Tutorial Letter 101/3/2018

Virology

BMI3705

Semesters 1 and 2

Department of Life and Consumer Sciences

This tutorial letter contains important information about your module.

BARCODE

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1 INTRODUCTION

Dear Student
Welcome to the biomedical sciences and particularly virology! I hope that you will have an enjoyable and fruitful academic year. This module is offered in the Department of Life and Consumer Sciences and your lecturer is Dr. Tracy Masebe. I would like to take this opportunity to wish you success with your academic year.

I would also like to encourage you to register on myUnisa. Please check this site regularly for updates, posted announcements and additional resources uploaded throughout the semester. Rapid communications throughout the semester(s) have been made possible through myUnisa. You can use the myUnisa site to submit assignments and I strongly recommend that you submit your assignment online as this will ensure that you receive rapid feedback and comments, access your official study material, have access to the Unisa Library functions, 'chat' to your lecturers or to fellow students and participate in online discussion forums and obtain access to all manner of learning resources.

If at any stage while you are studying you have any questions or require assistance with problems, I am available to assist you. My contact details are listed in section 3: Lecturer(s) and contact details in this tutorial letter.

Tutorial matter may include the following*:*
Tutorial Letters 101 and 201
Study guide

Some of this tutorial material may not be available when you register. Please note that tutorial matter is also available on myUnisa. PLEASE read the instructions in this tutorial letter carefully and prepare Assignments 01 and 02 ONLY for the semester for which you are REGISTERED. Once you have completed and submitted the assignments you can use the questions in the other assignments as practice or in preparation for the exam. It is very important that your first assignment reaches Unisa on or before the due date. Students who have not submitted this assignment by the due date will not be allowed to write the examination.

2 PURPOSE AND OUTCOMES

2.1 Purpose

Qualifying students are able to know, understand and apply the principles and theory relating to virology. The purpose of this module is to enable you, the individual learner, to identify and apply practices, processes and principles of virology to solve problems in health and disease.

2.2 Outcomes

The student should be able to:

- Explain the structure of viruses
- Discuss the genetic material of viruses

- Discuss virus replication
- Describe disease outbreaks associated with virus infection
- Explain measures used to control virus infection including drugs and vaccines
- Describe emerging and re-emerging virus diseases

3 LECTURER(S) AND CONTACT DETAILS

3.1 Lecturer(s)

Lecturer: Dr. Tracy Masebe
Telephone number: +27 11 471 2268 (during office hours 8:00 – 16:00)
Email address: masebtm@unisa.ac.za

Postal address:
The Lecturer
Department of Life and Consumer Sciences
Private Bag x6
Florida
1710

NOTE: You may enclose more than one letter in an envelope, but do not address enquiries to different departments (e.g. Despatch and Library Services) in the same letter. This will cause a delay in the replies to your enquiries. Please write a separate letter to each department and mark each letter clearly for the attention of that department. **Letters to lecturers may not be enclosed together with assignments**. Always write your **student number and the module code** at the top of your letter.

3.2 Department

The Department of Life and Consumer Sciences is located in the Calabash Building, Unisa Science Campus, Roodepoort, Johannesburg. The Departmental telephone number is +2711 471 2230 and +2711 471 2292, and the Departmental fax number is +2711 471 2796.

3.3 University

Should you need to contact the university about matters not related to the content of this module, consult the publication *Study @ Unisa*, which you received with your study material. This brochure contains information on how to contact the university (e.g. to whom you can write for different queries, important telephone and fax numbers, addresses and details of the opening and closing times of particular facilities).

You can also make use of the following contact routes:
Unisa website http://www.unisa.ac.za & http://mobi.unisa.ac.za
Email (general enquiries) info@unisa.ac.za
International students are urged to make use of the email address info@unisa.ac.za study-info@unisa.ac.za queries related to application and registration.

assign@unisa.ac.za for assignment enquiries
exams@unisa.ac.za for examination enquiries
despatch@unisa.ac.za for study material enquiries
finan@unisa.ac.za for student account enquiries
myUnisaHelp@unisa.ac.za for assistance with myUnisa
myLifeHelp@unisa.ac.za for assistance with myLife email accounts
SMS 32695 – South Africa only
You will receive an auto response SMS with the various SMS options. The cost per SMS is R1.00.
Fax 012 429 4150

NOTE: Whenever you contact the university, whether in writing or telephonically, always mention the **module code and your student number**.

myUnisa webpage (Unisa's online campus)
Access to the myUnisa website requires a computer that is linked to the internet (internet access is available to you at provincial libraries, internet cafés and Unisa regional telecentres, see myUnisa for a list of these places in your area). You should also note that some of these centres allow free internet access on presentation of your student card.

