



# BABCOCK UNIVERSITY

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COURSE OUTLINE TEMPLATE PREPARED BY THE AVP, INSTITUTIONAL EFFECTIVENESS

SCHOOL: PUBLIC AND ALLIED HEALTH

DEPARTMENT: MEDICAL LABORATORY SCIENCE

SEMESTER /SESSION: FIRST SEMESTER/ 2017-2018

COURSE CODE AND TITLE: MLSC 309/ LAB INSTRUMENTATION & TECHNIQUES

NO OF UNITS: 2 CREDITS

TEACHER'S: NAMES- ADEJUMO, EN; AKINLEYE, WA; AND ADEDIJI, I  
TELEPHONE NO: 07033689407; 08101207348; 08030410475  
OFFICE ADDRESSES: C101; B009; B009  
EMAIL ADDRESSES:

DAY OF CLASS: THURSDAY

VENUE FOR CLASS: A 107

LECTURE HOURS: 9AM-10:50AM

(UNIVERSITY SCIENCES COMPLEX)

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## OUR VISION STATEMENT

A first-class Seventh-day Adventist institution, building servant leaders for a better world

## OUR MISSION STATEMENT

Building leadership through Christian education; transforming lives, impacting society for positive change

To achieve our mission, we are committed to:

- Achieving excellence in our teaching, research program, and service delivery
- Imparting quality Christian education
- Instilling Christ-like character to the members of our Community

## OUR CORE VALUES

- Excellence -Our Culture
- Integrity -Our Promise
- Accountability -Our Moral
- Servant Leadership -Our Strength
- Team Spirit -Our Dignity
- Autonomy and Responsibility -Our Passion
- Adventist Heritage -Our Commitment

## OUR PHILOSOPHY

Babcock University's philosophy is anchored on the harmonious development of the intellectual, physical, social, and spiritual potentials of our students, inspiring stable and noble character needed for effective leadership and service in the society.

**CORPORATE IMAGE STATEMENT:** A center of excellence for character development and scholarship; a socially responsive, responsible, and accountable institution in matters of commitment and action

**COURSE DESCRIPTION: AS DESCRIBED IN THE BULLETIN**

Traditional and S.I unit in clinical chemistry: Reference values. Gastric function test: Agents for Gastric stimulation, Ward procedures and laboratory investigations of Gastric secretions. Intestinal functions tests; Digestion, absorption and Malabsorption. Renal function tests: Glomerular filtration rate Creatinine/ Inulin clearance, concentration and dilution test; Urinary acidification test, Urine specific gravity/Osmolality, Dye Excretion test. Water & Electrolyte metabolism, Acid base balance; Definition and causes of acidosis and alkalosis Blood buffers. Transport of blood gases, assessment of acid/base status. Lipids; definitions and types of lipids, formation of free fatty acids, ketone bodies and lactate; measurement of plasma lipids. Protein, Methods of determination of total protein in serum. Carbohydrate metabolism, Blood glucose homeostasis; Hyperglycemia, Diabetes mellitus-its causes and investigation.

**COURSE CONTENT:** The course will expose the students to the basics of clinical chemistry, including the units for expressing laboratory results in clinical chemistry. It will also teach the physiology, metabolism and pathology of the basic biochemical analytes in the body system. Furthermore, it will discuss their various laboratory investigations and diagnosis.

**COURSE OBJECTIVES: Upon completion of this course, the student should be able to:**

1. Demonstrate an appreciation of God's awesomeness through the coordination of the interaction of biochemical metabolites in the human body.
2. Classify normal and abnormal results of the common diagnostic test in clinical chemistry based on the reference values
3. Explain the physiology, metabolism and pathology of the basic biochemical analytes in the body system.
4. Discuss the significance of various function tests.
5. Perform the common laboratory tests out lined when provided with the standard operating procedures and necessary materials.

