



DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2020

MA1010 A3: CALCULUS II – 3.5 (3-1-0) UT

60 Hours for 15 Weeks

INSTRUCTOR: Dallas Sawtell
OFFICE: C412
OFFICE HOURS: TBA

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CALENDAR DESCRIPTION: The course includes applications of integration to lengths, volumes and masses. Transcendental functions. Methods of integration, polar coordinates and parametric equations, vector functions and derivatives are explored.

PREREQUISITE: MA1000

REQUIRED TEXT/RESOURCE MATERIALS: We will use a free open source textbook found at www.lyryx.com. You do not need to register. Go to the website and click on subjects, Math and Statistics and go to the bottom of that page. We will mainly use the Open Stax ALLY book titled Calculus Volume 1. The authors are G. Strang and E, “Jed” Herman. Another resource is Differential Calculus and Integral Calculus textbooks and problem books at <http://www.math.ubc.ca/~CLP/index.html>

DELIVERY MODE(S): Lecture

COURSE OBJECTIVES: The aim of this course is to present the fundamental ideas and techniques of calculus alongside its many applications to science and engineering.

LEARNING OUTCOMES:

A successful student will be able to adequately demonstrate an understanding of the concepts stated below (among others): From Calculus Volume 2 and 3 Open Stax

Volume 2

- 2.2--2.4 Volumes by Slicing, Disc, Washer and cylindrical Shells
- 3.1-3.7 Integration by Part, Trigonometric Integrals, Trigonometric Substitution, Partial Fractions, Numerical Integration, Improper Integrals
- 4.1-4.5 Separable and Linear Differential Equations and Laplace Transforms
- 5.1-5.6, 6.1, 6.2 Sequence and Series, Divergence and Integral, Comparison, Alternating, Ratio and Root Tests, Power Series
- 7.1-7.4 Parametric and Polar Equations, Area and Arc Length

Volume 3

2.6, 2.7 Quadric Surfaces and Cylinders

3.1-3.4 Vector-Valued Functions and space Curves, Calculus of Vector-Valued Functions, Arc Length and Curvature, Motion in Space

TRANSFERABILITY: Please consult the Alberta Transfer Guide for more information.

<http://www.transferralberta.ca> or

<http://alis.alberta.ca/ps/tsp/ta/tbi/onlinesearch.html?SearchMode=S&step=2>

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:	Worksheets during the seminars	10%
	Quizzes every other Wednesday starting Jan. 15	15%
	Midterm Friday, Jan 28	25%
	Final Exam April 15-25 inclusive (including Saturdays and evenings)	50%

It is the student's responsibility to be available to write the final exam at the scheduled time. Writing early is not permitted.

No calculators or formula sheets are allowed on quizzes, midterm or the final exam

COURSE SCHEDULE/TENTATIVE TIMELINE: See Learning Outcomes

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100	C+	2.3	67-69
A	4.0	85-89	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

STUDENT RESPONSIBILITIES: Students are responsible for all lecture material, seminars and readings. Students are expected to practice the material by doing problems from the textbook. No late worksheets will be accepted. Quizzes cannot be made up if missed. If the midterm is missed due to illness the weight will be put on the final (ie. the final will be worth 75%). If the final is missed due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in all cases.

Cellphone use is not permitted in the classroom. This includes texting. Please turn off and put away your cellphone during class. You may be asked to leave the classroom if using a cellphone. No recording of any kind is allowed in the class, seminar or during consultation with the instructor.

STATEMENT ON PLAGIARISM AND CHEATING: : Refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at <http://www.gprc.ab.ca/about/administration/policies/>

****Note:** all Academic and Administrative policies are available on the same page.