

Mathematics 1230:
Calculus II for Engineers
Winter 2026

Instructor: Dr. Luis Santiago

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Lectures:

WA: Mondays and Wednesdays from 4:00 PM to 5:30 PM in RB2047.

WB: Mondays and Wednesdays from 8:30 AM to 10:00 AM in RB2047.

Lab: Wednesdays from 12:30 PM to 1:30 PM in RB1042.

Office Hours: Wednesdays from 11:30 AM to 12:30 PM in 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 Hardcopy \$197.95, <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 Hardcopy \$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. Integration by Substitution.
2. Applications of Integration (areas of regions between curves, volumes of solids of revolution, arc length of a curve, surface area of a surface of revolution, center of mass, work, average value of a function).
3. Techniques of Integration (integration by parts, trigonometric integrals, trigonometric substitution, partial fractions).
4. Indeterminate Forms and L'Hospital's Rule.
5. 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	10 %
Midterm Exam (Wednesday, February 11)	30 %
Final Exam	60 %

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:

Monday January 5	First day of classes
Tuesday April 7	Final day of classes
Friday January 16	Final date to register
Friday March 6	Final date to withdraw
Friday April 10 to Sunday April 19	Examination Period
Monday April 20	Exam Contingency Date
Monday February 16 to Friday February 20	Study Week