### **REQUIRED TEXTBOOKS/JOURNALS:**

- 1) A new short textbook of chemical pathology, 5<sup>th</sup> edition. D.,N. Baron,; J.T. Whicher; K.E. Lee.
- 2) Clinical biochemistry and metabolic medicine. 8<sup>th</sup> edition.martin .A.Crook. Hodder and Stoughton Ltd.
- 3) District Laboratory Practice in Tropical Countries (Part 1). 2<sup>nd</sup> edition . Cheesbrough .M. Cambribridge University press.
- 4) Medical laboratory science, Theory and Practice.1<sup>st</sup> edition. Kolhatkar. A.Tata; Ochei. J McGraw-hill Publishers.
- 5) Principles of Biochemistry (3<sup>rd</sup> edition). Donald j. Voet; Judith G. Voet; and Charlotte W. Pratt.WS
- 6) Fundamentals of clinical chemistry. 6<sup>th</sup> edition. By Teitz; Edited by Carl. A Burtis, Edward. R. Ashwood, David. E. Brune

### **COURSE REQUIREMENTS:**

**CLASS ATTENDANCE:** - “Every student is required to attend classes regularly and punctually, unless ill or prevented by some recognized emergency. Students who absent themselves from class for more than three weeks during the semester shall merit an F grade. Authorized leave of absence from campus does not excuse the student from classes, or relieve the student of the required course work’ (*BU Academic Bulletin 2012-2015 p.13*).

**PARTICIPATION:** -Students are to actively engage in topic discussion and sharing of ideas in class.

**TARDINESS/CONDUCT OF STUDENTS IN CLASS:** - Lateness to class is unacceptable; students are not allowed to operate their cell phones, iPods and other electronic mobile gargets during classes, except with the permission of the teacher. Eating and chewing off bubble gums and drinking (water exempted) is also not allowed except with the permission of the teacher. Very importantly, students are required to dress in compliance with the university dress code and wear their identity cards while in class.

**SHORT DEVOTIONALS/PRAYER:** - Spiritual nurture is a part of whole person development, and team spirit is our strength; thus, every student is required to participate in the devotional exercise and prayer in class.

**SUBMISSION OF ASSIGNMENT:** All assignments whether as individual or group work **must** be turned in before the set deadline.

LATE ASSIGNMENTS: Assignments could be turned in earlier, but not later than the set deadline.

#### GUIDELINE FOR WRITTEN WORK:

- i. All quiz, assignments and mid semester answer scripts must bear your Matriculation number **ONLY** as means of identification. Names are not allowed.
- ii. Always include the course title, course code, and date of submission on your scripts.
- iii. Follow any other provided instructions.

**ACADEMIC INTEGRITY/HONESTY:** “Babcock University has a zero tolerance for any form of academic dishonesty. Morally and spiritually, the institution is committed to scholastic integrity. Consequently, both students and staff are to maintain high, ethical Christian levels of honesty. Transparent honest behavior is expected of every student in all spheres of life. Academic dishonesty include such things as plagiarism, unauthorized use of notes or textbooks on quizzes and examinations, copying or spying the test or paper of another student (formal or take-home), talking to another student during examinations. Academic matter would automatically result in a failing grade for the examination, and suspension, or outright dismissal from the university. Academic dishonesty issues are referred to SPEAM (Senate Panel on Examination and Academic Misconduct) who investigates and makes recommendations to Senate. Penalties for examination and academic misconduct are spelt out in the *student’s handbook* and in other regulations as published from time to time” (*BU Academic Bulletin 2012-2015 p.18*).

#### GRIEVANCE PROCEDURE

“Students who believe that their academic rights have been infringed upon or that they have been unjustly treated with respect to their academic program are entitled to a fair and impartial consideration of their cases. They should do the following to effect a solution:

1. Present their case to the teacher(s) concerned
2. If necessary, discuss the problem with the Head of Department
3. If agreement is not reached at this level, submit the matter to the School Dean
4. Finally, ask for a review of the case by the Grievance Committee
5. A fee is charged for remarking of scripts. If a student’s grievance is upheld after an external examiner has remarked the script, the grade would be credited to the student. The lecturer will be given a letter of reprimand and will be asked to refund the fees to the student. If the student’s grievance is not sustained, the student will be given a letter of reprimand and the original grade retained” (*BU Academic Bulletin 2012-2015 p.18*).

