Department of Mathematics
MATH 1510 APPLIED CALCULUS I WINTER 2015

INSTRUCTOR AND LECTURES:

D. Kalajdzievska (office: 427 Machray Hall, tel: (204) 272-1609, kalajdzi@cc.umanitoba.ca)
Office Hours: M/W/F 11:30 -12:30 (or by appointment)

WEBPAGES:
http://server.math.umanitoba.ca/homepages/kalajdzi
(rooms for the midterm tests, video tutorials, practice exercises, and other important information/announcements about this term's course will be posted here)
http://www.math.umanitoba.ca/courses/MATH1510/
(department's page for the course with general info and old final and midterm exams)

TEXTBOOK:
Calculus for Engineers, 4th edition, by D. W. Trim; Optional: Student Solutions Manual

EVALUATION OF STUDENT PERFORMANCE:

Diagnostic Test	2 %
Tutorial Worksheets	18 %
Midterm Test	30 %
Final Examination	50 %

TUTORIAL (LAB) SESSIONS:
There will be a tutorial worksheet handed out each lab. These problems will be worked on during the lab either alone or in groups, as you choose. The teaching assistant will be there to coach and guide you through the problems and the worksheet will be handed in at the end of the lab period. Your tutorial grade will be calculated by discarding your worst two marks (including absences), and averaging the remainder. "Make up problems" for missed labs *are not* available.
Tutorials begin on January 13th. You must be registered in one of the following tutorial (lab) sections:

B01 Monday, 9:30 am - 10:20 am, 319 ALLEN BUILDING
B02 Monday, 2:30 pm - 3:20 pm, 316 MACHRAY HALL

MIDTERM: The midterm test will be 60-minutes in duration. The test will be on Friday, Feb 13th at 5:30pm (subject to change), rooms for these tests will be announced in class and on the webpage.

FINAL: A two-hour final examination will be scheduled during the April examination period by the Student Records Office. You have 2 options for the completion of your Final Examination.
Option 1: A final examination during the exam period, worth 50%.
Option 2: A final examination during the exam period, worth 30%, together with a final project, worth 20%, to be handed in on the day of the final examination. Details about the project will be discussed after the midterm date.
(Note: Use of notes, books, calculators or other computing devices is NOT permitted during the midterm tests and the final examination.)

QUESTIONS: Don't be bothered by having questions, because everyone does. In any case you can bet that if you have a question, someone else probably has the same one. You may find that you can't get all your difficulties settled in the scheduled teaching periods, so here are some ways to get help.

1. **Study your textbook** (This may seem pretty obvious, but people don't always think of it).
2. **Talk** the problem out with **another student**. In this sort of exchange, both parties usually benefit.
3. **Go** to the **Mathematics Help Centre**, located in Room 318 Machray Hall. Its purpose is precisely to provide a place where students can get answers to specific mathematical problems related to their course. The Help Centre hours of operation will be posted on the door of Room 318.
4. **Go** to **your professor** or possibly your tutorial instructor. You'll find them quite willing to help.

COURSE OUTLINE: Note that the topics "inverse trigonometric functions" and "hyperbolic functions" are covered in the review sections and appear from time to time throughout Chapters 1 through 6, either in specific subsections or as part of examples and exercises. These topics are not covered in MATH 1510. Ignore all references in the text to the inverse trigonometric functions and to the hyperbolic functions. Inverse trigonometric functions are covered in MATH 1710.

With reference to the above book, the following topics will be covered:

Review and Self-review (Sections 1.1-1.7, 1.9): A brief review of analytic geometry and functions. Note that only some of these sections will be discussed in class, and students are expected to review the rest on their own. Students are responsible for and are expected to know all material in Chapter 1 irrespectively of whether or not it was discussed during lectures.

Limits and Continuity (Sections 2.1-2.4): Limits, infinite limits, limits at infinity, continuity.

Differentiation (Sections 3.1-3.9, 3.11, 3.12, 3.14): The derivative, rules for differentiation, higher-order derivatives, velocity and acceleration, chain rule, extended power rule, implicit differentiation, derivatives of trigonometric, exponential, and logarithmic functions, logarithmic differentiation, mean value theorem.

Applications of Differentiation (Sections 4.2-4.5, 4.7-4.9): Increasing and decreasing functions, relative extrema, concavity and points of inflection, absolute extrema and applied extrema problems, velocity and acceleration, related rates.

