MICROBIOLOGY (3 units) L2 T1 P0

Historical aspects of Microbiology. Scope of Microbiology. Forms and functions of different microbial groups (Algae, Bacteria, Fungi, Protozoa and Viruses). General characteristics of microorganisms. Role of microorganisms in medicine, agriculture and industry. Introduction to biosafety and biosecurity.

MTH 101: ELEMENTARY MATHEMATICS I (3 units)

Elementary set theory; Subsets; Union; Intersection; Complements, Venn diagrams. Real numbers: integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers: algebra of complex numbers; the Argand Diagram. Demoivre's theorem, nth roots of unity. Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

**MTH 102 : ELEMENTARY MATHEMATICS II: (3 units) L30:
P0: T 15**

Calculus: Function of a real variable, graphs, limits and idea of continuity. The derivative, as limit of rate of change. Techniques of differentiation. Extreme curve sketching; Integration as an inverse of differentiation. Methods of integration, Definite integrals. Application to areas, volumes (including approximate integration), and trapezium and Simpson's rules.

PHY 101: GENERAL PHYSICS I (3 units)

Space and Time, frames of reference, Invariance of physical laws, relativity of simultaneity, relativity of time interval, relativity of length, units and dimension, standard and units, unit consistency and conversions, Kinematics, displacement, time and average velocity, Instantaneous velocity, average acceleration, motion with constant acceleration, freely falling bodies, position and velocity vector, acceleration vector, projectile motion, motion in a circle and relative velocity. Vectors; unit vectors, addition vectors, product vectors. Fundamental laws of mechanics; forces and interaction, Newton's laws of motion, mass and weight. Statics and dynamics; application of Newton's laws dynamics of particles, frictional forces, dynamics of circular motion. Galilean invariance; universal gravitational; work and energy; rotational dynamics and angular momentum; conservation laws.

PHY102: GENERAL PHYSICS III (3 units)

Electrostatics, conservation law of electric charges, electron and electrostatics. Coulomb's law, electric field and forces, electric field line, electric dipoles charged particles in an electric field, charge and electric flux, Gauss's law and its application, electric potential, electric potential due to a single charge, electric potential due to a dipole, electric potential due to continuous charge distribution equipotential surface. Conductors and currents; electric current, resistors and resistance, electric power, capacitors in series and parallel energy storage in capacitors and electric field, Gauss's law in dielectrics. Magnetism; magnetic field, magnetic force on a current-carrying conductor, Ampere's law, Bio-Savart law, electromagnetic induction, inductance, self-inductance, mutual inductance, Maxwell's equations; electromagnetic oscillations and waves; applications.

PHY 107: PRACTICAL PHYSICS I (1 unit)

This introductory course emphasizes qualitative measurements, the treatment of measurement errors, and graphical analysis. A variety of experimental techniques will be employed. The experiments include studies of meters, the oscilloscope, mechanical system, electrical and mechanical resonant systems, light, heat, viscosity etc. covered in PHY101, PHY102, PHY103.

PHY108: PRACTICAL PHYSICS II (1unit)

This introductory course emphasizes quantitative measurements, the treatment of measurement errors and graphical analysis. A variety of experimental techniques will be employed. The experiments include studies of meters, the oscilloscope, mechanical system, electrical and mechanical resonant systems, light, heat, viscosity e.t.c covered in PHY 101, PHY 102, PHY103

200 LEVEL

BCH 201: GENERAL BIOCHEMISTRY I (3 units) L2: P1: T0

Chemistry of amino acids, proteins and their derivatives; methods of isolation and identification, Primary, Acidity and alkalinity, pH and pKa values and their effects on cellular activities; Buffers, Classification of enzymes. Chemistry/Structures of carbohydrates, lipids and nucleic acids.

BCH 202: GENERAL BIOCHEMISTRY II: (3 units) L2: P1: T0

Structures; properties and biological significance of proteins, carbohydrate, lipids and nucleic acids; Secondary, tertiary and quaternary structures of proteins; determination and biochemical applications of proteins. Nomenclature of nucleosides, and nucleotides; effects of acid and alkali on hydrolysis of nucleic acids. Structures and functions of major cell components; procaryotic versus eukaryotic organisms.

