





# BROWARD COMMUNITY COLLEGE COURSE OUTLINE

## ASSESSMENT:

Assessment will come in the form of lab reports and final project portfolios.

*\*\*\* Complete the following only if course is seeking general education status \*\*\**

## GENERAL EDUCATION Competencies and Skills \*:

Please highlight in **green** font all Competencies/Skills from the list below that apply to this course. In the box to the right of the Competency/Skill, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 5.12) that apply.

<b>1. Read with critical comprehension</b>	
<b>2. Speak and listen effectively</b>	
<b>3. Write clearly and coherently</b>	
<b>4. Think creatively, logically, critically, and reflectively</b> (analyze, synthesize, apply, and evaluate)	
<b>5. Demonstrate and apply literacy in its various forms:</b> <i>(highlight in green ALL that apply)</i> ( 1. technological, 2. informational, 3. mathematical, 4. scientific, 5. cultural, 6. historical, 7. aesthetic and/or 8. environmental )	
<b>6. Apply problem solving techniques to real-world experiences</b>	
<b>7. Apply methods of scientific inquiry</b>	
<b>8. Demonstrate an understanding of the physical and biological environment and how it is impacted by human beings</b>	
<b>9. Demonstrate an understanding of and appreciation for human diversities and commonalities</b>	
<b>10. Collaborate with others to achieve common goals.</b>	
<b>11. Research, synthesize and produce original work</b>	
<b>12. Practice ethical behavior</b>	
<b>13. Demonstrate self-direction and self motivation</b>	
<b>14. Assume responsibility for and understand the impact of personal behaviors on self and society</b>	
<b>15. Contribute to the welfare of the community</b>	

*\* General Education Competencies and Skills endorsed by '05-'06 General Education Task Force*



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Common Course Number: PHY 2054L

## UNITS

### Unit 1 Data Collecting

#### General Outcome:

- 1.0 **The student shall:** be able to perform experiments correctly and collect data accurately.

#### Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 1.1 Utilize basic measuring devices such as rulers, micrometers, vernier calipers, protractors, thermometers, balances, etc.
- 1.2 Assemble and use correctly the appropriate equipment for a given experiment.
- 1.3 Follow the correct safety procedures in performing experiments.
- 1.4 Collect and accurately record data.
- 1.5 Follow procedures for a given experiment.



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### **Unit 2 Data Analysis and Deductive Reasoning**

#### **General Outcome:**

**2.0 The student shall:** be able to analyze the data collected using techniques of calculus for the purpose of forming conclusions based in deductive reasoning.

#### **Specific Measurable Learning Outcomes:**

**Upon successful completion of this unit, the student shall be able to:**

- 2.1 Identify and trace error propagation in mathematical operations.
- 2.2 Define and apply the concepts of % error, % difference, mean, and standard deviation to analyze data.
- 2.3 Plot data, apply the method of least squares to find the best fit and analyze and interpret data to derive relationships among variables.
- 2.4 Analyze the answer for its reasonableness.
- 2.5 Perform calculations based on the equations from lecture topics.