

Quizzes (16% of grade)

We will have quizzes during lecture that will cover the course standards that you must achieve by the end of this semester. You can find the full list of standards in Canvas. Your instructor will provide you with a sheet to help you keep track of the course standards you accomplish in each quiz. If you are unhappy about your score in these course standards, then you are encouraged to take a reassessment quiz during office hours. The only limitation is that you can only re-attempt one course standard per week. These quizzes will be graded using the rubric described below.

Successful	The solution to the problem is complete and clear. Any error is trivial. The solution is correct, legible, easy to follow, and all reasoning is provided.
Growing	The solution shows growth toward mastering a topic, however it is incomplete, incorrect, or needs revision
Not assessable	No response provided, or the solution was attempted using an inappropriate methodology for the problem type

Quiz Points	Course Standards Achieved
15 pts (A)	You must earn "S" on 90% of course standards
12 pts (B)	You must earn "S" on 80% of course standards
10.5 pts (C)	You must earn "S" on 70% of course standards
9 pts (D)	You must earn "S" on 60% of course standards
0 pts	For earning "S" in less than 60% of course standards

MAKE-UP POLICY AND EXTENSIONS:

The need to turn in late work occurs for a variety of reasons. The important thing is to talk to me about it so I can support you. It's not about being perfect when you're learning. We make mistakes and fix mistakes, which is an important part of the learning process. You will have an opportunity to re-do or make corrections on some assignments.

Tests or Final Exam



- If you know in advance that you will be absent on the day of an exam, you may arrange to take the exam before the scheduled date and time. Please reach out in advance and we'll work to ensure you take the exams on time.
- Good-to-know: → The lowest test score can be replaced with the final exam score (if this benefits your grade).

Quizzes

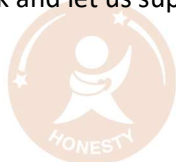
- A course standard you miss during a quiz can be re-attempted. Simply contact the instructor within 24 hours and attend office hours to arrange a re-attempt. However, only one course standard per week.

Labs

- You can still submit late lab packets after the due date, but please reach out and let me know if you need assistance.

XYZ HW Sections

- **You may submit late sections in XYZ Homework using late passes.** Every student is awarded several late passes at the beginning of the semester which you can use to extend a homework assignment.
 - However, do your best to stay on track and let us support you in case you fall behind.



(I) Techniques for integration:

I1: Method of u -substitution. Apply the method of substitution in circumstances familiar from Calculus I, as well as in more advanced problems.

I2: Integration by parts. Apply the method of integration by parts in simple cases or in extended cases, applying the correct formula or using a tabular method.

I3: Integrals of trigonometric functions. Evaluate and simplify integrals whose integrands are of the form $\cos^n(x)$, $\sin^m(x)$, where one (or both) of m and n integers. Evaluate and simplify trigonometric integrals using an appropriate Product-to-Sum identity, i.e. whose integrands of the form $\sin(Ax)\sin(Bx)$, or $\sin(Ax)\cos(By)$, or $\cos(Ax)\cos(By)$. Learn necessary trigonometric identities (Pythagorean; double angle; product-to-sum). Learn antiderivative formulas for $\tan(x)$ and for $\sec(x)$.

I4: Method of trigonometric substitution. (Using trigonometric triangles). Evaluate and simplify integrals who contain terms of the form, $\sqrt{x^2 \pm a^2}$, $\sqrt{a^2 \pm x^2}$, or $x^2 + a^2$, by making use of an appropriate trigonometric substitution.

I5: Method of Partial Fraction Decomposition. Find the partial fraction decomposition of a rational function. Perform polynomial long division. Use a partial fraction decomposition to evaluate the integral of a rational function.

I6: Approximating Integrals. Use the trapezoidal rule or the Simpson rule to approximate definite integrals.

I7: Improper Integrals. Determine if an integral is improper (or not). Describe why an integral is improper (or not). Evaluate improper integrals. Apply limit rules from Calculus I in the context of improper integrals, including methods requiring l'Hôpital's Rule. Determine if an improper integral converges or diverges and find its value should it converge. Recognize and apply the p -Test for Improper Integrals.

(A) Applications

A1: Area between functions. Finding the area between curves. Use definite integrals to calculate the area of a region bounded by one or more functions, including integrating with respect to either axis.

A2 and A3: Volumes of Revolution. Volumes using disks, volumes using shells. Use definite integrals to calculate the volume of a solid formed by a region bounded by one or more functions being rotated around a coordinate axis; a region bounded by one or more functions being rotated around a line parallel to a coordinate axis; and other volumes of revolution.

A4: Volume strategy. Correctly identify which method to use (disks or shells) to compute a volume of revolution. Set up the appropriate definite integral.

A5: Average value. Determine the average value of a continuous function; interpret the meaning of average value in different circumstances.

A6: Arc Length. Use a definite integral to calculate the length of a curve.

A7: Surface Area. Use a definite integral to calculate the surface area of a solid of revolution.