BCH 203: MOLECULAR BIOLOGY AND BIOTECHNOLOGY I (2 units) L2: P0: T0

Historical development of molecular biology and biotechnology; universality of the genetic code; the central dogma of molecular biology; DNA replication; transcription and translation in relation to gene expression. The gene cloning technology; relevant tools and steps in cloning, restriction enzymes and ligases, gel electrophoresis for separating DNA fragments, plasmid and viral vectors as vehicles for DNA transfer and cell transformation. The Polymerase Chain Reaction (PCR)

BIO 205: INTRODUCTION TO MOLECULAR BIOLOGY AND BIOTECHNOLOGY I (2 units) L 2: P0: T0

Applications of molecular biology and biotechnology. Implications of molecular biology and biotechnology including ethical issues, Biosafety, Intellectual Property Rights, and social controversies.

BIO 206: INTRODUCTION TO MOLECULAR BIOLOGY AND BIOTECHNOLOGY II (2 units) L2: P0: T0

Applications of molecular biology and biotechnology. Implications of molecular biology and biotechnology including ethical issues, Bio-safety, Intellectual property Rights, and social controversies.

BIO 207: MOLECULAR BIOLOGY TECHNIQUES (1 unit) L0: P2: T0

Laboratory safety procedures; book and note keeping; preservation and storage of samples disposal of biological and chemical wastes; maintenance of equipment and use of operational manuals; general laboratory methods - preparation of solutions, uses of micropipettes, pH meter, autoclave operations, and use of spectrophotometer. Working with biological molecules (DNA, RNA, proteins, and metabolites) under sterile conditions. Molecular biology methods including genomic DNA/RNA extractions, preparation methods, DNA amplification using thermocycler; restriction enzyme digestion and ligation; agarose gel electrophoresis; polyacrylamide gel electrophoresis. transformation of cells by electroporation and chemically, methods for purifying DNA on gel, purification of biomolecules using commercial kits; or traditionally using lipases, proteases, and RNases; transfection of mammalian cells, southern, northern, and western blotting; preparation of sequencing gels. Cell culture methods - various kinds of cell culture; tissue culture methods, and determination of cell number (cell counts). (Pre-requisite: BCH 203)

BIO 201: INTRODUCTORY GENETICS (2 units) L1 P1 T0

Hereditary and non-hereditary characteristics. Probability and tests of goodness of fit. Quantitative inheritance; DNA - the Genetic Code, Structure, Replication, and Manipulation of DNA, Transcription and Translation, Transmission, genetics basic and advanced principles of heredity. The chromosomal basis of heredity. Linkage, Mapping, and Chromosomes, Gene Linkage and genetic mapping, Human karyotypes and Chromosome behavior, genetic engineering and genomics, mechanisms of mutation, gene action: From DNA to trait, gene

expression and epigenetics. Mutations and genetic disease ,Meiosis and Development , Single gene inheritance, Pedigree analysis , Genetic linkage, Sex-linked inheritance , chromosome abnormalities, Human Genome Project, Genetic Variation, Genetics of chronic and common diseases(diabetes, obesity, etc),Genetics and behavior disorders (autism,schizophrenia), Genetics of Cancer ,Genetic counselling.

BIO 202: GENERAL ECOLOGY (2 Units) (L1 P1 T0)

Concept and definition of ecosystem, ecology at community level, ecological classification of habitat types, terrestrial and aquatic biomass, specific features of each, biotic components of habitat. Natural destruction, factors of communities, success of community interaction, natural cycle, dynamics of population.

BIO 204: BIOLOGICAL TECHNIQUES (2 units)

Preparation of microscope slides, biological drawings, microtomy, colorimetry, photometry, cytological techniques, chromatography, collection and preservation of biological specimens. Herbarium Techniques, experimental design

CHM 201: BASIC INORGANIC CHEMISTRY I 1 + 1 +0 (2 units)

A quantitative introduction to the basic principle of inorganic chemistry. The theory of valency- molecular orbital, crystal field and valence bond theory. Three centre ionic bonding, electronegativity, ionic solids and lattice energy. Hydrogen bonding, molecular solids introduction to coordination chemistry of the first row. Periodicity of Physical Properties: The variation in physical properties with atomic number across the 2nd and 3rd periods (lithium to neon, sodium to argon). Variation in first ionization energies, atomic radii, melting points and explanation in terms of structure and bonding in elements. The relevance of ionization energy and electronic configuration. Comparative chemistry of Group IA, IIA, VA and VIII elements. Chemistry of noble metals (Ag, Au, Cu and Pt).and their uses.

