# IOWA WESTERN COMMUNITY COLLEGE

**Course Syllabus Information**

**PHY 221 Classical Physics II Lab – Calculus Level Online**

**Term: Fall 2015**

**I. Faculty Information:**

Instructor: Mr. Kurt Ubbelohde Phone: 402-516-2390

Email: [kubbelohde@iwcc.edu](mailto:kubbelohde@iwcc.edu)

Office: Lewis Hall L133

Office Hours: I do not have office hours.

**II. Course Information:**

Course Prefix/ No. Course Name Credits Lecture Lab

**PHY 221 Classical Physics II Lab – Calculus Level 1 0 1**

Course Description:

Classical Physics II Lab – Calculus Level is a one-semester course for students enrolled in Classical Physics II – Calculus Level. The course covers experiments in thermal expansion, wave motion, electricity, magnetism, AC and DC circuits, light, lenses and special relativity. (0/2)

Prerequisites:

Prerequisite: Physics II – Calculus Level prior or concurrent

Course Meeting Times Course Location

Online Web

Required Textbooks

None

Suggested Supplemental Textbooks, References

None

Materials and Supplies to be furnished by Student

TI-86 series Graphing Calculator or TI-36 calculator, or better

Course Learning Objectives and Course Competencies

Upon completion of this course students will be able to:

1. Solve physical problems and draw mathematically based conclusions through clear and logical reasoning from course assignments and laboratory exercises.
2. Use analytical techniques appropriate to the study of physics.
3. Symbolically represent vector quantities.
4. Select and use appropriate equipment for measuring and investigating.
5. Use appropriate units and apply dimensional analysis.
6. Manipulate equations and solve for variables.

1. Solve problems using calculus in thermodynamics.
2. Use calculus and geometric concepts to describe an object’s reaction to heat.
3. Describe and calculate appropriate quantities for a gas using the gas laws.
4. Describe and calculate appropriate quantities for an ideal gas.
5. Explain how thermodynamics relates to air conditioning and heating.
6. Describe the relationships in the first and second law of thermodynamics.

1. Solve problems using calculus in electricity and magnetism.
2. Use algebraic and geometric concepts to the flow of charge, electric potential, and electric fields.
3. Describe and calculate appropriate quantities of voltage, amperes, resistance, and charge.
4. Describe and calculate appropriate quantities of magnetic fields, electromagnetic induction, and electromagnet waves.
5. Explain how AC and DC motors and generators function.
6. Describe the relationships between resistance, capacitance, and inductance.

1. Solve problems in optics
2. Use algebraic and geometric concepts to examine the nature of light.
3. Describe and calculate appropriate quantities from Snell’s law and thin lens magnification.
4. Describe and calculate appropriate quantities of wave length speed and frequency of light.
5. Explain how optical instruments function.
6. Describe the relationships between the human eye and the glasses we wear.

1. Solve problems in special theory of relativity
2. Use algebraic and geometric concepts to solve problems in time dilation.
3. Describe and calculate appropriate quantities of length, time, and mass at speeds close the speed of light.
4. Describe and calculate appropriate quantities for the relativistic addition of velocities.
5. Explain the impact of special relativity on western culture.

 Course Practices:

1. Attendance requirements: This is an online course. Attendance is not taken but student is responsible for doing the work assigned per the schedule below.
2. Standards for written work: Work should be typed. Proper grammar and punctuation, when necessary, are expected. In this physics lab course, work must be shown. Labs require completing Excel worksheets in which data is tabulated and then manipulated using formatted cell calculations. Be cognizant of appropriate significant figures and units/dimensions.
3. Submission of written work: This is an online course. Work is done on the website or, in the case of required spreadsheets, uploaded electronically to the appropriate dropbox.
4. Late assignments: Labs should be completed in accordance with the schedule below. However, labs may be repeated a certain number of times to improve understanding and a particular grade. As a result of this policy, assignments will be accepted until the end of the semester. I will do my best to provide timely feedback on submitted labs for the student’s benefit. **No Lab submissions will be accepted after 11 Dec 15.**
5. Missed exams: N/A
6. Extra Credit: None
7. Participation: N/A
8. Classroom Management and Behavior: The classroom is virtual.
9. Communication with Instructor: Communication is via email (preferred) and ROC messaging. Proper etiquette is appreciated. Student should include Name and Section # on all communication.

Grading

1. Labs: Labs will be graded based on the accuracy of answers to multiple choice, true-false, and fill-in the blank questions covering the material in the particular Lab. Many of the labs involve the tabulation of data and calculation of results using Excel. For maximum credit, work must be shown in the table(s) by using the spreadsheet to perform necessary cell calculations. There is a certain amount of subjectivity in the grading of labs. Lab grades will be given based on instructor’s assessment of student’s performance relative to the standard.
2. Tests/Final Exam: None

GRADING POLICY:

Relative Weight of each component Grading Scale

Labs 100% A 90%-100%

B 80%-89%

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Course Final Grade 100% D 60%-69%

F 0-59%

Important Dates (please refer to Academic Calendar in ROC)

|  |  |
| --- | --- |
| August 17 | Fall Semester Classes Begin |
| December 11 | End of Fall Semester |

Problem Resolution

If you have a conflict with me, concerns about my teaching and/or the course material, please discuss this with me first. If we cannot resolve the difficulty, contact Kim Carter, Dean of Math, Engineering and Industrial Technologies, in Lewis Hall Room 103A, phone number 712-325-3329.