**TEACHING/LEARNING METHODOLOGIES:** We will employ different strategies for teaching. However, we would promote interactive strategies, and there integration of faith and BU core values in the learning process.

#### COURSE ASSESSMENT/EVALUATION

**Continuous Assessment:**

Class Attendance:	5% }	} = 40%
Quizzes & Tests:	10% }	
Assignments:	10% }	
Mid-Semester Exam:	15% }	
Final Semester Exam:	60%	

**GRADE SCALE**

Currently, the 5-pointgrading system adopted by the University Senate translates as follows:

Grades	Marks- Quality	Range Points	Definition
A	80-100	5.00	Superior
B	60-79	4.00	Above Average
C	50-59	3.00	Average
D	45-49	2.00	Below Average
E	40-44	1.00	Pass
F	0-39	0.00	Fail

**INCOMPLETE GRADE:** An incomplete grade may only be assigned to a student upon request, due to an emergency situation that occurred within that semester, which prevented completion of an/some assignments, quizzes, or examination. Such a student would complete a contract form, obtainable from the Registrar, after agreement with the teacher. The form must be signed by the teacher, the student, the HOD, the dean, the Registrar, and the Senior Vice President (SVP) before contract begins. The original copy of the incomplete form will be sent to the Registrar with copies to the teacher, the student, the HOD, the dean, and the SVP. An incomplete grade (I) reverts to the existing grade if contract is not completed by the end of the following semester (including summer semester, except for examinations), (*BU Academic Bulletin 2012-2015 p. 20*).

**FURTHER READINGS:**

**STUDENTS WITH DISABILITY**

“Babcock University seeks to provide a conducive environment for optimal living and learning experience. While the university is working towards facilities that accommodate persons with disabilities, provisions will be made for students with disabilities under the following conditions. Students with disabilities are to:

- a. Report to Student Support Services for assessment, and obtain a clearance/recommendation

- at the commencement of the semester or as soon as disabling incidence occurs
- b. Show the clearance/recommendations to relevant university officials at the commencement of the semester or as soon as disabling incidence occurs
  - c. Maintain ongoing contact with Student Support Services” (*BU Academic Bulletin 2012-2015 p. 20*).

**PROPOSED WEEKLY OUTLINE OF SCHEDULE:**

DATE	TOPIC	CLASS ACTIVITIES	ASSIGNMENTS DUE
Thursday, Sept.7, 2017	Colorimetry & Spectrofluorimetry OMODIALE, P.E	<b>Interactive discussion on the principle and importance of Colorimetry in Medical laboratory Science.</b>	
Thursday, Sept.14, 2017	Flamephotometry ADEDIJI, I.O		
Thursday, Sept.21, 2017	Nephelometry and Turbidimetry ADEDIJI, I.O		
Thursday, Sept.28, 2017	Electrophoresis AKINLEYE, W.A		
Thursday, Oct.5, 2017	Mass Spectrometry AKINLEYE, WA		
Thursday, Oct.12, 2017	Centrifugation and ultracentrifugation ADEJUMO, E.N		
Thursday, Oct.19, 2017	<b>MID SEMESTER EXAMINATION</b>		
Thursday, Oct.26, 2017	Chromatography (Paper, thin layer, gas, liquid, HPLC) OMODIALE, P.E	<b>Discussions arising from mid semester assessment.</b>	
Thursday, Nov.2, 2017	Dialysis, solvent extraction and gel filtration AKINLEYE, W.A		

Thursday, Nov.9, 2017	Immunoelectrophoretic techniques, enzyme immunoassay - <b>ADEDIJI, I.O</b>		
Thursday, Nov.16, 2017	<b>Automation in Clinical Chemistry</b> <b>ADEJUMO, E.N</b>		
Thursday,Nov.23, 2017	<b>REVISION</b>		
Thursday,Dec.7,2017	<b>FIRST SEMESTER EXAMINATIONS IN PROGRESS; BEST WISHES!</b>		

**NOTE: IT IS COMPULSORY FOR EACH STUDENT TO PURCHASE AT LEAST ONE OF THE RECOMMENDED TEXTBOOKS.**