



BABCOCK UNIVERSITY

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 327/ BASIC CONCEPTS OF NUCLEIC ACID BIOCHEMISTRY & MOLECULAR BIOLOGY**

NO OF UNITS: **2 CREDITS**

DAY OF CLASS: TUESDAY

VENUE FOR CLASS: F208

LECTURE HOURS: 9-10:50AM

TEACHER'S: NAMES- **ADEJUMO, EN;** **OMODIALE, PE AND ADEDIJI, I**
TELEPHONE NO: **07033689407;** **0803436083** **08030410475**
OFFICE ADDRESSES: **C101;** **C102** **B009**
EMAIL ADDRESSES:

(UNIVERSITY SCIENCES COMPLEX)

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

Metabolism of purines and pyrimidines, nucleotides, genome organization and biosynthesis of protein, abnormalities in nucleic acid metabolism, Xeroderma pigmentosum and skin cancer.

COURSE CONTENT: The course will emphasize the metabolism of purines and pyrimidines, nucleosides, nucleotides and nucleic acids; genome organization and biosynthesis of protein. It will also deal with the abnormalities in nucleic acid metabolism such as Xeroderma pigmentosum, skin cancer, etc. Basic issues about Mutation and its effects will be discussed. The metabolism of Uric acid, the principal end product of nucleic acid/ Purine metabolism in man and its associated disease condition Gout will be discussed in details. Furthermore, the role of nucleic acid enzymes and basic techniques in molecular biology will be reviewed.

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

1. Relate with Jesus Christ, our genetic code and linkage to God the father.
2. Draw the biochemical structures of the common purines and pyrimidines.
3. Describe the link between purines, pyrimidines, nucleosides. Nucleotides and nucleic acids.
4. Discuss the importance of natural/synthetic nucleotides and nucleic acid to man.
5. Explain some disorders associated with nucleic acid metabolism.
6. Discuss the role and application of nucleic acid enzymes in molecular diagnostics.
7. Describe basic techniques and applications of molecular diagnostics.

REQUIRED TEXTBOOKS/JOURNALS:

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

- 6) Medical laboratory science, Theory and Practice.1st edition. Kolhatkar. A.Tata; Ochei. J McGraw-Hill Publishers.

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/PRAAYER: - 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*).

COURSE OUTLINE FOR MLSC 327-2017/2018 SESSION

| DATE | TOPIC | CLASS ACTIVITIES | ASSIGNMENTS DUE |
|-------------------------|--|--|---|
| Tuesday, Sept. 5, 2017 | Discussion of course outline; Common purines, pyrimidines and their biochemical structure; Formation of Nucleosides and nucleotides including DNA and RNA. -Omodiale, P.E | Introduction of the course to the students; examples of purines and pyrimidines. | |
| Tuesday, Sept. 12, 2017 | The Importance and utility of natural and synthetic nucleotides/ nucleic acids. -Omodiale, P.E | Interactive class session | |
| Tuesday, Sept. 19, 2017 | Structures of DNA and RNA, types of DNA and RNA (Messenger, transfer, ribosomal, etc.) and differences between DNA and RNA. -Adediji, I.O | Discussion of the differences between DNA and RNA (using the key features in the structures of DNA and RNA) | Write succinctly on DNA replication/synthesis. Submission deadline: Sept 26, 2017 |
| Tuesday, Sept. 26, 2017 | Genetic code, codon and the flow of genetic information from DNA to RNA, to protein. -Adediji, I.O | Interactive class session including power point presentation, questions arising from the topic of discourse. | |
| Tuesday, Oct. 3, 2017 | Abnormalities in nucleic acid metabolism including, Xeroderma pigmentosum, Ataxia telangiectasia, Xanthinuria and other associated skin cancers. -Adejumo, E.N | Row by row discussion of the various enzymes (to end the class). | Read up lecture notes provided for quiz in next class. |
| Tuesday, Oct. 10, 2017 | Mutation, its causes during nucleic acid synthesis and its effects - Adejumo, E.N | Cite examples of genetic diseases. | Discuss one genetic disease common in Nigeria, including the method of diagnosis. Submission deadline: Oct. 16, 2017 |
| Tuesday, Oct. 17, 2017 | MID SEMESTER EXAMINATION | | |
| Tuesday, Oct. 24, 2017 | Phases of protein synthesis. -Omodiale, P.E | Interactive class session. | |
| Tuesday, Oct. 31, 2017 | Synthesis and degradation of Uric; Gout, its causes, signs and symptoms, predisposing factors, laboratory investigation. -Omodiale, P.E | Interactive class session. Lab Procedures for the estimation of uric acid. | |
| Tuesday, Nov. 7, 2017 | Basic Techniques in molecular biology I -Adediji, I.O | Interactive class session including power point presentation, questions arising from the topic of discourse. | |

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| Tuesday, Nov.14,2017 | Basic Techniques in molecular biology II -Adediji, I.O | Interactive class session including power point presentation, questions arising from the topic of discourse. | |
| Tuesday, Nov.21, 2017 | Nucleic acid enzymes; applications in molecular biology. -Adejumo, E.N | General revision; interactive question and answer session. | Study thoroughly for your exams. |
| Tuesday,Nov.28, 2017 | REVISION | | |
| Tuesday, Dec.5, 2017 | FIRST SEMESTER EXAMINATIONS IN PROGRESS; BEST WISHES! | | |

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