CHM 204: ORGANIC CHEMISTRY I 2 + 0 +0 (2 units)

Review of chemical bonding in organic chemistry; Alcohols and their reactions; Ethers and epoxides, carboxylic acids and their derivatives, aldehydes and ketones; Carbanions I and II – Unsaturated compounds, Carbanion II – Amines, Aromatic and Alicyclic chemistry. Preparation and reactions of benzene derivatives. Reactive intermediates: formation and reaction (carbenes, free radicals etc). Nucleophilic substitution at saturated carbon atom (SN_1 and SN_2 mechanisms). Electrophilic and nucleophilic aromatic substitution reactions. Elimination reactions (E_1 and E_2 mechanisms). Neighboring group participation and rearrangement reactions. Stereochemistry: Stereochemistry of organic compounds and optical isomerism of compounds with one or more asymmetric centres. Heterocyclic chemistry- the chemistry of five and six member ring. *Pre-requisite CHM 102*

CSC 201: COMPUTER PROGRAMMING I (2 units)

Introduction. The Basic rules of structural programming, programming steps, structural effects, I/O techniques, File management, Solution of selected problems, objects, tools, properties and structure of applications using PASCAL.

CSC 208: COMPUTER PROGRAMMING II (2 units)

Brief survey of programming paradigms-procedural programming-object-oriented programming, functional programming-declarative programming. Non-algorithmic programming-scripting languages. The effects of scale on programming methodology. Programming the computer in current version of FORTRAN, Declarative statements: input and output statements, program compilation and execution, control and conditional statements, Loops and iteration, functions, Routines and sub-programmes.

- (a) Input/output: File processing, Port addressing.
- (b) Program testing and debugging techniques.

MCB 201: GENERAL MICROBIOLOGY I (3 UNITS) L2 T0 P1

Review of general characteristics of major groups of microorganisms. Basic principles of isolation, identification and classification of microorganisms. Ecological distribution of microorganisms. Relationships and succession between microorganisms in nature. *Pre-requisite MCB 102.*

MCB 202: GENERAL MICROBIOLOGY II (3 UNITS) L2 T0 P1

Basic description of Prokaryotic and Eukaryotic structure. Short description of microbial growth among prokaryotes and eukaryotes. Microbial Growth and Binary fission. Control of microbial growth. Microbial variation and heredity, cycles of elements in nature and nitrogen fixation. General aspects of microbial taxonomy. *Pre-requisite MCB 102.*

MCB 203: MICROBIOLOGICAL TECHNIQUES (2 units) L0 T0 P2

Students are expected to undergo both field and laboratory studies for successful completion of this course. Operation of basic and specialized equipment and techniques employed in microbiology to include: Microscope, hot air oven, incubator, autoclaves, water-bath with shaker, weighing balance, laminar flow/inoculating chamber, spectrophotometry, electrophoresis and photography. Field techniques and sample collection, analysis of samples. Aseptic and pure culture techniques, staining, pasteurisation, sterilization and disinfection. Media preparation, isolation and identification of microorganisms, maintenance and preservation of cultures.

MCB 204: BACTERIOLOGY (3 units) L2 T0 P1

The morphology, biochemical characteristics, growth, multiplication and nutrition of bacteria. The problems and methods involved in the systematic study of bacteria and other prokaryotes. Nature, characteristics, identification and isolation. General characteristics of gram positive and gram negative bacteria. Importance of representative

groups of bacteria. Role of these organisms in nutrition and diseases of animals and plant. Systematic study of bacteria and other prokaryotes like the Archeobacteria, their nature, characteristics, isolation and identification. Economic importance of these bacteria; especially the Archeobacteria, Bacterial diversity.

MTH 234: STATISTICS FOR AGRICULTURE AND BIOLOGICAL SCIENCES (3 units)

Scope for statistical methods in Biology and Agriculture, Measures of location, partition and dispersion, Elements of probability, probability distribution: binomial, Poisson, geometric, hypergeometric, negative binomial normal. Estimation (point and interval) and test of hypothesis concerning population means, proportions and varieties. Regression and correlation. Non-parametric tests, Contingency table analysis. Introduction to design of experiments, Analysis of variance.

PSB 201: SEEDLESS PLANTS (2 units) L1 P1 T0

Morphology and reproduction of algae, bryophytes and pteridophytes including fossils. Economic importance of algae. Morphology and reproduction of Thallophytes, Bryophytes and Pteridophytes. Alternation of generation. Fossils and their formation patterns.

300 LEVEL

MCB 299: INDUSTRIAL WORK EXPERIENCE (SIWES) (6units)

Students will be posted to industrial establishments such as industries, research institutes, and pharmaceuticals, medical, industrial, food and agricultural establishments for a period of six months of supervised training. Seminar on the scheme will be presented to the Departmental Board of Examiners and a report is submitted for grading.