Go to: https://my.unisa.ac.za/portal/
For module-specific information, log in and click on:
BMI3705-18-S1 (for semester 1)

OR

BMI3705-18-S2 (for semester 2).
With the aid of myUnisa, you will ultimately be able to use the internet to perform all study-related functions that are now normally done by telephone, regular postal service or personal visits to the campus.

If you have online access, you should do the following to get started with this module:

- Go to myUnisa (http://my.unisa.ac.za)
- Log in with your myUnisa login details. If you are not sure how to do this, consult the publication *Study @ Unisa*. You should have received this with your study material. Alternatively, use the link to access the publication.)
- Once logged in, you will see a link to the module code. If this is not at the top of your screen, click on 'More sites' and select it from the drop-down menu.
- Once you are in the site for this module, read the welcome message.
- Now click on **Additional Resources**, then on the subfolder **Tutorial Matter**, and then on **Tutorial Letter 101**. Read this letter carefully.
- Go to the **learning units** and read **learning unit 0**.

4 RESOURCES

4.1 Prescribed books

There is no prescribed textbook for this module. However, please make use of a modern microbiology or virology textbook as a general reference for this module.
Please refer to the list of official booksellers and their addresses in the Unisa brochure, *Study @ Unisa*.

If you have difficulty in locating an appropriate textbook at the Unisa Booksellers, please contact the Unisa Prescribed Book Section at Tel: 012 429-4152 or e-mail *vospresc@unisa.ac.za.*

Textbooks can be ordered on the Internet at http://amazon.com or http://www.Takealot.com or http://www.exclusivebooks.com. Note that second-hand books are available at the following Web sites: http://www.amazon.com or http://www.fetchbooks.com.

4.2 Recommended books

There are no recommended books for this module.

4.3 Electronic reserves (e-reserves)

As indicated on the previous page, you will be required to make use of the internet to access information relating to this module. This is an important learning activity for you as you consider future studies, for example at the Honours level. Thus, please will you enthusiastically adopt this method of learning and include details of your online learning as references at the end of your assignment 1 and 2 answers.

Note that announcements will be posted on myUnisa as and when required.

Please access the following online sites that will provide a base of knowledge for you. In addition, please then access more recent online sites to update and extend your knowledge of this module.

Please note that independent study by you is required in addition to information provided on the study guide. Please read up on and around the study unit areas as outlined below and locate these study areas within your textbook as well as according to online links that you may identify. Please adopt this knowledge, and apply it to answering the assignment questions and then continue to add to your knowledge as you prepare for the examination.

Study unit 1: **General principles of virology – virus architecture, classification and nomenclature and, range of diseases caused by viruses.**

Baltimore, D. (1970). RNA dependent DNA polymerase in virions of RNA tumour viruses. *Nature* **226**, 1209-22.
Enders, J. *et al*. (1949). Cultivation of the Lansing strain of poliomyelitis virus in cultures of various human embryonic tissues. *Science* **109**, 85-7.
Venter, J. *et al*. (2001). The sequence of the human genome. *Science* **291**, 1304-51.
Yarus, M. (2010) *Life from an RNA World: the Ancester Within*. Harvard University Press, Cambridge.
Skehel, J. and Wiley, D. (2000). Receptor binding and membrane fusion in virus entry: the influenza HA. *Ann Rev Biochem* **69**, 531-69.
Zhou, Z. *et al*. (2000). Seeing the Herpes virus capsid at 8.5Å. *Science* **288**, 877-80. BMI3705/101 7

Study unit 2: **Virus infection of mammalian cells, virus replication and release from host cells and, genetic variation in viruses.**

Eigen, M. (2002). Error catastrophe and antiviral strategy. *Proc Nat Acad Sci* 99, 13374-6.
Moya, A. and Elena, S. (2000). The evolution of RNA viruses: a population genetics view. *Proc Nat Acad Sci* 97, 6967-73.
Zhuang, J et al. (2002). HIV type 1 recombination: rate, fidelity and putative hot spots. *J Virol* **76**, 11273-82.