Notice of Class Cancellation

1. Emergency closing of entire campus such as for weather – Students will be notified through the Reiver Alert system. Students must register for this service; find Reiver Alert on your ROC homepage.

2. Emergency cancellation of a class session such as for faculty illness – Students will be notified through an announcement on the ROC course page if possible and/or a posted note on the classroom door.

Schedule

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| --- | --- | --- |
| Week | Labs | Completion Due Date |
| 1 & 2 | Chapters 17 and 18 | 28 Aug 15 |
| 3 & 4 | Chapters 19 and 20 | 11 Sep 15 |
| 5 & 6 | Chapters 21, 22, and 23 | 25 Sep 15 |
| 7 & 8 | Chapters 24, 25, and 26 | 9 Oct 15 |
| 9, 10 & 11 | Chapters 27, 28, 29, 30, & 31 | 31 Oct 15 |
| 12 & 13 | Chapters 32, 33, and 34 | 13 Nov 15 |
| 14 & 15 | Chapters 35 and 36 | 27 Nov 15 |
| 16 & 17 | Labs may be redone to improve understanding and grade | No work will be accepted after 11 Dec 15 |

**III. College Policy/Information**

Honor Code – Academic Honesty

Upon enrolling at Iowa Western Community College, each student assumes an obligation to conduct her/his academic affairs in a manner compatible with the standards of academic honesty established by the College and its faculty. If this obligation is neglected or ignored by the student, disciplinary action will be taken.

Diversity Statement

Iowa Western Community College values diversity and supports learning experiences that promote intellectual growth and human enrichment.

American with Disabilities Act Statement

If you are an individual with a disability who requires an accommodation to fully participate in academic programs or campus activities, please email [disabilityservices@iwcc.edu](mailto:disabilityservices@iwcc.edu) or call 712-325-3299.  Accommodations are arranged through the Student Success Office, on the second floor of the Student Center on the Council Bluffs campus. Please allow for adequate time to implement your accommodations.

*Any student with mobility impairments should prepare for an emergency ahead of time by instructing faculty and/or classmates on how to assist in case of an evacuation.*

FERPA

Student rights concerning access to educational records are spelled out in Federal Public Law 98-380 as amended by Public Law 93-568 and in regulations published by the Department of Education. The law and regulations require educational institutions to limit the disclosure of information from the student’s record to those who have the student’s written consent or to officials specifically permitted within the law. Students who wish to grant access to their class schedule, transcript of final grades, and progress reports may do so by submitting an Access to Student Information Consent Form to the Records and Registration Office. Access to information is only given at the Records and Registration Office.

For more information, including the full Access to Student Information policy, refer to the Iowa Western Community College General Catalog or contact the Records and Registration Office.

Cyber-Library and Academic Support

* Students can access books, magazines, journals, newspapers, films and audio books 24/7 through the *Cyber-Library* by clicking on the Cyber Library under Academics in ROC.
* For questions about finding information at your campus or center, email [cyberlibrary@iwcc.edu](mailto:cyberlibrary@iwcc.edu) or call 712-325-3247 for the Council Bluffs Campus or 712-542-5117 for the Clarinda Campus.  You can find the library hours posted on ROC.
* FREE tutoring and academic assistance are available through the *Academic Support Center*, located on the second floor of the Student Center on the Council Bluffs campus in a variety of core, general requirement classes.
  + One-on-one assistance is available on a walk-in basis
  + Group tutoring is available, but must be scheduled in advance.
* FREE online tutoring is available through SMARTHINKING on ROC, to access SMARTHINKING, locate Online Tutoring next to My ROC Classes.
* For more information about tutoring services or help in your classes, email [tutoring@iwcc.edu](mailto:tutoring@iwcc.edu) or call 712-388-6841.  A full tutoring schedule is posted by subject area on ROC.

Dropping Classes

While we encourage you to do everything you can to complete your classes, it is always better to drop a class than to fail it. If it becomes necessary for you to drop a class you can drop a class online through ROC up to the last day to drop. We recommend that you always talk to your advisor and financial aid before you drop a class. For more information on dropping classes see the Advising Information Site in ROC under the Academics tab.

Personal Electronic Devices

To provide an environment conducive to learning, Iowa Western Community College requires that cellular phones, pagers, and other personal electronic devices be turned off or set to vibrate when entering classrooms, computer labs, library, offices, auditoriums, or arena areas. Cellular phones with picture taking capabilities are not allowed in bathrooms, locker rooms, or other areas where there is a reasonable expectation of privacy. Faculty members do have the right to prohibit the use of any electronic device in their classroom.

**EQUAL EDUCATIONAL OPPORTUNITY AND NON-HARASSMENT**

Iowa Western Community College is committed to a policy of equal educational opportunity. Therefore the College prohibits discrimination on the basis of unlawful criteria such as race, color, creed, religion, national or ethnic origin, ancestry, genetic information, physical or mental disability, age, sex, sexual orientation, gender identity or expression, pregnancy, marital status, veteran status, AIDS/HIV status, citizenship, or medical condition, as those terms are defined under applicable laws, in admitting students to its programs and facilities and in administering its admissions policies, educational policies, scholarship and loan programs, athletic programs, and other institutionally administered programs or programs made available to students. In keeping with this policy of equal educational opportunity, the College is committed to creating and maintaining an atmosphere free from all forms of harassment.