

## Core Curriculum Course Proposal

<b>Course Prefix/Number**</b>	PHYS 2126
<b>Course Name</b>	Fundamentals of Physics II Laboratory
<b>Academic Department</b>	Physics and Geoscience

In which Foundational Component Area is the course (refer to the “Core Matrix”)?

<b>Foundational Area</b>	Component Area Options – Area B 090
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Check all Core Objectives that apply (refer to the “Core Matrix”)

- Critical Thinking
- Communication Skills
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

LIFE AND PHYSICAL SCIENCES  
STUDENT LEARNING OUTCOME ALIGNMENT FORM

Course Prefix/Number: Physics 2126

Course Title: Fundamentals of Physics II

Brief Course Description: A laboratory course with emphasis placed on experimentation in the fields of electricity, magnetism, and optics.

Prerequisite: Physics 2125 and credit for or parallel registration in Mathematics 2314 and Physics 2326.

**Foundational Component Area: Life and Physical Sciences.** Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

\*Choose at least one Core SLO from the Core Objective.

Core Objective	ASU SLO	Course SLO	Assignment	Assessment Method
<b>Critical Thinking</b>	CT: Gather, analyze, evaluate, and synthesize information relevant to a question or issue.	SLO1: Students will be able to state a question, gather information, collect and analyze data, identify assumptions, develop a hypothesis, and evaluate results to arrive at an answer to a question.	Experiments completed in lab in which students collect and analyze data and draw conclusions from the results.	AACU Critical Thinking VALUE Rubric *
<b>Communication</b>	CS: Develop, interpret, and express ideas through effective written communication.	SLO2: Students will be able to effectively discuss laboratory data and results in a written report.	A written report of laboratory activities.	AACU Written Communication VALUE Rubric *

<b>Empirical &amp; Quantitative Skills</b>	EQS: Manipulate and analyze numerical data and arrive at an informed conclusion.	SLO3: Students will be able to present data numerically, perform mathematical calculations, and quantitatively analyze data to draw plausible conclusions.	Presentation and analysis of numerical data collected during laboratory activities.	AACU Quantitative Literacy VALUE Rubric*
<b>Teamwork</b>	TW: Work effectively with others to support and accomplish a shared goal.	SLO4: Students will be able to engage team members, support a constructive team climate, and keep the team focused on the task at hand.	Experiments completed in lab in which students work together in groups to collect and analyze experimental data.	AACU Teamwork VALUE Rubric *

Association of American Colleges & Universities, *Valid Assessment of Learning in Undergraduate Education (VALUE)*, information & rubrics available at: <http://aacu.org/value-rubrics>



# WRITTEN COMMUNICATION VALUE RUBRIC

for more information, please contact [value@aacu.org](mailto:value@aacu.org)



## Definition

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

*Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.*

	Capstone 4	Milestones		Benchmark 1
		3	2	
<b>Context of and Purpose for Writing</b> <i>Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).</i>	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).
<b>Content Development</b>	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some parts of the work.
<b>Genre and Disciplinary Conventions</b> <i>Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).</i>	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation	Attempts to use a consistent system for basic organization and presentation.
<b>Sources and Evidence</b>	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates an attempt to use sources to support ideas in the writing.
<b>Control of Syntax and Mechanics</b>	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses language that sometimes impedes meaning because of errors in usage.



# TEAMWORK VALUE RUBRIC

for more information, please contact [value@aacu.org](mailto:value@aacu.org)



## Definition

Teamwork is behaviors under the control of individual team members (effort they put into team tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions.)

*Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.*

	<b>Capstone</b> 4	<b>Milestones</b>		<b>Benchmark</b> 1
		3	2	
<b>Contributes to Team Meetings</b>	Helps the team move forward by articulating the merits of alternative ideas or proposals.	Offers alternative solutions or courses of action that build on the ideas of others.	Offers new suggestions to advance the work of the group.	Shares ideas but does not advance the work of the group.
<b>Facilitates the Contributions of Team Members</b>	Engages team members in ways that facilitate their contributions to meetings by both constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.	Engages team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Engages team members in ways that facilitate their contributions to meetings by restating the views of other team members and/or asking questions for clarification.	Engages team members by taking turns and listening to others without interrupting.
<b>Individual Contributions Outside of Team Meetings</b>	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project. Proactively helps other team members complete their assigned tasks to a similar level of excellence.	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project.	Completes all assigned tasks by deadline; work accomplished advances the project.	Completes all assigned tasks by deadline.
<b>Fosters Constructive Team Climate</b>	Supports a constructive team climate by doing all of the following: <ul style="list-style-type: none"> <li>• Treats team members respectfully by being polite and constructive in communication.</li> <li>• Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work.</li> <li>• Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.</li> <li>• Provides assistance and/or encouragement to team members.</li> </ul>	Supports a constructive team climate by doing any three of the following: <ul style="list-style-type: none"> <li>• Treats team members respectfully by being polite and constructive in communication.</li> <li>• Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work.</li> <li>• Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.</li> <li>• Provides assistance and/or encouragement to team members.</li> </ul>	Supports a constructive team climate by doing any two of the following: <ul style="list-style-type: none"> <li>• Treats team members respectfully by being polite and constructive in communication.</li> <li>• Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work.</li> <li>• Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.</li> <li>• Provides assistance and/or encouragement to team members.</li> </ul>	Supports a constructive team climate by doing any one of the following: <ul style="list-style-type: none"> <li>• Treats team members respectfully by being polite and constructive in communication.</li> <li>• Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work.</li> <li>• Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it.</li> <li>• Provides assistance and/or encouragement to team members.</li> </ul>
<b>Responds to Conflict</b>	Addresses destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.	Identifies and acknowledges conflict and stays engaged with it.	Redirecting focus toward common ground, toward task at hand (away from conflict).	Passively accepts alternate viewpoints/ideas/opinions.

Fundamentals of Physics II Laboratory

PHYS 2126 01Z

Spring 2018

M 2:00-4:50, VIN 158

Instructor: Scott Williams  
Office Hours (VIN 128): MWF 8:00-10:00, TR 11:00-12:30, and by appointment  
E-mail: scott.williams@angelo.edu  
Text: *Physics 2126 Laboratory Manual*, Spring 2018 edition

Course Description: A laboratory course with emphasis placed on experimentation in the fields of electricity, magnetism, and optics.

Student Learning Outcomes: Upon completion of PHYS 2126, students will have an increased understanding of the laboratory techniques relevant to the broad topical areas of electricity, magnetism, circuits, and optics. Students will have practiced and demonstrated a satisfactory level of mastery in critical reading, critical thinking, and problem solving skills. Students will have engaged in quantitative laboratory experimentation; practiced sound scientific laboratory methods; and utilized a variety of different laboratory skills, data analysis procedures, and error propagation techniques. Students will also develop and improve technical communication skills required for scientific reporting. These outcomes will be assessed using pre-lab and laboratory report grades.

Policies: Mobile phones and music players must be turned off at all times. Note that this means that you cannot use a mobile phone as your calculator. Use of any electronic device other than your calculator during a test is not allowed. There are no make-up opportunities for quizzes or in-class activities. Homework will be assigned approximately once or twice a week. No late homework will be accepted.

Grading: Final grades are based on pre-lab and laboratory report grades. Grades will be weighted as follows:

pre-labs reports	25%
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laboratory reports	75%
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Accommodations: Persons with disabilities which may warrant academic accommodations must contact the Student Life Office (UC 112) in order to request and to implement academic accommodations. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Honor Code: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Any student caught cheating will receive a grade of F for the semester. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook.

## Laboratory Schedule

17/18 January	Introduction to Lab Reports
24/25 January	Refraction and Snell's Law
31 January/1 February	Thin Lenses
7/8 February	Diffraction
14/15 February	No laboratory meeting
21/22 February	Equipotentials and Electric Fields
28 February/1 March	Ohm's Law and Resistivity
7/8 March	RC Time Constant
14/15 March	No laboratory meeting
21/22 March	Kirchhoff's Rules
28/29 March	No laboratory meeting
4/5 April	Magnetic Field of a Long Straight Wire
11/12 April	RLC Resonance
18/19 April	No laboratory meeting
25/26 April	No laboratory meeting
2/3 May	No laboratory meeting

The instructor reserves the right to modify/adjust any of the procedures, grading scales, and scheduling presented in this syllabus.