Study unit 3: Virus pathogenicity and virulence, virus spread within the host and virus shedding and, patterns of disease.

Anderson, R. and May, R. (1990). Immunization and herd immunity. *Lancet* **335**, 641-5
Cullen, B. (2001). Journey of the center of the cell. *Cell* **105**, 697-700.

Study unit 4: Review of immunology. Please also refer to BMI2607.

Alcani, A. and Koszinowska, U. (2000). Viral mechanisms of immune evasion. *Immunol Today* **21**, 447-55.
Goodbourn, S. *et al*. (2000). Interferons: cell signaling, immune modulation antiviral responses and virus counter measure. *J Gen Virol* **81**, 2341-64.
Orange, J. *et al*. (2002). Viral evasion of natural killer cells. *Nature Immunol* **3**, 1006-12.

Study unit 5: **Viral oncogenesis, tumour suppressor genes and, viruses associated with human cancers.**

Frazer, I. (2002). Vaccines for papillomavirus infection. *Virus Res* **89**, 271-4.
Matsuoka, M. (2003). HTLV-1 and adult T cell leukemia. *Oncogene* **22**, 5131-40.
McDougall, J. (2001). Hit and run transformation leading to carcinogenesis. *Dev Biol* **106**, 77-82.

Study unit 6: Review of epidemiology, nosocomial infections, virus control measures. Please also refer to BMI2602.

Févre, E. *et al*. (2006). Animal movements and the spread of infectious diseases. *Trends Microbiol* **14**, 125-31.
Pourhy, H. *et al*. (2008). The origin and phylogeography of dog rabies virus. *J Gen Virol* **89**, 2673-81.

Study unit 7: Specific virus infections associated with five types of viruses. Viruses will be selected according to their nucleic acid – dsDNA, ssDNA, dsRNA, ssRNA and containing reverse transcriptase.

Bowen, M. *et al*. (2000). Genetic diversity among Lassa virus strains. *J Virol* **74**, 6992-7004.
Glasse, R. (1967). Cannibalism in the Kuru region of New Guinea. *Trans NY Acad Sci* **29**, 748-54.
Prusiner, S. (1982). Prions. *Proc Nat Acad Sci* **95**, 13363-83.

Study unit 8: Special syndromes such as: emerging infections, sexually transmitted infections, infection in immunodeficient patients, respiratory and neural infections.

Buchholz, B. *et al*. (2002). German-Austrian recommendations for HIV therapy in pregnancy. *Eur J Med Res* **7**, 417-33.
Gibb, D. *et al*. (2000). Mother to child transmission of hepatitis C virus: evidence for preventable peripartum transmission. *Lancet* **356**, 904-7.
Chandwani, S. *et al*. (1990). Respiratory syncytial virus infection in human immunodeficiency virus infected children. *J Pediat* **117**, 251-4.

Liste, M. *et al*. (2000). Enteric virus infections and diarrhea in healthy and HIV infected children. *J Clin Microbiol* **38**, 2873-7. 8
Yates, T. and Mills, J. (2002). The ecology and evolutionary history of an emergent disease: Hantavirus pulmonary syndrome. Bioscience 52, 989-98.

Study unit 9: Practical virology including diagnosis, cell culture, immunization and chemotherapy.

Whiley, D *et al*. (2001). Detection and differentiation of human polyomaviruses JC and BK by light cycler PCR. *J Clin Microbiol* **39**, 4357-61.
Global Program for Vaccines and Immunization. (2015). Vaccines and Biologicals, WHO, Geneva.
Jain, M. *et al*. (2003). Changes in mortality related to HIV infection. *Clin Infect Dis* **36**, 1030-8.
Kleymann, G. (2003). Novel agents and strategies to treat Herpes simplex virus infections. *Expert Opin Invest Drugs* **12**, 165-83.

