Tutorial Letter 101/0/2022

Calculus B

MAT1613

Year module

Mathematical Sciences

This tutorial letter contains important information about your module.

BARCODE

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Dear Student

1 INTRODUCTION

Welcome to module MAT1613 on Calculus. I hope you will find it both interesting and rewarding. This module is offered as a semester module. You will be well on your way to success if you start studying early in the semester and resolve to do the assignments properly.I hope you will enjoy this module, and wish you success with your studies. You will find all the study material online.

Apart from Tutorial Letter 101 and the study guide which will be available both online at the time of registration, all other tutorial letters and some extra material will be uploaded online later in the semester. The solutions to the assignments will also be uploaded online about a week after the closing date.

Please access the myUnisa website at http://my.unisa.ac.za

Tutorial Letter 101 contains important information about the scheme of work, resources and assignments for this module. Weurge you to read it carefully and to keep it at hand when working through the study material, preparing the assignments, preparing for the examination and addressing questions to your lecturers.

In this tutorial letter you will find the assignments as well as instructions on the preparation and submission of the assignments. This tutorial letter also provides information with regard to other resources and where to obtain them. Please study this information carefully.

Certain general and administrative information about this module has also been included. Please study this section of the tutorial letter carefully.

You must read all the tutorial letters carefully, as they always contain important and, sometimes, urgent information.

2 PURPOSE AND OUTCOMES

2.1 Purpose

This module will be useful to students interested in developing those skills in integral and differential calculus which can be used in the natural economic, social and mathematical sciences. Students credited with this module will have the knowledge of those basic techniques in differential and integral calculus which are used in related rates problems, graph sketching, evaluating integrals, calculating volumes and areas, and in maximum and minimum problems.

2.2 Outcomes

2.2.1 Calculate and use the derivatives of a function to sketch a graph of the function.

2.2.2 The first derivative is used to determine the relationship between the rates of change of various quantities in the rates-of-change word problem.

2.2.3 The student is able to solve maximum or minimum word problems using the theory of derivatives.

2.2.4 Ability to use L'Hôpital's rule to determine limits of indeterminate forms.

2.2.5 Calculation of the volumes of solids of revolution.

2.2.6 An improper integral is tested for convergence or divergence and evaluated if convergent.

2.2.7 The student is able to use various integration techniques to evaluate integrals.

2.2.8 The student is able to calculate the Taylor polynomial of any order at a given point.

3 CURRICULUM TRANSFORMATION

Unisa has implemented a transformation charter based on five pillars and eight dimensions. In response to this charter, we have placed curriculum transformation high on the teaching and learning agenda. Curriculum transformation includes the following pillars: student-centred scholarship, the pedagogical renewal of teaching and assessment practices, the scholarship of teaching and learning, and the infusion of African epistemologies and philosophies. These pillars and their principles will be integrated at both programme and module levels as a phased-in approach. You will notice a marked change in the teaching and learning strategy implemented by Unisa, together with how the content is conceptualised in your modules. We encourage you to embrace these changes during your studies at Unisa in a responsive way within the framework of transformation.

4 LECTURER(S) AND CONTACT DETAILS

4.1 The lecturers responsible for the module are

Dr L Lindeboom

G J Gerwel building 6-53

UNISA Florida Campus

E-mail address: lindel@unisa.ac.za

And

Mr P T Malima

G J Gerwel building 6-53

UNISA Florida Campus

E-mail address: malimpt@unisa.ac.za

All queries that are not of a purely administrative nature but are about the content of this module should be directed to us. Email is the preferred form of communication with use.If you phone, please have your study material with you when you contact us. If you cannot get hold of us, leave a message with the Departmental Secretary. Please clearly state your name, time of call and how I can get back to you. When allowed you are always welcome to come and discuss your work with us, but please make an appointment. Please come to these appointments well prepared with specific questions that indicate your own efforts to have understood the basic concepts involved.

You are also free to send us emails about any of the difficulties you encounter with your work for this module. If these difficulties concern exercises which you are unable to solve, you must send your attempts so we can see where you are going wrong, or which concepts you do not understand.

