

School of Arts & Science MATHEMATICS DEPARTMENT MATH 108-003 **Applied Calculus**

Winter 2012

COURSE OUTLINE

The course description is online @ http://camosun.ca/learn/calendar/current/web/math.html ☐ Please note: the College electronically stores this outline for five (5) years only. It is strongly recommended you keep a copy of this outline with your academic records. You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1. Instructor Information

| (a) | Instructor: | Bree Wilton | | |
|-----|---------------|--|--------------------|--|
| (b) | Office Hours: | 9:30-10:30 am Monday-Friday and by appointment | | |
| (c) | Location: | E266 | | |
| (d) | Phone: | 370-3504 | Alternative Phone: | |
| (e) | Email: | wiltonb@camosun.bc.ca | | |
| (f) | Website: | https://sites.google.com/site/breewilton/home | | |

2. Intended Learning Outcomes

(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

Upon completion of this course the student will be able to:

- 1. Find the limit of elementary functions as the independent variable approaches some finite value or approaches infinity.
- 2. Find the derivative of simple functions using the definition of the derivative.
- 3. Find the derivative of functions (polynomial, trigonometric, logarithmic and exponential functions) using the product, quotient and chain rule.
- 4. Find the derivative using implicit differentiation.
- 5. Solve problems involving rates of change.
- 6. Find relative and absolute extrema of functions.
- 7. Sketch graphs of functions identifying such features as relative extrema, intervals where the function is increasing and decreasing, points of inflection, intervals where the function is concave up and concave down, and asymptotes.
- 8. Solve problems that involve maximizing or minimizing some variable associated with the problem.
- 9. Find the approximate area under a curve using the area of a set of approximating rectangles.
- 10. Evaluate a definite and an indefinite integral of polynomial, trigonometric, logarithmic and exponential functions using the Fundamental theorem of Calculus.
- 11. Evaluate integrals using the method of substitution.
- 12. Use integration to find the area between two curves.
- 13. Evaluate a definite and indefinite integral by the method of integration by parts.
- 14. Solve elementary differential equations using the method of separation of variables.
- 15. Solve problems using differential and integral calculus that involve applications from business and/or biological sciences.

3. Required Materials

RN Greenwell, NP Ritchey and ML Lial, Calculus with Applications for the Life (a) Texts: Sciences, Custom Edition for Camosun College, Pearson, 2003.

(b) Other: As per Math Department policy, the only calculator permitted for use on tests and the final exam is the Sharp EL-531X (or the discontinued EL-531W)

scientific calculator.

4. Course Content and Schedule

(This section can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

For students in biology, business, economics or the social sciences who require only one semester of calculus. Topics include limits, derivatives of algebraic, logarithmic, exponential and trigonometric functions, the definite and indefinite integral and integration by parts.

There will be 7 assignments to be handed in for marking. These assignments are intended to help you practice the concepts we learn in class. Approximately one third of the assignment will be randomly selected for marking. LATE ASSIGNMENTS WILL NOT BE ACCEPTED however, the lowest assignment mark will be dropped when calculating the assignment average. This allows you to miss one assignment without penalty.

It is recommended that approximately 6-8 hours per week be spent studying for this course outside of class time.

5. Basis of Student Assessment (Weighting)

(This section should be directly linked to the Intended Learning Outcomes.)

The final grade will be calculated according to the following breakdown:

Assignments: 15%*
Term Tests: 35%
Comprehensive 3-hour Final Exam: 50% (or 100%)**

6. Grading System

(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

Standard Grading System (GPA)

| Percentage | Grade | Description | Grade Point Equivalency |
|------------|-------|---|----------------------------|
| 90-100 | A+ | | 9 |
| 85-89 | Α | | 8 |
| 80-84 | A- | | 7 |
| 77-79 | B+ | | 6 |
| 73-76 | В | | 5 |
| 70-72 | B- | | 4 |
| 65-69 | C+ | | 3 |
| 60-64 | С | | 2 |
| 50-59 | D | Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite. | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

| Temporary Grade | Description |
|--------------------|--|
| I | Incomplete: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family. |

^{*} *Note:* The lowest assignment mark will be dropped when calculating the assignment average. This allows you to miss one assignment without penalty.

^{**} Note: Your final exam mark can count for 100% of your grade PROVIDED THAT YOUR TERM WORK HAS BEEN SATISFACTORILY COMPLETED.

| IP | In progress: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of course completion.) |
|---|---|
| Compulsory Withdrawal: A temporary grade assigned by a Dean when an instructor after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement. | |

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED