

Texas A&M University – Texarkana

College Physics II Course Syllabus

Effective Date: Spring 2015

- I. Course Number:** PHYS 1302
- II. Course Title:** College Physics II
- III. Semester Credit Hours:** 3 credit hrs (3 contact hrs)
- Instructor:** Kenny Irizarry, PE, REM
Office: SCIT 318H, Hours: Mon, Tue, Thu 1:30-2:30pm, and Tue 11am-Noon
Email: kirizarry@tamut.edu
Phone: (903) 223-3041
- IV. Course Description:** Algebra-level physics sequence for students in pre-professional programs such as biology, geology, or architecture who do not expect to do additional work in engineering or physics. Topics include electricity, magnetism, electromagnetic waves, light, relativity and quantum mechanics.
- V. Course Delivery Method:** Face to face.
- VI. Required Textbooks/Resources:** Sears & Zemansky's College Physics, 9th Edition (2012), Hugh D. Young, Addison-Wesley / Pearson, ISBN-10: 0-321-73317-7

A scientific calculator will be needed for this course. (The library will have some calculators available for use on a first-come, first-served basis.)

- VII. Student Learning Outcomes: The Texas Higher Education Coordinating Board has adopted Core Objectives to establish a common knowledge thread through the courses taught within the Texas Core Curriculum. The Life and Physical Sciences Core Objectives are listed below:**
- 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.
- **Critical Thinking Skills** – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
 - **Communication Skills** – to include effective development, interpretation and expression of ideas through written, oral and visual communication
 - **Empirical and Quantitative Skills** – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - **Teamwork** – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Student Learning Outcomes Measured/Demonstrated by:

1. Model physical phenomena with mathematical systems.
2. Use problems solving skills in order to apply appropriate formulas and calculations to arrive at solutions and interpret the results.
3. Apply the scientific principles of basic physics.

4. Set up and complete an experiment safely and efficiently, collect, record, and analyze data, and interpret their results in a written report and/or PowerPoint presentation.

By the end of the course, 70% of all students should demonstrate an average or better mastery of the subject matter. Students will demonstrate successful outcomes by achieving the midpoint range or higher on the Core Objective grading rubrics for the Signature Assessment described under Section IX – Methods of Evaluation.

VIII. Course Outline and Schedule:

Chap.	Title	Week	Exam Date*
	Introduction to College Physics II	<i>1</i>	
17	Electric Charge and Electric Field	<i>2</i>	
18	Electric Potential and Capacitance	<i>3</i>	
19	Currents, Resistance and Direct-Current Circuits	<i>4</i>	
20	Magnetic Field and Magnetic Forces	<i>5</i>	
21	Electromagnetic Induction	<i>6</i>	
	Exam I	7	3/2/14
22	Alternating Current	<i>8</i>	
	<i>Spring Break</i>		
23	Electromagnetic Waves and Propagation of Light	<i>9</i>	
24	Geometric Optics	<i>10</i>	
25	Optical Instruments	<i>10</i>	
26	Interference and Diffraction	<i>11</i>	
	Exam II	12	4/14/14
27	Relativity	<i>13</i>	
28	Photons ,Electrons, and Atoms	<i>14</i>	
29	Atoms, Molecules, and Solids	<i>15</i>	
30	Nuclear and High-Energy Physics	<i>15</i>	
	Final Exam (<i>Final Exam Review – TBD</i>)	16	TBD

*This calendar will be adjusted to the needs of the course. Changes will be based on the course progress. The in-class exam dates could be moved one or two days up or down. The Final Exam date is fixed and will not change.

IX. Methods of Evaluation:

Twelve Quizzes (10 count)	20%	200 pts
Two Midterm Tests	50%	500 pts
Signature Assignment	5%	50 pts
Comprehensive Final	25%	250 pts
Total	100%	1000 pts possible

Exams and Quizzes. The quiz and exam questions will primarily be of multiple-choice, true-false or matching type. Any of the quizzes or exams could contain 1 or 2 essay questions. Each essay question is worth ten points each. The rubric below will be utilized in the grading of essay questions.

Signature Assignment. In addition, a signature assignment consisting of a detailed write up of a laboratory experiment, a major course topic or a relevant current event will be used to assess competency in the application of physics principles to the understanding of real world phenomena. The signature assignment will consist of a team exercise, experimentation and research, for which you will have to prepare a report and/or PowerPoint presentation. This assignment will require some library research, some laboratory work and measurements. Your results will be reported in a term paper of at least 8 pages (double spaced 12pt including graphs and figures) and/or a PowerPoint presentation consisting of at least 12 slides. You will be informed which lab, topic or current event that your signature assignment will be based upon depending on your team assignment. A detailed report writing and/or PowerPoint presentation methodology and grading rubrics will be provided in advance of the signature assignment.