BCH 301: ENZYMOLOGY: (3 units) L2: P0: T1

Vitamins and co-enzymes. Fat and water soluble vitamins. Structures and functions of vitamins and co-enzymes. Classification and nomenclature

of enzymes. Genetics of enzymes and inhibition. Mechanisms of enzyme-catalysed reactions. Effects of temperature, pH, ions and inhibitors on enzyme catalysed reactions. Michaelis-Menten Equation. Allosteric/Regulatory enzymes. Active sites of enzymes. Estimation of kinetic parameters -enzyme activities, K_m , V_{max} , K_i etc. Zymogen activation, digestive enzymes etc. Production, isolation, purification and characterization of enzymes. Recent advances in Enzymology.

MCB 301: VIROLOGY AND TISSUE CULTURE (3 units) L2 T1 P0

History, classification, structure, pathogenesis, host response and replication of viruses. Cytopathic effect of viruses. characteristics of plant, animal and bacterial viruses. Molecular biological techniques in virology. Preparation and types of tissue cultures. Methods for purification of viruses. Cytopathology of animal viruses of local ecological interest. Viruses as infectious agents (clinical features, pathogenesis, lab diagnosis and epidemiology). Cultivation of viruses. Isolation and purification of viruses. Interferon, tumor viruses. Slow viruses and prions. *Pre-requisite MCB 102 or 202.*

MCB 302: MICROBIAL GENETICS AND MOLECULAR BIOLOGY (3 units) L2 T0 P1

A survey of the current status of microbial genetics (Bacteria, viruses, protozoa and fungi) including discussion of methods and findings in the areas of mutagenesis, inductions, isolation and biochemical characteristics of mutants, adaptation, transformation, transduction, conversion and conjugation. DNA replication, regulation, recombination and repair. General and specialized methods and techniques in microbial genetics. Experiments with virulent phages, temperate phages and lysogenic bacteria. Fungal and other lower eukaryotic genetics. Recombinant DNA techniques. Restriction enzymes, Restriction endonuclease analysis, fingerprinting, blotting techniques, electrophoresis, etc. Application of genetic engineering.

MCB 303: MICROBIAL PHYSIOLOGY AND METABOLISM (3 units) L2 T0 P1

Microbial growth: Changes in cell population and macromolecular composition during growth process. The role of enzymes in the physiology of microorganisms. Growth and morphology of microorganisms. Growth under nutrient limiting and non-limiting conditions. Nutrition and metabolism of yeast, molds and bacteria. Carbohydrate, protein and lipid metabolism. Chemical anatomy of the cell. Oxygen relations. Aerobic and anaerobic assimilation. General aspect of energy yielding processes. Microbial biosynthesis. Regulatory mechanisms.

MCB 304: PRINCIPLES OF PUBLIC HEALTH AND EPIDEMIOLOGY (3 units) L2 T1 P0

Definitions of health and disease. Concepts of health and disease. Causes of diseases. The microbial world and medicine. History of microbiology. Origin and development of public health (in the developed world). Spread of public health to developing countries (colonial and post independent eras). Functions of governments in public health (local, state, federal and non-governmental organizations). Origin, definition and spectrum of epidemiology. Epidemiological terminologies. Epidemiological approaches to diseases. Methods in epidemiology. Measurement of disease frequencies. Epidemiology of microbial diseases. Recognition of infectious diseases. Infectious disease cycle (story of disease). Recognition of epidemics, screening and surveillance. Emerging and re-emerging diseases. Transmission, control and prevention of disease in a populations. Modes of transmission and modes of disease control. Vaccines, principles of vaccinations (herd immunity). Bioterrorism. Public health and global travels. The epidemiologist in hospitals, food and drug manufacturing environments.

Pre-requisite MCB 102, & 202.

MCB 305: PATHOGENIC BACTERIOLOGY II (3 units) L2 T0 P1

General aspects of human, animal and plant bacteriome. Anatomical distribution of major bacterial pathogens. Review of clinically relevant groups of Gram-positive and Gram-negative bacteria. General discussion of pathogenesis of bacteria. Detailed description of virulence and pathogenicity factors common among bacteria. Methods for detection of virulence and pathogenic factors among bacteria. Emerging bacterial diseases. Some emphasis will be placed on those bacteria with tropical relevance.