4.4 Library services and resources information

For brief information, go to www.unisa.ac.za/brochures/studies

For detailed information, go to http://www.unisa.ac.za/library. For research support and services of personal librarians, click on "Research support".

The library has compiled a number of library guides:

- finding recommended reading in the print collection and e-reserves – http://libguides.unisa.ac.za/request/undergrad
- requesting material – http://libguides.unisa.ac.za/request/request
- postgraduate information services – http://libguides.unisa.ac.za/request/postgrad
- finding, obtaining and using library resources and tools to assist in doing research – http://libguides.unisa.ac.za/Research_Skills
- how to contact the library/finding us on social media/frequently asked questions – http://libguides.unisa.ac.za/ask

5 STUDENT SUPPORT SERVICES

Important information appears in your *Study @ Unisa* brochure.

6 STUDY PLAN

Use your *Study* @ Unisa brochure for general time management and planning skills.

This is a semester module over 15 weeks and requires 120 hours of study time. This means that you will have to study 8 hours per week for this module. The following is a recommended time schedule which can be used as a guideline for studying this module. Below this time schedule please see an example of a study plan.

ACTIVITY	HOURS
Reading and re-reading study guide	10
Reading relevant chapters in the prescribed textbook	35
Completing study guide activities	10
Studying for and completing the Assignments	20
Studying for examination	40
Final revision	5
TOTAL	**120**

Week	Activity (each week represents 8 hours of study time)
1	Read through your study material (you study guide and tutorial letter) and skim through your text book and identify the relevant chapters. This exercise allows you to gain an overall picture of the module.
2	
3	Read through your textbook, using your study guide, and identify all key areas.
4	
5	
6	Complete and submit Assignment 1. Please allow sufficient time for the assignment to reach Unisa before the due date.
7	Begin with your in-depth study of the initial study units. Please prepare study notes whilst reading and learning the material. Start to complete your Assignment 2
8	
9	
10	Complete and submit Assignment 2. Depending on how you will submit the completed assignment, please note that you should allow sufficient time for the assignment to reach Unisa before the due date.
11	
12	Begin with your in-depth study of later study units. Please prepare study notes while reading and learning the material.
13	
14	
15	Revision and preparation for the exam.

7 PRACTICAL WORK AND WORK-INTEGRATED LEARNING

There are no practicals for this module.

8 ASSESSMENT

8.1 Assessment criteria

Viral architecture has been successfully analyzed when the student is able to:

- Identify the RNA or DNA nature of a virus genome
- Classify viruses into groups according to molecular features of the viruses.
- Appreciate the architecture of the proteins making up the virus capsid
- Show how the protein virus capsid layers protect the virus genetic material.

The characteristics of antigens and the specific immune response has been successfully analyzed when the learner is able to:

- Note the attachment of viruses to specific target sites on the surface of the host cell.
- Visualize how the virus enters the host cell and releases its nucleic acid
- Realize how the virus takes over the machinery within the infected cell so as to produce viral molecules
- Note the assembly and release of daughter viruses from the infected cell.

The analysis of the immune response to virus infection has been successful when learners can:

- show the initial response to virus infection
- show how antibody types indicate the progress of viral infection
- show how infected cells are targeted by cells of the immune system

The analysis of prevention of virus infection has been successful when learners can:

- Discuss the use of various chemicals or monoclonal antibodies in blocking various stages in the viral replication process.
- Discuss the history and use of vaccines in preventing viral disease

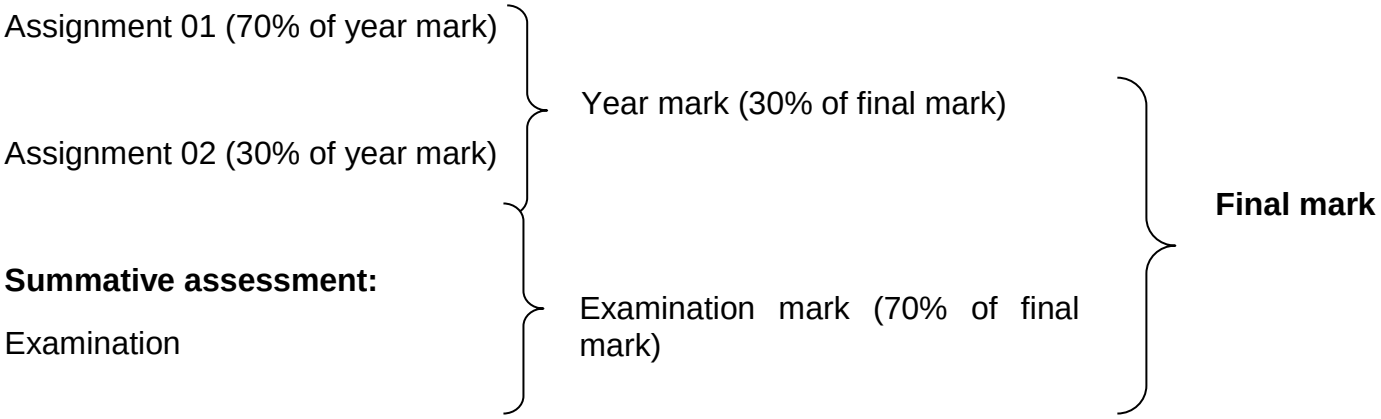
An analysis of HIV/AIDS has been successful when learners can:

- Discuss reporting on HIV/AIDS from the early 1980s
- Evaluate the initial development of a test to detect HIV
- Note changes in the immune response following HIV infection
- Evaluate diagnostic methods to detect HIV
- Comment on developments regarding an HIV vaccine

8.2 Assessment plan

Summary as to how your final mark will be calculated

Formative assessment:



8.3 Assignment numbers

8.3.1 General assignment numbers

Assignments are numbered consecutively per module, starting from 01.

8.3.2 Unique assignment numbers

SEMESTER 1
Assignment 01: **897798**
Assignment 02: **808325**

SEMESTER 2
Assignment 01: **860959**
Assignment 02: **707512**

8.4 Assignment due dates

Each semester consists of two assignments.

SEMESTER 1
Assignment 01: **23 March 2018**
Assignment 02: **20 April 2018**

SEMESTER 2
Assignment 01: **24 August 2018**
Assignment 02: **14 September 2018**

8.5 Submission of assignments

Both assignments are compulsory and must be submitted on or before the stipulated due date. To receive quicker, online feedback and comments on your assignments submit your assignment electronically. If you intend to post your assignment, please complete and post it at least a week before the due date to ensure that we receive it in time. Please note that FAILURE TO SUBMIT ASSIGNMENT 01 WILL RESULT IN YOUR NOT BEING ALLOWED ADMISSION TO THE EXAMINATION. In exceptional circumstances, only a valid medical certificate associated with a valid long-term illness will be considered as a reason for the late submission of an assignment. In such a case, please notify the lecturer well in advance. Note that if no arrangements were made, the assignment will not be marked. Please attach the medical certificate at the back of your assignment and ensure that you have certified copies of such a certificate.

For detailed information and requirements with regard to assignments, see the brochure entitled *Study @ Unisa*, which you received with your tutorial material.

Note: Prepare only the assignments for the semester for which you are registered.

Assignments may not be submitted by fax or email. You may submit written assignments and assignments completed on mark-reading sheets either by regular postal service **or** mobile MCQ submission **or** electronically via myUnisa. Make a copy of your assignment for your own reference and if the original is lost at any stage during the submission process.

Unisa is implementing onscreen marking of assignments to help you receive quicker feedback on your assignments. This will not be the case for all your modules, however, most modules from the Department of Life and Consumer Sciences can be marked in this way.

To allow us to mark your assignment onscreen, you need to do the following:

Use a file format that can be uploaded to myUnisa. These formats are listed in the "Specify the type of file" drop-down list on the submission screen. A **pdf file** is the preferred option (formatting and layout is retained). Please do not submit assignments in write protected/read only pdf formats. Use only **the Adobe pdf format**. Information on pdf converters can be found on the myUnisa homepage under "Electronic resources". Navigate to the assignments tool on myUnisa to start the process. When you click "Continue", your assignment will be uploaded to the Unisa network. This may take several minutes depending on the size of your assignment and the speed of your internet connection. Once the assignment is received, its details will be displayed on your screen for final checking. You can either go back and make corrections or click on "Submit assignment" to submit it.

