Department of Mathematics

MATH 1510 APPLIED CALCULUS I
Fall 2015

INSTRUCTORS:
A01: Dr. H. Farhadi (452 Machray Hall, Tel. 474-9191, farhadi@cc.umanitoba.ca)
office hours: Monday 9:30 -10:30 , Tuesday 12:30 -13:30 , Wednesday 12:30-2:00 or by appointment.
A02: S. Tsaturian (447 Machray Hall, 807-80-46, tsaturis@cc.umanitoba.ca or s.tsaturian@gmail.com)

LECTURES:
A01: Monday, Wednesday and Friday, 8:30 - 9:20 a.m ARMES 208 Sep 10, 2015 - Dec 09, 2015
A02: Tuesday and Thursday - 1:00 - 2:15 p.m., HUMAN ECOLOGY 206 Sep 10, 2015 - Dec 09, 2015

WEBPAGE for Section A01:
http://home.cc.umanitoba.ca/~farhadi/Math1510_Fall2015.html
And here is the departmental webpage containing the old exams:
http://www.math.umanitoba.ca/courses/MATH1510

MIDTERM TESTS: There will be two midterm tests, of 60-minute or 75-minute duration each, administered in this course. The tests will be on October 15th and November 12th at 5:30pm (subject to change), rooms for these tests will be announced in class and on the webpage.

FINAL EXAMINATION: A two-hour final examination will be scheduled, during the December examination period, by the Student Records Office.

AIDS FOR MIDTERMS AND FINAL: Use of notes, books, calculators or other computing devices is NOT permitted during the midterm tests and the final examination.

EVALUATION OF STUDENT PERFORMANCE:

Midterm Tests	25 % each
Final Examination	50 %

TUTORIAL (LAB) SESSIONS:
You are expected to solve the worksheet problems **before** the lab. The teaching assistants will help you with the difficulties you had with the worksheet problems or any other problems related to the course. Tutorials begin on September 17th. You must be registered in one of the following tutorial (lab) sections:
Lecture Section A01:
B01 Tuesday 10:00 am - 10:50 am   ALLEN BUILDING 319 Sep 17, 2015 - Dec 09, 2015
B02: Thursday 10:00 am - 10:50 am ALLEN BUILDING 319 Sep 17, 2015 - Dec 09, 2015
B03: Monday 12:30 pm - 1:20 pm ALLEN BUILDING 319 Sep 17, 2015 - Dec 09, 2015
B04: Thursday 11:30 am - 12:20 pm ST. JOHN'S COLLEGE 204 Sep 17, 2015 - Dec 09, 2015
B05: Tuesday 11:30 am - 12:20 pm UNIVERSITY COLLEGE 238 Sep 17, 2015 - Dec 09, 2015

Lecture Section A02:
B06: Monday 11:30 am - 12:20 pm MACHRAY HALL 418 Sep 17, 2015 - Dec 09, 2015
B07: Monday 9:30 am - 10:20 am MACHRAY HALL 316 Sep 17, 2015 - Dec 09, 2015
B08: Monday 8:30 am - 9:20 am Biological Sciences 401 Sep 17, 2015 - Dec 09, 2015
B09: Tuesday 9:00 am - 9:50 am MACHRAY HALL 418 Sep 17, 2015 - Dec 09, 2015
B10: Friday 12:30 pm - 1:20 pm ALLEN BUILDING 319 Sep 17, 2015 - Dec 09, 2015

MATHEMATICS HELP CENTER: It is located at Room 500A Machray Hall.
Tutors are there to answer mathematical problems in this course. The Math Help Centre
hours of operation will be posted on the door of Room 500A. The Math Help Center
location may change sometime in November.

TEXTBOOK and supplementary materials:
Calculus for Engineers, 4th edition, by D. W. Trim; Optional: Student Solutions Manual.
Bookstore has a booklet with all midterm and final exams in Math1510 for the recent years.

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 MATH1710.

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 November 18.
2. If you miss a midterm test, you will be assigned a mark of zero unless reasons and acceptable
supporting evidence are provided to your instructor no later than 48 hours after the test; please send a
note via email to your instructor within 48 hours saying that you have missed a midterm and that you can
provide supporting documents (see part 3 below).
3. In the case of a missed midterm test with a valid reason, the other midterm test and the final exam

will be prorated.

ACADEMIC HONESTY:
The Department of Mathematics, the Faculty of Science and the University of Manitoba 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 formalize 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.