Indefinite Integrals (Sections 5.1-5.3): The indefinite integral, velocity and acceleration, change of variable.

Definite Integrals (Sections 6.1, 6.3, 6.4, 6.7): The definite integral, sigma notation, Riemann sums, fundamental theorem of integral calculus, change of variable.

ADDITIONAL NOTES

1. Voluntary withdrawal deadline is March 19th.
2. If you miss a midterm test, you will be assigned a mark of zero unless acceptable reasons and supporting evidence are provided to your instructor no later than 48 hours after the test.

STATEMENT ON ACADEMIC DISHONESTY

The Department of Mathematics, the Faculty of Science and the University of Manitoba all regard acts of academic dishonesty in quizzes, tests, examinations or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include bringing unauthorized materials into a test or exam, copying from another student, plagiarism and examination personation. Students are advised to read section 7 (Academic Integrity) and section 4.2.8 (Examinations: Personations) in the General Academic Regulations and Requirements of the current Undergraduate Calendar. Note, in particular, that cell phones and pagers are explicitly listed as unauthorized materials, and hence may not be present during tests or examinations.

Penalties for violation include being assigned a grade of zero on a test or assignment, being assigned a grade of "F" in a course, compulsory withdrawal from a course or program, suspension from a course/program/faculty or even expulsion from the University. For specific details about the nature of penalties that may be assessed upon conviction of an act of academic dishonesty, students are referred to University Policy 1202 (Student Discipline Bylaw) and to the Department of Mathematics policy concerning minimum penalties for acts of academic dishonesty.

All students are advised to familiarize themselves with the Student Discipline Bylaw, which is printed in its entirety in the Student Guide, and is also available on-line or through the Office of the University Secretary. Minimum penalties assessed by the Department of Mathematics for acts of academic dishonesty are available on the Department of Mathematics web-page.

Diagnostic Test Instructions: As noted above, 2% of your course grade will come from completing an online diagnostic test. These marks will be awarded to you regardless of your score (that is, if you complete the test, you get the 2% at my discretion). HOWEVER, I urge you to take this test seriously for the following two reasons:

1. This is a tool that will be useful to YOU. It will let you know how prepared you are for this course. Past users of the test recommend that 70% is a score that indicates reliable success in an Introductory Calculus course.
2. The class data will be used to make decisions about future use of this diagnostic tool, thus it is important that it reflect your true knowledge so that the data is accurate. There is no pressure to score well, so no need to consider using aids or getting someone else's help. Just do your best!

Directions: To access the test, go to the site **www.aleks.com**, click on "**New Student, SIGN UP NOW**", and enter the course code **UHA4G-EH3YM**. You will have 3 hours to complete the test, and the window for completing the test will close at midnight on Monday, January 19th. This means that you can begin the test, log out at any time, and your remaining time will start back up once you log back in. DON'T FORGET TO LOG OUT IF YOU ARE LEAVING THE TEST! However, once January 19th has ended, you will no longer be able to log back in and will not be able to make it up. Upon completion of the test, you will be shown an overall score, together with a pie chart indicating how well you performed on each of the sections. This will let me know what I need to review throughout the term, and will let you know which skills you want to make sure to spend extra time on as we go through the topics of the course. You will then have access to the Learning Module that can help you to hone your skills in the topics that were lacking.

If you consent to allowing the Department to use your data, please fill out and return the portion below.

FIPPA STATEMENT OF PURPOSE:

[For forms that collect personal information directly from an individual]

This personal information is being collected under the authority of The University of Manitoba Act. It will be used to determine the correlation between a student's score received on the ALEKS Mathematics Placement Test versus that student's grade in this specific math course. A summary of anonymized data with all identifiers removed will be posted on the mathematics department's website, and may be used for future publications. It will not be used or disclosed for other purposes, unless permitted by The Freedom of Information and Protection of Privacy Act. Your personal information is protected by the Protection of Privacy provisions of The Freedom of Information and Protection of Privacy Act. If you have any questions about the collection of your personal information, contact the Access & Privacy Office at: ph. 204-474-9462, fippa@umanitoba.ca, 233 Elizabeth Dafoe Library, University of Manitoba, Winnipeg MB, R3T 2N2.

FAMILY/ LAST NAME: _____

FIRST NAME: _____

STUDENT NUMBER: _____

SIGNATURE: _____

(I have read and understood the above)