8.6 The assignments

Assignments are seen as part of the learning process for this module. As you complete the assignment, study the textbook, consult other resources, discuss the work with fellow students or tutors or do research - you are actively engaged in learning. Looking at the assessment criteria (e.g. the action words and the mark allocation) given for each assignment will help you to understand what is required of you more clearly.
There are TWO assignments for this module for each semester. You will find the assignments for:

Semester 01 (January to June) in **Appendix A,** and
Semester 02 (July to December) in **Appendix B** of this tutorial letter.

The **due dates** are given with each assignment in Appendix A and B.

The first assignment of BMI3705 is compulsory. You will qualify for examination admission for this course only if you submit the first assignment by the due date. More than one assignment is set for this course; therefore, all the assignments will be taken into consideration when calculating your year mark. Thus, to ensure a good year mark that contributes to improving your final mark, submit all your assignments on time.

8.7 Other assessment methods

Not applicable.

8.8 The examination

Use your *Study @* Unisa brochure for general examination guidelines and examination preparation guidelines.

This module is offered in a semester period of fifteen weeks. This means that if you are registered for the first semester, you will write the examination in May/June 2018 and the supplementary examination will be written in October/ November 2018. If you are registered for the second semester you will write the examination in October/November 2018 and the supplementary examination will be written in May/June 2019.

For examination admission it is compulsory for you to hand in the first assignment for this module. It is also to your own advantage to do the assignments in order to test your understanding of the subject, and to establish how well prepared you are for the examination. You need to obtain a minimum of 40% in your examination to be able to pass. If you do not obtain at least 40% in the exams, you will fail even if the combination of year and exam mark is more than 50%. You will also need a minimum of 40% in the examination to obtain admission to a supplementary examination.

You require a final mark of 50% to pass this module. Please see the examples below:

- Exam mark below 40% will result in your failing this module.
- Exam mark 40% and Year mark 50% (combination of your first and second assignment marks) = A final mark of 43% - you will be allowed to write a supplementary exam.

Calculated as:

40 x 70% (0.70) = 28%

50 x 30% (0.30) = 15%

- Exam mark 50% and Year mark 60% = A final mark of 53% - you will pass this module

  Calculated as:

  50 x 70% (0.70) = 35%

  60 x 30% (0.30) = 18%

As you can see from these examples, it is important to obtain a minimum of 40% for your exam, as well as submitting both your assignments and work hard to obtain a good year mark to ensure that you pass the module.

You will have the opportunity to give an account of your studies in a two-hour examination paper (per module). You will be informed by letter of the dates, places and venues of the examinations. Examination guidelines, posted on myUnisa will give you pointers as to how to prepare for the examination. Revision should be done thoroughly before the examination. Contact us immediately, preferably by direct email, if you encounter any problems. Students can also refer to the *Study* @ Unisa brochure for general examination guidelines and examination preparation guidelines. The examination paper is a two (2) hour examination and consists of questions such as those requiring you to provide definitions of terms, draw labelled diagrams as well as answering short and longer essay questions.

You will be informed later by letter of the dates, places and venues of the two-hour examination required per module. Exam guidelines, posted on myUnisa will give you pointers on how to prepare for the examination. Revision should be completed before the examination and you should contact us immediately by email if you encounter any problems. Students can also refer to the *Study* @ Unisa brochure for general examination guidelines and examination preparation guidelines.

The examination paper is a two (2) hour examination and consists of questions such as those requiring you to provide definitions of terms, draw labelled diagrams and/or answering short and longer essay questions.

9 FREQUENTLY ASKED QUESTIONS

The *Study* @ Unisa brochure contains an A-Z guide of the most relevant study information.

10 SOURCES CONSULTED

Not applicable.

11 IN CLOSING

Not applicable

12 ADDENDUM

Appendix A – Assignments for the first semester

Appendix B – Assignments for the second semester

Plagiarism

It is incumbent of all of us to behave ethically and so I would seriously remind you of a major problem regarding unethical behavior in education, namely plagiarism.