Essay Grading Rubric

Criteria	Points
The answer demonstrates little or no grasp of the topic. The response: (1) may significantly misstate facts or misinterpret them; (2) may fail to completely justify the choice of factors; (3) may be a string of generalizations without specifics or specifics without generalizations; (4) has structure and mechanics which may cause the reader significant difficulty.	0 - <6
The answer demonstrates only limited understanding or a partial misunderstanding of the topic. The response: (1) may use unimportant factors or may explain important factors or their significance with little coherence or specificity; (2) may make a number of serious factual errors; (3) has structure and mechanics which sometime impede the reader's understanding.	6
The answer demonstrates an acceptable but commonplace understanding of the topic. The response: (1) presents important factors but explains them with only the most obvious specifics; (2) delineates only the most obvious implications; (3) has structure and mechanics which may cause the reader minor distractions.	7
The answer demonstrates an accurate grasp of the topic. The response: (1) presents important factors and explains them with appropriate specifics; (2) shows less detailed knowledge and less synthesis than the A response; (3) has structure and mechanics which usually serve content.	8
The answer shows a superior understanding of the topic. The written response: (1) presents factors of central significance and explains them with substantial factual detail; (2) clearly shows how these factors operate; (3) has structure and mechanics which serve content.	9 – 10

X. Grading Scale:

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F = 0-59%

XI. Library/Media Resources Assessment:

A. Books/Periodicals/Electronic Data Bases/Software/Programs:

Resource	Available?		If "No," Est.Cost	Signature, Library Director	Comments (including availability of funds to acquire unavailable resource(s) and commitment to do so)
	Yes	No			
Basic physics for all / B.N. Kumar. Lanham, Md. : University Press of America, c2009.	X				
College physics / Jerry D. Wilson, Anthony J. Buffa, Bo Lou. Upper Saddle River, N.J. : Pearson Education, 2007.	X				
Introduction to Modern Physics: Theoretical Foundations / John Dirk Walecka. New Jersey : World Scientific, c2008.	X				

B. Computing/Multimedia/Online Media Resources:

Resource	Available?		If "No," Est.Cost	Signature, Assoc. VP, IT	Comments (including availability of funds to acquire unavailable resource(s) and commitment to do so)
	Yes	No			
Applied physics [electronic resource] / by Arthur Beiser ; abridgement editor, George J. Hademenos. New York : McGraw-Hill, 2003	X				

XII. Student Participation:

- a. **Participation Policy:** You are expected to attend all lecture classes. Class attendance is very important since many of the exam questions will be drawn from the class lectures, demonstrations, and discussions. Taking good class notes is essential. Reading the chapter prior to coming to class is also recommended. You are expected to participate in all team project exercises.
- b. **Course Etiquette:** You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones should be turned off during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question.
- c. **Discussion Board Standards:** Not applicable to this course.

XIII. Disability Accommodations: Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

XIV. Academic Integrity: Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and

undocumented use of materials from any source constitute academic dishonesty and may be grounds for a grade of 'F' in the course and/or disciplinary actions. For additional information, see the university catalog.

XV. A&M-Texarkana Email Address: Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

XVI. Drop Policy To drop this course after the census date (see [semester calendar](#)), a student must complete the Drop/Withdrawal Request Form, located on the University website <http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html>) or obtained in the Registrar's Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an "approval" to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty member. The form must be submitted to the Registrar's office for processing in person, email Registrar@tamut.edu, mail (7101 University Ave., Texarkana, TX 75503) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar's Office for processing. It is the student's responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.

XVII. Student Technical Assistance:

- Solutions to common problems and FAQ's for your web-enhanced and online courses are found at this link: <http://www.tamut.edu/webcourses/index.php?pageid=37>
- If you cannot find your resolution there, you can send in a support request detailing your specific problem here: <http://www.tamut.edu/webcourses/gethelp2.php>
- Blackboard Helpdesk contacts:

Office hours are: Monday - Friday, 8:00a to 5:00p

Julia Allen (main contact) 903-223-3154 julia.allen@tamut.edu

Frank Miller (alternate) 903-223-3156 frank.miller@tamut.edu

Nikki Thomson (alternate) 903-223-3083 nikki.thomson@tamut.edu

XVIII. Additional Notes: The instructor reserves the right to modify this syllabus at any time as deemed necessary. Any modifications will be announced as soon as possible. The faculty of the College of Science, Technology, Engineering, and Mathematics is committed to the continuous improvement in the quality of instruction. Student input is important and will be obtained at the end of the course.