**Name:**

**Advanced Programming in C++**

**Lab Exercise 1/24/2025**

In this exercise, you will write several programs that will demonstrate some of the basic features of the C++ programming language. When you have completed your programs, you are to submit your documented source code as well as a sample output.

1. There are three seating categories at a movie theater. Floor seats cost $8.95, Balcony seats cost $9.50 and Loge seats cost $11.25. Write a program that asks the user how many seats of each category were sold, then displays the amount of income generated from the ticket sales. Format your dollar amount in a fixed point notation with two decimal places displayed.
2. The Yukon Widget Company (the northern competitor to Acme) manufactures widgets that weigh 9.2 pounds each. Write a program that calculates how many widgets are stacked on the pallet based on the total weight of the pallet. The program should ask the user to how much the pallet weighs by itself (tare weight) and with widgets stacked on it (gross weight) and then calculate the net weight. It should then calculate and display the number of widgets stacked on the pallet.
3. Write a program that will convert the U.S. Dollar to Japanese yen and to euros. Use the following named constants:

const double YEN\_PER\_DOLLAR = 109.6;

const double EUROS\_PER\_DOLLAR = 0.91;

1. The monthly payment of a loan may be calculated by the following formula:



Rate is the monthly interest rate, which is the annual interest rate divided by 12. N is the number of payments and L is the amount of the loan. Write a program that asks the user for the Loan Amount, annual interest rate, and number of years of the loan and generate a report similar to the following:

Loan Amount: $10000.00

Interest Rate: 12%

Years of Loan: 3

Monthly Payment: $ 332.14

Amount Paid Back: $ 11957.15

Interest Paid: $ 1957.15