Plagiarism is the act of taking words, ideas and thoughts of others and passing them off as your own. It is a form of theft, which involves a number of dishonest academic activities. The Disciplinary code for students (2004) is given to all students at registration. You are advised to study the Code, especially sections 2.1.13 and 2.1.4 (2004:3-4). Also, read the University's Policy on (Copyright infringement and plagiarism).

Avoiding Plagiarism

We cannot place enough emphasis on the seriousness of plagiarism. Please do not plagiarise – it is a form of THEFT. If plagiarism is detected, lecturers cannot determine if the student has learnt the subject material and so it is very difficult to assign a mark. In this case, the assessor must ask the question: "Who is being assessed, the student who prepared the assignment or the author of the plagiarised text?

Ideally, the student should understand and learn the subject matter and write an assignment answer on this material in his/her own words. If, for whatever reason, this is difficult for the student to achieve, we recommend that the student answer the question by:

- Writing down subject material from the text
- Remembering to place this quote within inverted commas
- Ending the quote by supplying a correct reference of the author of this quoted material
- Providing a few personal sentences that indicate that the student has reflected on this material.

Note: This latter reflection indicates that the student has read, understood and can place the answer in an academic, personal, social, research etc. context.

APPENDIX A: FIRST SEMESTER COMPULSORY ASSIGNMENT

Department of Life and Consumer Sciences

Medical Microbiology – BMI3705

Semester code: 01

Assignment no:	**01**
Due date:	**23 March 2018**
Unique assignment number:	**897798**

INSTRUCTIONS

1) Type your assignment on a computer. You may print on ordinary white paper and not necessarily the Unisa typing paper provided. Please use 1,5 spacing and Arial or a similar font of 11 or 12 pitch. Leave a line open between questions. If you are not able to type your assignment on a computer, use a black or blue pen and please write neatly.

2) If you want to submit a hard copy of this assignment, use the assignment cover and envelope provided. When stapling your answers inside the cover, staple only in the top left-hand corner.

3) Your student number is the number just below your address. This number must be filled in on the assignment cover and must also be quoted in all correspondence with the university.

4) Answer all questions as briefly and clearly as possible in your own words.

5) Number your answers correctly.

6) Please restrict the length of your answers to a maximum of one and a half pages per question.

QUESTION 1 **[10]**

Discuss the historical importance of poxviruses in immunization and their use in disease eradication

QUESTION 2 **[20]**

Several viruses are implicated in latent infections. State 2 examples of such viruses, and discuss in detail their morphology, and replication strategy. In your answer, indicate the mechanism which leads to latent infections as well as how they may be reactivated.

QUESTION 3 **[10]**

With the aid of examples, describe how the replication strategy of dsDNA-RT viruses differs from that of ssRNA-RT viruses

QUESTION 4 **2x10=[20]**

Give a brief explanation of the morphology, clinical manifestation, diagnostic procedure, and social significance of infections caused by the following medically important microorganisms:

a) Human papillomavirus **(10)**
b) Ebola virus **(10)**

QUESTION 5 **[20]**

a) Compare and contrast the five viruses that cause hepatitis. In your answer, include reasons why they are classified in different families.

TOTAL MARKS : [80]

END OF ASSIGNMENT 01

Department of Life and Consumer Sciences

Medical Microbiology – BMI3705

Semester code: 01

Assignment no:	**02**
Due date:	**20 April 2018**
Unique assignment number:	**808325**

INSTRUCTIONS

1) Type your assignment on a computer. You may print on ordinary white paper and not necessarily the Unisa typing paper provided. Please use 1,5 spacing and Arial or a similar font of 11 or 12 pitch. Leave a line open between questions. If you are not able to type your assignment on a computer, use a black or blue pen and please write neatly.

2) If you want to submit a hard copy of this assignment, use the assignment cover and envelope provided. When stapling your answers inside the cover, staple only in the top left-hand corner.

3) Your student number is the number just below your address. This number must be filled in on the assignment cover and must also be quoted in all correspondence with the university.

4) Answer all questions as briefly and clearly as possible in your own words.