MCB 306: SOIL MICROBIOLOGY (2 units) L1 T0 P1

The characteristics of soil environments. Microbial flora and fauna of soil. Microbiological activities in the soil. Nitrogen cycle, Carbon cycle and Sulfur cycle. Mineral transformations in soil by microorganisms. Ecological relationships among soil fauna and soil microorganisms. Effect of pesticides on soil microorganisms. Biodegradation and bioremediation.

MCB 307: MYCOLOGY (3 units) L2 T0 P1

Extensive description of mycological structures, forms and functions. Mycological techniques. Reproduction and life cycle of higher and lower fungi. Fungal interactions with other organisms. Ecological distribution and economic importance of major representative groups of fungi. Field and laboratory study of fungi used by man. Review of fungal pathogens in humans. Plant and animal pathogens and roles in ecosystems. *Prerequisite MCB 102/MCB 201.*

MCB 308: FOOD MICROBIOLOGY I (3 units) L2 T0 P1

Distribution, role and significance of microorganisms in Microorganisms in foods. Factors affecting microbial growth in foods. Consequences of microbial growth in foods. Food spoilage and food borne diseases. General view of food borne infection and food intoxication. Investigation of food-borne diseases outbreaks. Food preservation, food hygiene and

quality control. Hazard analysis and critical control points. Probiotics.
Pre-requisite MCB 102, 201, 202, & 204

MCB 309: IMMUNOLOGY (3 UNITS) L2 T0 P1

Basic concepts of immunology, structure of antigens, antigenic determinants, cellular response to antigenic stimulation. Structure and classification of immunoglobulins and antibodies. Mechanism and theories of antibodies formation. Antigen and antibody interactions. Role of lymphoid tissues and thymus in immune responses. Hypersensitivity, immune-pathology, autopathology, tumor and transplantation immunology. The complement pathway. Immune-prophylaxis and serotherapy. The practical will include laboratory exercises in modern techniques in immunology and immunochemistry.

MCB 310: ANALYTICAL MICROBIOLOGY AND QUALITY CONTROL (3 UNITS) L2 T0 P1

Microorganisms and cultural based methods in quantitative analysis. Selection of test organism for assays (antibiotics, amino acids, vitamins etc). Responses of microorganisms used in assays. Preparation of assay sample and methods of assay. Enzyme linked immunosorbent assay. Real time PCR. Interpretation of results. Aspect of quality control. Plant and equipment sanitation. Microbiological standards and specification. Standards applied in the isolation and identification of contamination in sterile and non sterile areas

Pre-requisite MCB 102 & 202

MCB 311: PETROLEUM MICROBIOLOGY (3 units) L2 T0 P1

Morphology and Biostratography of major groups of microfossils, Biological origin and accumulation of petroleum and sedimentary basis (Natural gas to encompass composition of crude oil), Microbial aspect of genesis of petroleum, Tertiary recovery of oil by means of microorganism, Microbial indicator of oil prospecting, Microbial degradation of petroleum product and use of microorganism in oil clean

up, Oil spillage, Hydrocarbonoclastic bacteria, Metallomonas bacteria that that causes rusting of oil pipes, Role of microorganisms in the corrosion of oil filled equipment.

MCB 312: MICROBIAL ECOLOGY (3 UNITS) L2 T0 P1

Geographical distribution and adaptations of some selected groups of water, soil and air microorganisms of industrial and medical importance. Interaction between microbes. Plant-microbe interactions (Mycorrhiza, Microbiology of the Rhizosphere). Microbial phylogeny and paleontology, antecology and synecology and population. Nutritional characteristics and habitats of microorganisms. Applications of microorganisms in the areas of bioconversion of natural products and disposal of wastes.

MCB 313: AIR MICROBIOLOGY (2 UNITS) L1 T0 P1

Extensive review of air microbiome. Origins and sources of microorganisms in air. Liberation, dispersion and deposition of airborne microorganisms. Specific contributions of microorganisms to air quality. Sampling methods for air microorganisms. Methods for assessment for microbial air quality. Air-borne diseases in humans and animals. factors affecting the concentration of air-borne microorganisms. Implications and use of air microbiological studies. Microorganisms and indoor air quality, microorganisms of the air (to include molds). Microbes in ventilation systems, air and spacecraft. Air monitoring in manufacturing environments (foods and drugs). Disinfection and sterility. Air quality in surgical theaters, barrier nursing.

MCB 314: MICROBIOLOGICAL METHODOLOGIES (2 Units) L1 T0 P1

Research needs. Experimental design, Methodology – materials and methods, sample collection and microbiological analyses, data collection, personnel, finance, materials etc. Analysis of data/result. Preparation of reports (including writing of dissertation) and recommendations.