(S) Sequences and Series

S1: Introduction to sequences. Using methods from Calculus I to find the limit of a sequence, including proper use of L'Hôpital's Rule. Convert from a_n notation to list notation. Finding a formula a_n for a sequence given as a list.

S2: Geometric Series. Identify a geometric series. Determine whether a geometric series converges or diverges.

S3: nth Term Test. Apply the Test for Divergence to determine if an infinite series diverges.

S4: The Integral Test. Check if the four conditions of the Integral Test apply in a particular situation. Make correct connections between improper integrals and infinite series. Recognize and apply the p -Test for infinite series.

S5: The Comparison Test and the Limit Comparison Test. Determine if a series converges or diverges by comparing it to a known series. Determine if a series converges or diverges by computing a limit of the form $\frac{a_n}{b_n}$ and making appropriate conclusions.

S6: Alternating Series. Recognize an alternating series. Check the conditions for, and apply, the Alternating Series Test when appropriate.

S7: Absolute Convergence. Determine if an infinite series converges absolutely, converges conditionally, or diverges. Define absolute convergence and conditional convergence.

S8: The Ratio Test. Use the Ratio test to determine if a series converges absolutely. Make correct conclusions from the results of the Ratio Test.

S9: The Root Test. Use the Root test to determine if a series converges absolutely. Make correct conclusions from the results of the Root test.

S10: Series Approximation. Approximating the Sum of a Convergent Series. Use theorems about approximation of remainders to discover information about the sum of a series known to converge. For example, use a partial sum s_n to bound the n th remainder R_n ; use a partial sum s_n to bound the sum s ; determine how many terms are required to attain s to a given accuracy.

(P) Power Series

P1: Taylor Polynomials and Taylor series. Find the Taylor polynomial of specified degree for

a function. Correctly manipulate Taylor polynomials or Taylor series including using substitutions, differentiation, antidifferentiation. Use and know the Maclaurin series for various functions, including e^x , $\sin(x)$, $\cos(x)$, $\ln(x+1)$, and others.

P2: Power series. Define a power series. Explain why power series are used. Investigate the convergence of power series. Use algebraic manipulation to find the power series expansion for a function. For example, starting with the power series expansion for $\frac{1}{1-x}$, find a power series for a related function like $\frac{x^5}{1-2x}$.

P3: Radius for Power Series. Define “radius of convergence” and “interval of convergence.” Determine the radius of convergence of power series. Determine the interval of convergence of a power series.

(R) Parametric and Polar Coordinates

R1: Parametric Equations. Describe a curve with a pair of parametric equations; graph parametric equations; convert a pair of parametric equations into a function $y = f(x)$ by eliminating the parameter.

R2: Calculus of parametric curves. Find first and second derivatives of functions defined parametrically; use these derivatives to find information about parametric curves (e.g., where the line tangent to the curve is horizontal).

R3: Polar Coordinates. Plot points in polar coordinates; convert between Cartesian coordinates and polar coordinates. Graph equations in polar coordinates. Find tangents to polar curves. Find the area of a region described by polar equations.

MAT 1B - LAB 1 (1.5 & 3.1)

Standards: I1 (U-Substitution) and I2 (Integration by Parts)

Names: _____, _____, _____, _____.

(Standard I.1) Evaluate the integral.

(a) $\int \frac{(\ln x)^6}{x} dx$

(b) $\int_0^4 \frac{x}{\sqrt{4x+9}} dx$

(Standard I.2) Evaluate the integral.

(a) $\int 5r^3 \ln(r) dr$

(b) $\int_0^{6\pi} x^2 \sin(2x) dx$

MAT 1B Standards Tracker

Name: _____

I1	I2	I3	I4	I5	I6	I7
Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt

S1	S2	S3	S4	S5	S6	S7	S8	S9
Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt

P1	P2A	P2B	P3A	P3B
Attempt	Attempt	Attempt	Attempt	Attempt

A1	A2A	A2B	A2C	A3A	A3B	A4	A5	A6	A7
Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt	Attempt

R1	R2	R3	R4
Attempt	Attempt	Attempt	Attempt

Converting number of standards to quiz points:

Standards achieved with S	Quiz Percentage
32 standards with "S" grade (90%)	15 pts (A)
28 standards with "S" grade (80%)	13.5 pts (B)
25 standards with "S" grade (70%)	12 pts (C)
21 standards with "S" grade (60%)	9 pts (D)
less than 21 standards with "S"	0 pts (F)

MAT 1B - Quiz 1 (1.5 & 3.1)

Standards: I1 (U-Substitution) and I2 (Integration by Parts)

NAME: _____

Show all your work to receive full credit.

GOOD LUCK =)

(Standard I.1) Evaluate the integral.

$$\int \frac{\cos x}{\sqrt{5 + 4 \sin x}} dx$$

--

(Standard I.2) Evaluate the integral.

$$\int_0^1 (x^3 + 2)e^x dx$$

--