

Mathematics 1172 WA
Calculus II
Winter 2025

Instructor: Dr. Luis Santiago

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Lectures: Mondays and Wednesdays from 4:00 PM to 5:30 PM, RB2047.

Labs: Fridays from 12:30 PM to 1:30 PM, UC0050.

Office Hours: Mondays from 11:30 AM to 1:30 PM, RB3008.

Textbook: This class will not have a textbook required to purchase. Lecture and lab notes will be provided for free (all the required course material is free). Here are some suggested references:

Recommended Textbooks: Any edition of the following:

- Calculus: Early Transcendentals, by Ron Larson and Bruce Edwards, (8th Edition Hardcover \$148.95, <https://www.cengage.ca/c/calculus-early-transcendental-functions-8e-larson-edwards/9780357759325>), (Chancellor Paterson Library, Paterson Books - 4th floor; QA 303 L3274 2003).
- Calculus: Early Transcendentals, by James Stewart, (9th Edition Hardcover \$223.95, <https://www.cengage.ca/c/calculus-early-transcendentals-9e-stewart-clegg-watson/9781337613927>), (Chancellor Paterson Library, Paterson Books - 4th floor; QA 303 L3274 2003).

Free Online Textbooks:

- Calculus Volume 2 by Edwin Herman, Gilbert Strang (<https://openstax.org/details/books/calculus-volume-2>)
- Apex Calculus, Version 3 by Gregory Hartman (<http://www.apexcalculus.com/download>)

Course Content: The topics to be covered are, tentatively, the following:

1. The Natural Logarithmic Function (properties, derivative, log rule, logarithmic differentiation).
2. Inverse Functions (one-to-one functions, inverse functions, exponential and power functions, inverse trigonometric functions, hyperbolic functions).
3. Applications of Integration (area between curves, volumes, center of mass, Pappus Theorem on volumes, work, average value of a function).
4. Indeterminate Forms and L'Hospital's Rule.
5. Techniques of Integration (integration by parts, trigonometric integrals, trigonometric substitution, partial fractions, improper integrals).
6. Infinite Sequences and Series (sequences, limits of sequences, series, tests for convergence, power series, representation of functions as power series, Maclaurin and Taylor Series).

Labs: The lab will reinforce concepts through explanations and examples, as well as provide students with the opportunity to ask questions about the content given in class or assignment problems.

Grading Scheme:

Assignments	15 %
Midterm Exam (Wednesday February 12 from 4:00 PM to 5:00 PM)	30 %
Final Exam	55 %

Assignments: Assignments will be collected and graded online using the free online homework system WebWork. A link to WebWork can be found on the d2l webpage of the course.

Accommodations: Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure

they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit:

<http://studentaccessibility.lakeheadu.ca>

Important Dates: Please note the following important dates:

January 6:	First day of classes
April 4:	Final day of classes
March 7:	Final date to withdraw
February 12:	Midterm
April 7 to April 17:	Examination Period
April 19:	Exam Contingency Date
February 17 to February 21:	Study Week