MCB 316: BIOREMEDIATION (2 UNITS) L1 TO P1

General principles of bioremediation. Brief review of biodegradable molecules, contaminants in different environments. General review of microorganisms involved in bioremediation and their sources. Different biological approaches in bioremediation. Brief details of specific metabolic pathways involved. Economic importance of bioremediation. Brief review of biotechnological processes in bioremediation.

400 LEVEL

MCB 399: INDUSTRIAL WORK EXPERIENCE (SIWES) (6units)

Students will be posted to industrial establishments such as industries, research institutes, and pharmaceuticals, medical, industrial, food and agricultural establishments for a period of six months of supervised training. Seminar on the scheme will be presented to the Departmental Board of Examiners and a report is submitted for grading.

MCB 400: RESEARCH PROJECTS IN MICROBIOLOGY(6 UNITS)

Students will be required to carry out specific or group research projects in Microbiology and Biotechnology under the supervision of an Academic Staff. Students are to write a research proposal which will be approved after seminar presentation. A scientific report will be presented in the form of a dissertation after the project and this will be defended in the presence of external and internal examiners.

MCB 401: SEMINAR IN MICROBIOLOGY AND BIOTECHNOLOGY (2 UNITS)

Under the supervision of an academic staff, the student is expected to select a seminar topic for review of literature. The topic should be on current advances in the chosen field. This course is expected to give the student the opportunity for independent thought and expression. The study will result in seminars.

MCB 402: INDUSTRIAL MICROBIOLOGY AND BIODETERIORATION (3UNITS) L2 T0 P1

The use of microorganisms in industrial fermentation. Industrial exportation of microorganisms. Media for industrial fermentation, Antibiotics production e.g. penicillin, griseofulvin and tetracycline antibiotics. Single cell protein production. Bacteria, actinomycetes, yeast and moulds of industrial importance, microbial deterioration of pulpwood, paper and plant. Biodegradation, enhanced biodegradation and befouls generation. Biodeterioration of Metals. Industrial production of vaccines. The course will include an industrial visit. *Pre- requisite MCB 201,202, 204.*

MCB 403: PHARMACEUTICAL MICROBIOLOGY (3 UNITS) L2 T0 P1

Introduction to antimicrobial agents; chemistry of chemotherapeutic agents and antibiotics; Production and synthesis of antimicrobial agents and antibiotics; Antimicrobial products of plant origin. Mode of action and assay of antimicrobial agents; antibiotic sensitivity and resistance; Quality control of pharmaceutical agents; Assessment methods of antimicrobial agents and parameters determining their usefulness. Antibiotic susceptibility tests.

MCB 404: AQUATIC MICROBIOLOGY AND ALGOLOGY (3 UNITS)

General physico-chemical characteristics of aquatic environments. Review of Microorganisms in natural waters and marine environments. Types of aquatic environments and different ecological niches in aquatic environments. The role of microorganisms in biogeochemical cycles in water and sediment. Microorganisms and origin of mineral resources. The role of microbes in self- purification of water. Oligotrophic and eutrophic lakes. Importance of eutrophication. Economic importance of aquatic microorganisms. Ecological associations in aquatic environments. Aspects of freshwater algae biology. Microscopic and taxonomic identification of the algae and cyanobacteria. Ecology of

different freshwater algal groups and cyanobacteria. Formation of algal blooms. Sewage microbiology. Economic importance of algae and cyanobacteria. *Pre requisite BIO 101, 102.*

MCB 405: FOOD MICROBIOLOGY II (2 UNITS)

Fermentation technologies (Bioprocessing), Fermentation of product according to industrial sector, Biochemistry of Fermentation. Types of fermentation. Fermentation processes of some foods and condiments (fufu, garri, bread, cheese, butter, ogiri, ogi, etc), Fermentation process of some locally fermented drinks and beverages (burukutu, yogurt, pito etc), production process of beer, wine and the categories of wine.

