Tutorial Letter 201/3/2018

EPIDEMIOLOGY

BMI2602

Semesters 2

Department of Life and Consumer Science

This tutorial letter contains important information about your module.

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Dear Student,

1. INTRODUCTION

I trust that you have been studying hard and that you are feeling confident approaching the upcoming examination. This tutorial letter will provide some more information regarding the examination and is essentially the exam guidelines that are always provided to you. The exam guidelines are being sent out early to ensure that you have plenty of time to prepare for the upcoming exam. Once I am finished marking all the assignments I will determine if and answer guide or memo is something that needs to be sent to all students. For the memo or answer guide keep a look out on *myUnisa* and make sure you get your e-mail notifications via your mylife email when announcements are posted. I will post the memo or answer guide on *myUnisa* under the additional resources tab/announcements if I determine it is necessary to supply you with one.

Remember, your assignments count towards your final mark (30% of the final mark to be exact) so make sure you prepare the answers and take your time to really work hard on the assignments. Assignment1 the same as assignment 2, so it is essential that you work hard at preparing the answers and ensuring they reach Unisa. I have designed the assignments in such a way that they help you prepare for the exam. Remember if you struggling to answer questions with your textbooks and study note in front of you it's going to be even harder to answer questions in the exam. Rather identify areas where you need to enhance your study notes while doing your assignment than in the exam because then it's too late!

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 TUT101 and my email address is monyamc@unisa.ac.za. It is important to remember that Epidemiology, although a subject with many facts also requires you, to understand what these facts mean. So don't learn sections off by heart like a parrot, learn the facts while understanding the process involved or steps in a protocol. This will allow you to answer any type of question with regard to the material.

2. ASSESSMENTS: GENERAL NOTES

In Tut101 I explained how each assessment (assignments and exams) contributes to your year mark, please revisit that section to refresh your memory. The important message is everything you do counts towards your final mark. So do please work hard and devote a good deal of time to all assignments and preparation for the exam. For **BMI2602** you will write an exam for your summative assessment, you are reminded to consult myUnisa to determine when, what time and where you are writing the examination to ensure that you allow yourself sufficient time to prepare for the assessment and that you arrive on time for the examination. Continuously check myUnisa to ensure that you have the correct dates, times and venues as these may change. If you cannot locate these details, please e-mail Exams@unisa.ac.za or send an SMS to 43584 and state your enquiry.

You will only be granted a supplementary examination if you achieved 40% or higher in the examination and have not passed the module when the year marks were factored into the final mark. A final module mark below 50% means you have failed the module and a final module mark above 75% is a distinction mark.

Furthermore, take note that if you are writing a supplementary exam, your year mark is not factored in. Only the examination mark will be taken into consideration as your final mark.

COMPILATION AND TIME ALLOCATION OF THE SUMMATIVE ASSESSMENT

Exam guidelines **BMI2602**

1. Introduction

This Tutorial letter serves the purpose of providing you with useful Examination Guidelines to follow as you prepare for the upcoming examination. You are assured that the summative assessment (examination) you are preparing for, is not a deliberate attempt to fail you. It has been put in place for you to confirm your competence of the module and how well you have mastered the outcomes of the module. You are encouraged to prepare yourself for the upcoming assessment opportunity as this will be your key to successfully completing the module.

2. Outcomes of the module

Please visit TUT letter 101 for the outcomes of this module.

3. Format of the summative assessment

This is a formal sit-down examination.

4. Compilation of the summative assessment

The question paper you will be writing during the Oct/Nov 2018 examination period will consist of short and long questions. Short questions will range between 1 – 5 marks whereas long questions will be up to 20 marks each.

PLEASE NOTE: There will be NO Multiple Choice Questions (MCQ) in this assessment.

5. Time allocation during the summative assessment

The question paper must be completed within 2 hours. You will not be given extra time to complete the paper. You are advised to allocate enough time to each section in order to complete all the questions in the question paper. You will lose a lot of marks if your answers are not well thought through and motivated.

6. Use of previous examination papers

It is advisable that you use previous examination papers for BMI**2602** to test yourself. Example questions such as those in previous examination papers may not necessarily be asked in the

examination. These questions only serve as a guide to determine if you have prepared well enough to successfully complete the summative assessment. Previous examination papers will also assist you in testing your competence in answering different types of questions. Remember that the type of questions may be applied to different aspects of the work you have studied and will not only be applied to the particular piece of work used in the example question.

7. Release of examination results

You might be anxious to receive your marks after completing the first summative assessment opportunity in Oct/Nov 2018. You are reminded that Unisa will officially release the examination marks in December 2018. Marks may be release earlier if the assessment and moderation process has been fully completed and signoff could be granted before the official Unisa release date. Marks may not be released telephonically or via any other method of communication without official signoff by the Executive Dean.

8. Closing remarks

The examination guidelines for this module have been compiled to adequately assist you in preparing yourself for the coming summative assessment. You will successfully complete the assessment if you apply yourself and use the examination guidelines to assist in the preparation for the examination. Feel free to contact me if you are “struggling” to grasp certain concepts. I will need you to explain where you get lost or what specifically confuses you. Good luck for the exam preparation but please remember that luck does not replace effort and effort needs to be correctly channelled to yield meaningful results.

Kind regards

Mr MC Monyama

Appendix A

Dear student,

As you are aware, the exam is fast approaching! This is just a reminder that although the previous exam papers are available for use, they should be used merely as a tool to judge your competence in this module.

You should not rely solely on the previous exam papers as a source of information, because these questions are not guaranteed to appear in any future exams for this module. Doing this would be a huge risk, and may cost you once you receive your marks, so do not take any short cuts! Manage your time efficiently in order to make sure that you can properly summarize and learn everything in this module before the final assessment.

What I have realised is that many times, students are not able to score better for their exams because of misinterpretation of the questions, hence they fail to answer the question properly. As it is very important to be well prepared for your exams, it is also essential to be skilled enough to present the gathered information and answer the questions in a clear and concise way. Minor errors caused by your negligence may reflect on your final results. There are many things that can help you avoid by creating minor errors in your exams. Here are few simple tips which may help you achieve better marks.

Remember; Long answers are similar to short answers, but it requires detailed information about the topic. This is an essay type of answer which should be well elaborated with the suitable diagram, important points, merits and demerits with proper examples.

Most of the students generally get panic during the exam hours and try to write whatever they know just to make the answer look lengthy which may create an average impression. Hence, it is advisable to write the required information accurately and present the answer in a compact and brief manner.

Here are some common mistakes, usually students create during exams and how to overcome them.

- Read the question paper thoroughly along with the instructions given and manage the allocated time for each question. Never get panic if a question comes up that you do not know.

- Your answers should contain the concepts and facts in an interesting way and never look like a story (be scientific). It should be in the phrase or in points one below the other to represent a complete answer and make sure to present a tabular column for the comparison questions.

- Avoid grammatical mistakes.

- Try to attempt all those questions first which are easy and you are more familiar with. This will help in building your positive thoughts towards exam.

- Attempt all questions. Avoid leaving any questions blank.
- Finally, keep last 10 to 15 minutes of your time in re-checking and arranging the answer sheet in sequential order before submitting to the examiner.

All of the best.

Appendix B

Department of Life and Consumer Sciences

Epidemiology – BMI2602

Semester code: 02

Assignment 02

Due Date: 21St September 2018

Unique assignment number: 763320

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.

QUESTION 1

Define the following terms:

1.1 **Endemic-** regularly found among particular people or in a certain area.

1.2 **Incubation period-** the period between exposure to an infection and the appearance of the first symptoms.

1.3 **Misclassification bias-** when study participants are misclassified with regard to disease or exposure

1.4 **Retrospective cohort**- are conceived after some people have already developed the outcomes of interest.

1.5 **Positive predictive value-** is the probability that subjects with a positive screening test truly have the disease.

[2X5=**10]**

QUESTION 2

Give short explanatory notes of the following:

2.1 **Prospective cohort study-** The investigator lookouts for outcomes, such as the development of a disease, during the study period and relates this to other factors such as suspected risk or protection factor(s). The study usually involves taking a cohort of subjects and observe them over a long period.