5) Number your answers correctly.

6) Please restrict the length of your answers to a maximum of one and a half pages per question.

QUESTION 1 **[15]**

Describe the significance of antigenic shift and antigenic drift in influenza A virus infection.

QUESTION 2 **[15]**

Write short notes on deltaretroviruses and lentiviruses and describe how their oncogenic and immunosuppressive properties respectively result in diseased state in an infected individual.

QUESTION 3 **[15]**

Discuss briefly the causative agent, pathogenesis, mode of transmission and social impact of one global ongoing infectious disease.

QUESTION 4 **[15]**

Explain how viruses that do not show cytopathic effects may be detected.

TOTAL MARKS : [60]

END OF ASSIGNMENT 02

APPENDIX B: SECOND SEMESTER COMPULSORY ASSIGNMENT

Department of Life and Consumer Sciences

Medical Microbiology – BMI3705

Semester code: 02

Assignment no: **01**

Due date: **24 August 2018**

Unique assignment number: **860959**

INSTRUCTIONS

1) Type your assignment on a computer. You may print on ordinary white paper and not necessarily, the Unisa typing paper provided. Please use 1,5 spacing and Arial or a similar font of 11 or 12 pitch. Leave a line open between questions. If you are not able to type your assignment on a computer, use a black or blue pen and please write neatly.

2) If you want to submit a hard copy of this assignment, use the assignment cover and envelope provided. When stapling your answers inside the cover, staple only in the top left-hand corner.

3) Your student number is the number just below your address. This number must be filled in on the assignment cover and must also be quoted in all correspondence with the university.

4) Answer all questions as briefly and clearly as possible in your own words.

5) Number your answers correctly.

6) Please restrict the length of your answers to a maximum of one and a half pages per question.

QUESTION 1 **4X5=[20]**

Briefly define the following terms, providing relevant examples where necessary:

a) Obligate intracellular parasites
b) Cytopathic effects
c) Acquired immune deficiency syndrome
d) Viral tropism

QUESTION 2 **[15]**

Discuss the role of Hepatitis B virus in the development of Hepatic cancer.

QUESTION 3 **[15]**

Describe how the introduction of combination therapy has impacted on the lives of individuals infected with HIV/AIDS.

QUESTION 4 **[15]**

Discuss the principles behind the use of the following techniques in virus diagnosis

a) Polymerase chain reaction
b) ELISA
c) DNA sequencing

QUESTION 5 **[15]**

There is an outbreak of an unknown infectious viral disease and the patients are admitted into a hospital where you are working as a medical scientist. Describe in detail the steps you would follow to ensure proper identification of the agent in question taking into consideration the risks involved.

TOTAL MARKS : [80]

END OF ASSIGNMENT 01

Department of Life and Consumer Sciences

Medical Microbiology – BMI3705

Semester code: 02

Assignment no: **02**

Due date: **14 September 2018**

Unique assignment number: **707512**

INSTRUCTIONS

1) Type your assignment on a computer. You may print on ordinary white paper and not necessarily the Unisa typing paper provided. Please use 1,5 spacing and Arial or a similar font of 11 or 12 pitch. Leave a line open between questions. If you are not able to type your assignment on a computer, use a black or blue pen and please write neatly.

2) If you want to submit a hard copy of this assignment, use the assignment cover and envelope provided. When stapling your answers inside the cover, staple only in the top left-hand corner.

3) Your student number is the number just below your address. This number must be filled in on the assignment cover and must also be quoted in all correspondence with the university.

4) Answer all questions as briefly and clearly as possible in your own words.

5) Number your answers correctly.

6) Please restrict the length of your answers to a maximum of one and a half pages per question.

QUESTION 1 **[15]**

Explain the different mechanisms employed by viruses in parasitizing their hosts.

QUESTION 2 **[15]**

Provide reasons why Retroviruses do not conform to the central dogma of molecular biology**.**

QUESTION 3 **[15]**

Discuss briefly the significance of phage therapy.

QUESTION 4 **[15]**

Describe how segmentation in RNA viruses may contribute to genetic reassortment and recombination.

TOTAL MARKS : [60]

END OF ASSIGNMENT 02