4.2 Department

The number of the secretary of the Department Mathematical Sciences at the Unisa Florida campus is: 011 6709147

The fax number of the Department Mathematical Sciences at the Unisa Florida campus is: 011 6709171

4.3 University

University (contact details)

If you need to contact the University about matters not related to the content of this module,

please consult My studies @ Unisa. It contains information on how to contact the University (e.g. to whom you can write for different queries, important telephone and fax numbers, email addresses and details of the times certain facilities are open). Always have your student number at hand when you contact the University

5 RESOURCES

5.1 Prescribed textbook

James Stewart

CALCULUS Early Transcendentals(International Metric version)

Cengage Learning

8th Edition

ISBN 978-1-305-27237-8

Make sure that you obtain the correct book (NB make very sure that the ISBN number is identical to the above.) Please refer to the list of official booksellers and their addresses in the publication my Studies @ Unisa . Prescribed books can be obtained from the University's official booksellers. If you have difficulty in locating your book(s) at these booksellers, please contact the Prescribed Book Section at Tel: 012 429-4152 or e-mail vospresc@unisa.ac.za.

5.2 Recommended book(s) There are no recommended books for this module.

However any book on Calculus which contains the relevant study topics can be used

to obtain more exercises. However, remember that the notation might not be the same as

in the above textbook so you need to change it to the relevant notation

5.3 Electronic reserves (e-reserves)

E-reserves can be downloaded from the Library catalogue. More information is available at https://libguides.unisa.ac.za/request/request

5.4 Library services and resources

The Unisa Library offers a range of information services and resources:

- For a general Library overview, go to https://www.unisa.ac.za/sites/corporate/default/Library/About-the-Library Library @ a glance
- For detailed Library information, go to https://www.unisa.ac.za/sites/corporate/default/Library
- For research support and services (eg personal librarians and literature search services), go to https://www.unisa.ac.za/sites/corporate/default/Library/Library-services/Research-support

The Library has created numerous **Library guides** to assist you: http://libguides.unisa.ac.za

Recommended guides:

- Request recommended books and access e-reserve material: https://libguides.unisa.ac.za/request
- Requesting and finding library material: Postgraduate services: https://libguides.unisa.ac.za/request/postgrad
- Finding and using library resources and tools (Research Support): https://libguides.unisa.ac.za/research-support
- Frequently asked questions about the library: https://libguides.unisa.ac.za/ask
- Services to students living with disabilities: https://libguides.unisa.ac.za/disability
- A-Z databases: https://libguides.unisa.ac.za/az.php
- Subject-specific guides: https://libguides.unisa.ac.za/?b=s
- Information on fines & payments: https://libguides.unisa.ac.za/request/fines

Assistance with **technical problems** accessing the Unisa Library or resources: https://libguides.unisa.ac.za/techsupport

Lib-help@unisa.ac.za (insert your student number in the subject line please)

General library enquiries can be directed to Library-enquiries@unisa.ac.za

6 STUDENT SUPPORT SERVICES

The *Study @ Unisa* website is available on myUnisa: www.unisa.ac.za/brochures/studies

This website has all the tips and information you need to succeed at Unisa.

6.1 First-Year Experience Programme @ Unisa

For many students, the transition from school education to tertiary education is beset with anxiety. This is also true for first-time students to Unisa. Unisa is a dedicated open distance and e-learning institution. Unlike face-to-face/contact institutions, Unisa is somewhat different. It is a mega university and all our programmes are offered through a blended learning mode or fully online learning mode. It is for this reason that we thought it necessary to offer first-time students additional/extended support so that you can seamlessly navigate the Unisa teaching and learning journey with little difficulty and few barriers. In this regard we offer a specialised student support programme to students entering Unisa for the first time. We refer to this programme as Unisa's First-Year Experience (FYE) Programme. The FYE is designed to provide you with prompt and helpful information about services that the institution offers and how you can access information. The following FYE programmes are currently offered:

- FYE website: All the guides and resources you need to navigate through your first year at Unisa can be accessed using the following link: www.unisa.ac.za/FYE
- FYE e-mails: You will receive regular e-mails to help you stay focused and motivated.
- FYE broadcasts: You will receive e-mails with links to broadcasts on various topics related to your first-year studies (eg videos on how to submit assignments online).
- FYE mailbox: For assistance with queries related to your first year of study, send an e-mail to fye@unisa.ac.za

7 STUDY PLAN

Material which should have been mastered	**Date**
Outcomes 2.2.1 to 2.2.4 to be achieved by	25 April
Outcomes 2.2.5 to 2.2.8 to be achieved	15 July
Work through previous exam papers and exercises	27 September
Revision	5 October

8 PRACTICAL WORK

There are no practicals in this subject.

9 ASSESSMENT

9.1 Assessment criteria

All assignments count towards the year mark. All assignments have fixed dates.To be admitted to the examination you need to submit the first assignment before the compulsory date. Your semester mark for MAT1613 counts 20% and your exam mark 80% of your final mark. The first assignment counts 20% the second assignment counts 40% and the third assignment counts 40 % towards the year mark

9.2 Assessment plan

In this year module there are three assignments for MAT1613. Assignments 01 is a written assignment and Assignment 02 and 03 are multiple choice assignments. The solutions to 01, 02 and 03 will be available on myUnisa. All assignments count towards your year mark. When marking the assignments, constructive comments will be made on your work (onsceen marking), which will then be returned to you. The assignments and the comments on these assignments constitute an important part of your learning and should help you to be better prepared for the next assignment and the examination. Some general comments and examples will also be available on myUnisa. Please do not wait until you receive Assignment 01 back before you start working on Assignments 02 and 03. **REMEMBER although assignments 2 and 3 are MCQ you have to be able to write down a METHOD in the exam and NOT ONLY an answer.**

To be admitted to the examination you need to submit the first assignment before the compulsory date.

9.3 Assignment numbers

The assignments are numbered as 01, 02 and 03 for this year module.

9.4 Assignment due dates

The due dates for the submission of the assignments in 2022 are: To be annnouced (TBA)

Assignment number	Date
01	TBA
02	TBA
03	TBA

9.5 Submission of assignments

You can only submit written assignments and multiple choice assignments online via myUnisa. Assignments may **not** be submitted by fax or e-mail. For detailed information on assignments, please refer to myStudies @ Unisa.

To submit an assignment via myUnisa:

- Go to myUnisa.
- Log in with your student number and password.
- Select the module.
- Click on assignments in the menu on the left-hand side of the screen.
- Click on the assignment number you wish to submit.
- Follow the instructions.

PLEASE NOTE: Although students may work together when preparing assignments, each student must write and submit his or her own individual assignment. In other words, you must submit your own calculations in your own words. It is unacceptable for students to submit identical assignments on the basis that they worked together. That is copying (a form of plagiarism) and none of these assignments will be marked. Furthermore, you may be penalised or subjected to disciplinary proceedings by the University.

9.6 The assignments

The assignments will be later available in a separate tutorial letter.

9.7 Other assessment methods

There are no other assessment methods for this module

9.8 The examination

To be admitted to the examination you must submit the compulsory assignment, Assignment 01. You will write the examination for this year module in October/November 2022. The supplementary exam will be written in January/ February 2023.

During the semester, the Examination Section will provide you with information regarding the examination in general, examination dates and examination times.

Examination paper The textbook forms the basis of this course. The study outcomes are listed under 2.2 of this tutorial letter. The examination will be a single written paper of two hours duration. You are not allowed to use a calculator in the exam. Previous examination paper(s) will be available online and memorandums to some of the papers will also be availble online.

10 FREQUENTLY ASKED QUESTIONS

For any other study information see my Studies @ Unisa.

11 SOURCES CONSULTED

No other books except the textbook and study guide were used in this module.

12 IN CLOSING

Read your tutorial letters carefully, follow the study guide reference and outcomes and do as many exercises as possible. Read all notifications/annoucements on myUnisa for MAT1613 as well the additional resources there.

13 ADDENDUM

The assignments will be in the form of an addendum in a special tutorial letter.