# PHYS 121 – Lab Report: Projectile Motion

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab Partner(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_\_\_\_\_\_\_

## 1. Objective

State the purpose of this lab. For example: 'To analyze the motion of a projectile and verify theoretical predictions using experimental data.'

## 2. Apparatus and Setup

List the equipment used and briefly describe the experimental setup.

## 3. Data Table

Record your measured values in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| Trial | Launch Angle (°) | Initial Velocity (m/s) | Horizontal Range (m) |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## 4. Data Analysis

Use the range formula for projectile motion:

R = (v₀² sin(2θ)) / g

Calculate theoretical ranges and compare them to measured values. Include sample calculation(s).

## 5. Error Analysis

Describe possible sources of error (e.g., air resistance, timing errors). Discuss how uncertainty in angle or velocity might affect results.

## 6. Conclusion

Summarize your findings. Did the experiment validate the theoretical model? Mention any discrepancies and what might have caused them.