2.2 **Relationship between validity and reliability-** validity refers to the ability of the results to be generalized to the study population. Thus, the results should apply to the same subjects beyond the study. The relationship between the two is that if the study is valid, then it must be reliable. / validity also refers to the ability of the results to be generalized to the study population. Thus, the results should apply to the same subjects beyond the study. The relationship between the two is that if the study is valid, then it must be reliable.

2.3 **Ethical issues-** A problem or situation that requires a person or organization to choose between alternatives that must be evaluated as right (ethical) or wrong (unethical). Ethical issues include issues bordering on matters of honesty, fairness, justice and conflicts of interests. For example, fairness implies that people are held to similar standards, honesty, that people are truthful and can be trusted; justice, that people are fundamentally equal and should therefore be treated equally; and conflict of interests are cases where there is a clash between the public interest and the private pecuniary interest of an individual.

2.4 **Public health-** deals with dangers to the public health of a population, whether small or large (i.e. populations of a continent) to improve the quality of health and the quality of life in through detecting and preventing disease and other physical and mental health conditions, promoting health behaviours etc. Analysing the health of a population and the threats is the basis for public health.

2.5 **Sequential testing-** After the first (screening) test was conducted, those who tested positive were brought back for the second test to further reduce false positives and consequently, the overall process will increase specificity but with reduced sensitivity. i.e. when positives from the first test are retested, there is a net loss in sensitivity but a net gain in specificity, compared to either of the tests used

[3X5=**15**]

QUESTION 3

Describe the four levels of prevention. Give examples of action at each level which would be appropriate as part of a comprehensive programme to prevent stroke.

- **Primordial prevention:** underlying condition leading to causation (total population)

  It is consisting of actions and measures that inhibit the emergence of risk factors in the form of environmental, economic, social and behavioural conditions and cultural patterns of living etc. it is the prevention of the emergence or development of risk factors in countries or population groups in which they have not yet appeared. The main intervention in primordial prevention is through individual and mass education.

- **Primary prevention:** specific causal factor

  The action taken prior to the onset of disease, which removes the possibility that the disease will ever occur. It signifies intervention in the prepathogenesis phase of a disease or health problem. This can be accomplished by measures of health promotion (health education, nutritional interventions etc.) and specific protection (e.g. immunization, chemoprophylaxis etc.)

- **Secondary prevention**: early stage of disease

  It is defined as action which halts the progress of a disease at its incipient stage and prevents complications.

  The specific interventions are: early diagnosis such as screening tests and case finding programs) and adequate treatment. It attempts to arrest the disease process, restore health by seeking out unrecognised disease and treating it before irreversible pathological changes take place, and reverse communicability of infectious disease. It thus protects others from the community from acquiring the infection.

- **Tertiary prevention:** late stage of disease (treatment, rehabilitation)

  It is used when the disease process has advanced beyond its early stages. During tertiary prevention, all the measures available to reduce or limit impairments and disabilities, and promote the patient's adjustment to irremediable conditions. Intervention that should be accomplished in this stage are disability limitation and rehabilitation.

[20]

QUESTION 4

Evidence-based guidelines have improved clinical outcomes. Elaborate.

Evidence-based: specify good clinical practice. They aim to enable appropriate decisions and improve the quality of patient care. means 'integrating individual clinical expertise with the best available external clinical evidence from systematic research. these are based on systematic review of scientific data with input from knowledgeable clinicians. If the evidence is presented in a way which makes its judicious application easier, then clinicians may be more likely to use it The evidentiary base provides a sound foundation on which to introduce changes to resource allocation. if clinicians provide interventions which are known to improve clinical outcomes, then patients should benefit. A guideline will have this effect unless it is based on unsound or inappropriate evidence or it is applied incorrectly or not at all. The first

defect can be prevented by following rigorous approaches to the review of the underlying research and the preparation of the guideline, excluding studies which are unreliable or inapplicable to the patient group for which the guideline is intended, and synthesising the evidence correctly. This is what distinguishes an evidence-based guideline from a summary of clinical opinion, and clinicians seem to find evidence-based recommendations more persuasive than those not based on research evidence. The evidence-based clinical guidelines can improve care, showing that they can is valuable as proof of principle, similar to early testing of a drug's efficacy and safety. A positive answer would permit investigation of the more complex question of how the presentation and introduction of guidelines influences their uptake and use. A guideline's impact will be influenced by many attributes of the guidelines themselves, their subject, how they were developed, the underpinning evidence, their presentation, how they are introduced to clinicians and inserted into their workflow, the involvement of patients, clinical governance arrangements, and the provision of relevant incentives for use and penalties for non-use.

