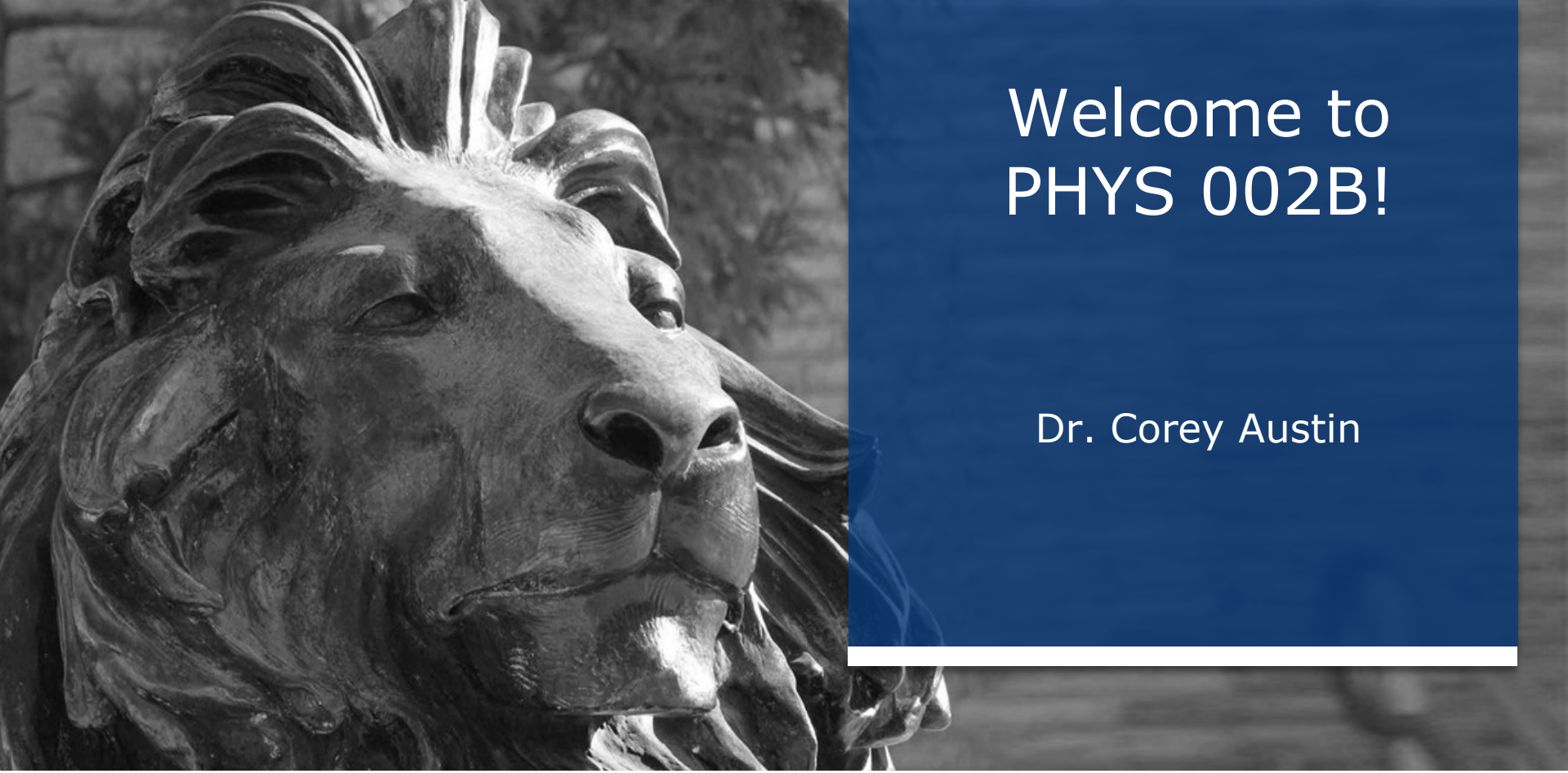

Welcome to PHYS 002B!

Dr. Corey Austin

Introduction

- Dr. Corey Austin
- Research Scientist at Brookhaven National Laboratory
- Post-doc at NASA Goddard Space Flight Center (2021-2023)
- PhD from Louisiana State University (2020)
- MS from Louisiana Tech University (2015)
- Operations Manager at Welltec (2005-2012)
- BS from Louisiana State University (2005)

Syllabus Information

- Lab manual
  - "Introductory Physics Laboratory VOLUME II" by Mark A. Edwards.
  - Not yet available due to publisher error; will notify when available
- Attendance
  - Attendance is mandatory
  - One lab may be made up at the end of the semester during make-up week with approved absence

Assignments

- Lab Reports
  - You will work in pairs, but each student must submit their own report
  - Lab reports are due one week after the activity is completed
  - Late lab reports lose 5 points per day
  - Your lowest lab report grade will be dropped
- Quizzes
  - Each week there will be a short quiz posted on Canvas
  - Quizzes are due prior to the beginning of class
  - All 9 quizzes will count towards your grade (no dropped quiz)
- Lab Final
  - Lab final will be given during our last scheduled meeting
  - You will work with sample data based on experiments done during the semester

Data Analysis Review

- Uncertainty
  - Review the "Error analysis" section of your lab manual
  - Uncertainty estimates will vary based on the instrument used to measure
  - In many cases, we'll take multiple measurements and plot the results to obtain the experimental uncertainty
- Graphing
  - The independent variable goes on the x-axis
  - The dependent variable goes on the y-axis
  - The equation of a line is: $y = mx + b$, where m is the slope and b is the y-intercept
  - The slope of the line is "rise over run":

$$m = \frac{rise}{run} = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

  - We will often plot data in this manner to find the experimental value and uncertainty