

SAMPLE COURSE OUTLINE

Creation date: March 25, 2020

Revision date:

Course Code, Number, and Title:

MATH 1173: Calculus I with Computer Explorations

Course Format:

Lecture 4.0 h + Seminar 0.0 h + Lab. 0.0 h

Credits: 3.0

Transfer Credit: For information, visit bctransferguide.ca

Course Description:

This course deals primarily with differentiation. The major topics include limits (intuitive approach), development and definition of derivatives, differentiation techniques (algebraic, trigonometric, inverse trigonometric, exponential, and logarithmic functions), curve sketching, applications of derivatives (optimization, related rates, linear motion, differential approximations), antiderivatives, growth and decay.

College credit will be given for only one of the following courses: MATH 1153/1253, 1171, 1173, or 1174.

Prerequisite(s): A minimum "A" grade in Principles of Mathematics 12 or Precalculus 12; permission of department based on the MDT process (MDT 95); or a minimum "B-" grade in MATH 1170; or a minimum "C+" grade in Principles of Mathematics 12 or Precalculus 12 and a minimum "C-" grade in Calculus 12. Prerequisites are valid for only three years.

Learning Outcomes:

- Evaluate the limit of a function at a point or at infinity; determine whether a function is continuous at a point; find asymptotes of a function using limits
- Find the derivative of functions using the limit definition, power rule, chain rule, product rule and quotient rule, as well as using more advanced techniques such as logarithmic and implicit differentiation; calculate the derivative of functions given as parametric equations
- Interpret the derivative as the slope of a tangent line and as a rate of change
- Solve problems involving a variety of applications of derivatives, such as extrema, linear approximation, differentials, Newton's method, graphing, related rates, and optimization
- Solve problems involving related topics, such as L'Hospital's rule and anti-differentiation
- Apply a Computer Algebra System (e.g. MAPLE) to the tasks and applications described in the outcomes

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Instructor(s): TBA

Office: TBA

Phone: (604) 323-XXXX

Email: TBA

Office Hours: TBA

Textbook and Course Materials:

Textbook selection may vary by instructor. An example of texts and course materials for this course might be:

For textbook information, visit https://mycampusstore.langara.bc.ca/buy_courselisting.asp?selTerm=3|8

Note: This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.

Assessments and Weighting:

Final Exam 40%

Other Assessments 60%

Information unavailable, please consult Department for details.

Grading System:

Specific grading schemes will be detailed in each course section outline.

Information unavailable, please consult Department for details.

Topics Covered:

[Topics covered may vary by instructor. An example of topics covered might be:]

Fundamental Ideas

- Rates & Slope
- Limits and Continuity
- Derivatives

Computational Rules and Techniques

- Derivatives of Polynomials
- Derivatives of Simple Exponential Functions
- Product & Quotient Rules
- Derivatives of Trigonometric Functions
- The Chain Rule
- Parametric Curves (Introduction & Slope)
- Implicit Differentiation
- Derivatives of Inverse Trig Functions
- Derivatives of Logarithmic & Exponential Functions

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Applications of Derivatives

- Rates of Change in the Natural & Social Sciences
- Approximations
- Related Rates Problems
- Shapes of Curves - Sketching Graphs
- Indeterminate Forms & L'Hospital's Rule
- Optimization and Applications
- Newton's Method
- Antiderivatives

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

[E1003 - Student Code of Conduct](#)

[F1004 - Code of Academic Conduct](#)

[E2008 - Academic Standing - Academic Probation and Academic Suspension](#)

[E2006 - Appeal of Final Grade](#)

[F1002 - Concerns about Instruction](#)

[E2011 - Withdrawal from Courses](#)

Departmental/Course Policies:

Information unavailable, please consult Department for details.

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