MCB 406: MEDICAL MICROBIOLOGY (3 UNITS)

Sources of transmission of infections; Etiological agents of microbial diseases (fungi and viruses). Collection and examination of clinical specimens- diagnosis, epidemiology, pathogenesis, prevention and control; Determinants of pathogenicity and virulence among fungi and viruses; Treatment and control of representative fungal and viral diseases. Host – parasite relationship. Study of some microbial pathogens of humans with emphasis on those prevalent in Nigeria. The geographical distribution, isolation, identification, morphology, life cycle, source of infection, transmission and the host. Ecology, clinical manifestations of specific viral and fungal pathogens of man. Zoonosis, Antibiotics and antibiotic resistance. *Pre- requisite MCB 102, 201, 202, 204, & 301*

MCB 407: ENVIRONMENTAL MICROBIOLOGY (4 UNITS) L3 T0 P1

The microbial environment and microorganisms in their natural environments. Microorganisms in natural waters and physical and chemical factors affecting them. The role of microorganisms in biogeochemical cycles in water and sediment. Microbiology of waste disposal including solid wastes and sewage treatment and disposal. Biochemical oxygen and chemical oxygen demand tests for sewage and water. Water quality standards. Most probable number (MPN) Microorganisms and origin of mineral resources. Treatment processes of

water for municipal supply. The role of microbes in self-purification of water. Economic importance of aquatic microorganisms. Air microorganisms; Aerosol transmission; Air quality monitoring and control; Investigation of microbial air pollution. Microorganisms and climate change. *Pre-requisite MCB 102, 201, 202, & 206.*

MCB 408: AGRICULTURAL MICROBIOLOGY (2 UNITS) L1 T0 P1

Characteristics of agricultural environments. Review of microorganisms in agricultural environments. Chemical composition, morphology, cytology and genetics of microorganisms in agricultural environments. Growth and reproduction of microorganisms. Metabolism of microorganisms (catabolic and anabolic processes). Biotic and abiotic factors in agricultural environments and how they affect microorganisms. Antibiotics and antimicrobials in agricultural environments. Production and use of biopesticides. Interrelationships among microorganisms. Specific roles of microorganisms in carbon, nitrogen, phosphorus and sulphur cycles. The use of microbial preparations, enzymes and secondary metabolites in agricultural practice. The use of genetically modified microorganisms in agriculture.

BIO 411: BIOINFORMATICS (2 Units) (L1 P0 T1)

Introduction to bioinformatics. Introduction to Linux. Gene finding/sequencing, database and introduction to emboss. Sequence alignment, emboss water and needle. Blast and sequence alignment, BLAST 101. Sequence signature and motifs/sequence. Signature data bases/interpro. Protein function prediction and protein interaction/string etc. phylogenetics/phylogenetics MSA, MAFFT lab. Variation and molecular level, natural/HIO, KA/KS. Structural bioinformatics, chimera, P_YMOI, NCBI's Entrez, BLAST, PSI-BLAST, Clustal W, Pfam, PRINTS, BLOCKS, Prosite and PDB.

PROFILE OF ACADEMIC STAFF

Professor B. O. Ogeneh



E-mail: bryan.ogeneh@fuoye.edu.ng

Bryan Okonya Ogeneh (HOD of Department) is a Professor of Medical Microbiology with special interest in Public health and Epidemiology. He obtained his PhD in Medical Microbiology in 2001 at Enugu State University of Science and Technology, Nigeria; a P.G course in Immunological

Techniques in 1983 at Massey University, Palmerston North, New Zealand; a P.G.D in Community Health in 1982 at University of Otago, Wellington, New Zealand; a MSc. degree in Microbiology in 1980 at the University of Otago, Dunedin, New Zealand; as well as a BSc. in Microbiology in 1975 at University of Nigeria Nsukka. He has supervised three PhD, eight MSc, and over sixty undergraduate students. He has about forty eight publications in both international and local journals.

R. A. O. Gabriel-Ajobiwe (PhD)



E-mail: adefolakemi.gabriel-ajobiwe@fuoye.edu.ng

Ruth Adefolakemi Oluwahenyinmi GABRIEL-AJOBIEWE is an Associate Professor of Food & Industrial Microbiology with special interest in microbial bio-processing of underutilized/neglected plants, food fermentation, and microbial processing of agro wastes. She

obtained her BSc. in Biochemistry from University of Ilorin, Nigeria in 1988, M.Tech and PhD in Microbiology from Federal University of Technology, Akure-Nigeria in 2002 and 2009 respectively. She has supervised over thirty five undergraduate and master's students. She is well published with over 20 scholarly articles in both international and local journals.

DR. L. E. OKOROR



lawrence.okoror@fuoye.edu.ng

Dr Lawrence Ehis Okoror is a Senior Lecturer in the Department of Microbiology, Federal University Oye-Ekiti with specialization in Medical Microbiology and focus on Virology and Bioinformatics. He obtained his BSc. in Microbiology from Ambrose Ali University (AAU), Ekpoma, Edo State, Nigeria in 1990, MSc. in Medical Microbiology from College of Medicine University of Lagos, Idi-Araba, Lagos-Nigeria in 1996, as well as PhD in Medical Microbiology from AAU,

Ekpoma-Nigeria in 2008. He is the CEO of Biosolution Research laboratory, a WHO consultant viral epidemiologist, and a representative of WHO Global Outbreak Alert Response Network. He is a World bank/WHO visiting lecturer at Fouroh Bay College (University of Sierra Leone). Dr. Okoror is widely published in Scholarly journals with over fifty-eight publications. He has supervised one PhD, nine masters and many undergraduate students.

Dr. A. O. AJAYI



EMAIL: ayodele.ajayi@fuoye.edu.ng

Dr. Ajayi Ayodele Oluwaseun has vast experience on surveillance of antimicrobial resistance. He is currently working on the Molecular characterization of resistance to last resort antibiotics in different environments. He obtained his B. Sc, MSc. and PhD in Microbiology from Ekiti State University in 2002, 2005 and 2011 respectively. He is specialized in Medical Microbiology and Public Health

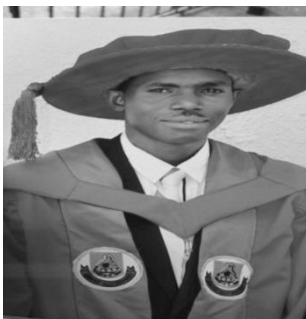
DR H. A. AKINYELE(LII)



E-mail: hafiz.akinyele@fuoye.edu.ng

Dr Hafiz Awofe AKINYELE obtained his BSc, MSc. and PhD in Microbiology from University of Ibadan-Nigeria in 1990, 1997 and 2014 respectively. His areas of Specializations are Industrial Microbiology, Food and Applied Microbiology as well as Microbial Physiology.

DR. S. K. Ojo



E-mail: stephen.ojo@fuoye.edu.ng

Dr Stephen Kayode Ojo is a Lecturer II and researcher at the Department of Microbiology, Federal University Oye-Ekiti, Ekiti State, Nigeria. He obtained his BSc. in Microbiology in 2001 from University of Ilorin-Nigeria, MSc. in Medical Microbiology from College of Medicine, University of Lagos in 2005, and PhD in Medical Microbiology from AAU, Ekpoma-Nigeria, in 2015. He is the research coordinator of the Drug Discovery and

Development Research Unit in the department. He has a number of publications to his credit. His areas of specialization are Pharmaceutical Microbiology (with special interest in natural products cum complementary alternative medicine) and Public Health. He is always willing to collaborate in productive research. He is a member of Nigerian Society for Microbiology (NSM), Society for Medicinal Plants and Economic Development (SOMPED, South Africa), as well as a Global Outreach member of the American Society for Microbiology (ASM-U.S.)

MR BANKEFA E. O.



E-mail: Olufemi.bankefa@fuoye.edu.ng

Bankefa Emmanuel Olufemi. (Ph.D in-view) is an Assistant Lecturer in the area of food and Industrial Microbiology. He is currently a research scholar at the Institute of Microbiology University of Chinese Academy of Science (IMCAS) under a CAS-TWAS President Fellowship program where he is currently studying for his Ph.D. He obtained his B.Tech (Microbiology) and M.Tech (Food Microbiology)

from Federal University of Technology, Akure, Nigeria in 2009 and 2012 respectively. His research is mainly focused in Microbial physiology and system biotechnology for industrial application and currently engineering a methylo-trophic system for an enhanced C1 utilization towards the production of bio-based enzymes. The future research is opened to biodiversity and system engineering for industrial application.

S. A. OSANYINLUSI



E-mail: samuel.osanyinlusi@fuoye.edu.ng

Samuel Ayodeji Osanyinlusi, Mr, is a Faculty member and an Assistant Lecturer in the Department of Microbiology, Faculty of Science, Federal University Oye-Ekiti, Ekiti State, Nigeria. He obtained his BSc. degree in Microbiology with First Class (Hons) from Adekunle Ajasin University Akungba Akoko, Ondo State, Nigeria in 2011, and a MSc. Degree in Medical Microbiology (Virology) with Distinction from College of Medicine, University Of Lagos, Lagos-

Nigeria in 2011. His area of specialization is Medical Virology with keen interest on rodent-borne viruses including Hantavirus, hepatitis E virus and Lassa virus. He is currently investigating the diversity of zoonotic viruses harbored by wild-caught rodents in Southwestern Nigeria and their implications for zoonosis. He is published both locally and internationally.