[20]

QUESTION 5

You are a public health official in a medium-sized city with several large industrial enterprises. The workers in these enterprises are provided with medical care through a uniform insurance system, which means that all current and retired workers are likely to get health care from the same hospital. A hospital doctor calls you and expresses concern about the large number of lung cancers among the workers. How would you design an initial study to investigate potential associations between occupational exposures and increased risk of lung cancer?

Case-control study- they can be a very efficient way of identifying an association between an exposure and an outcome.

Cases

Consider a situation in which a large number of cases of lung cancers among the workers have occurred. The case group would consist of all those patients at the industrial enterprises who developed lung cancers during.

The definition of a case needs to be very specific:

- Within what period of time after operation will the development of lung cancer qualify as a case – one day, one week, or one month?
- Will clinical diagnosis be acceptable to prove the presence of lung cancer?
- Clinical criteria must be identified in great detail.
- How will negative results be differentiated from lung cancer?

There are not necessarily any 'right' answers to these questions but they must be answered before the study begins. At the end of the study, the conclusions will be valid only for patients who have the same sort of 'lung cancer' as in the case definition.

Controls should be chosen who are similar in many ways to the cases. The factors (e.g., age, sex, time of being employed) chosen to define how controls are to be similar to the cases are the 'matching criteria'. The selected control group must be at similar risk of developing the outcome; it would not be appropriate to compare a group of controls who had traumatic corneal lacerations with cases who underwent elective intraocular surgery. In our example, controls could be defined as workers who are employed at the industrial enterprises during the same period of time.

An important technique for adding power to a study is to enrol more than one control for every case. For statistical reasons, however, there is little gained by including more than two controls per case.

In the analysis stage, calculate the frequency of each of the measured variables in each of the two groups. As a measure of the strength of the association between an exposure and the outcome, case-control studies yield the odds ratio. An odds ratio is the ratio of the odds of an exposure in the case group to the odds of an exposure in the control group.

Another use for case-control studies is investigating risk factors for a rare disease, such as uveal melanoma. In this example, cases might be recruited by using hospital records.

Matching controls to cases will mitigate the effects of confounders. A confounding variable is one which is associated with the exposure and is a cause of the outcome.

Case-control studies may prove an association but they do not demonstrate causation.

[25]

QUESTION 6

With reference to ethical issues, comment on Edwards Jenner's first vaccination performance against smallpox.

Edwards Jenner injected an eight-year-old child with the pus taken from a cowpox infection and then deliberately exposed him to an infected carrier of smallpox. Jenner's experiment was, fortunately, successful, the method of exposing a child to a deadly disease in this way would absolutely nowadays be seen as unacceptable/ unethical. Since the informed consent was not obtained and his methods are unacceptable. injecting an eight-year-old child with the pus taken from a cowpox infection which were not clinically tested of other infectious disease / or tested for safety to be used. However, from this, He developed a vaccination for smallpox that saved a life/lives during the process and eradicates one of the greatest scourges of humanity, yet is often accused of conducting unethical experiments. However, this is supported by the ethical principle of beneficence, which requires that potential benefits to individuals

and to society be maximized and that potential harms be minimized. There are certainly things that we might question. Experimenting on the son of his gardener raises concerns about pressure and consent. The aspects of the scientific design given might be questioned as well, given the fact that there was only one subject being looked at. But to the central charge, that he deliberately exposed a young child to smallpox solely to see if his vaccination procedure was effective, the argument may arise that he is not guilty. What he did do was variolate the child, a standard medical treatment at the time, known to be effective against smallpox. Jenner routinely performed variolation on his patients, and had been variolated himself. He took advantage of this procedure to demonstrate that vaccination really did protect from smallpox.

There's more facts that one can think of regarding the ethics, above is just to give you an idea on how to approach such questions.

[20]

TOTAL MARKS= 100