

PHYSICS 401 Summer 2016

Physics 401 is a three-credit course. The course meets Monday through Friday, 9:00 am – 11:30 am and 2:00 – 4:30 in Room 147 of AJM Johnson Hall.

INSTRUCTOR: Dr. Gregory Francis, Office: Room 225 EPS, 994-6625, e-mail: francis@physics.montana.edu, Cell: 581-3783.

MATERIALS YOU WILL NEED: You will need a copy of **Physics by Inquiry: Volume II**, a publication of Wiley. This may be obtained from the MSU bookstore. The price is \$35.10 (used).

You should obtain a 3–ring binder or other notebook in which to keep course materials. In the laboratory you are expected to keep a record of your experimental findings and/or data as well as any ideas that you have developed. You should try to keep a complete and organized notebook both for future reference in the course and as a journal of your ideas and how they change. Detailed information will be distributed later about the notebook. Your notebook will be checked periodically.

ATTENDANCE: Because a significant portion of the work for this class takes place in the laboratory, ATTENDANCE IS MANDATORY. One attendance point will be awarded for attending each day and an additional point will be awarded for arriving on time. The attendance points will be part of the class participation grade.

EXAMS: There will be a midterm on June 29th and a final exam on July 3rd. If you cannot take an exam as scheduled, you must contact Dr. Francis BEFORE the exam. Exceptions for emergencies will be handled on an individual basis.

The format of the exams will typically be in an "essay style." The questions will require you to communicate all of the reasoning required to justify any conclusions that you draw and the grading emphasis will be on your reasoning rather than on the conclusion. "The answer" to any of these questions will be reasoning and conclusion, rather than just conclusion.

The midterm and the final exam will be open-book and open-note exams. You will be allowed to bring and use Physics by Inquiry, Volumes I and II, and your laboratory notebook (which may contain any of your personal notes, in your own handwriting, and any materials that are provided by the staff). You may also bring and use a calculator.

HOMEWORK: We recommend working the problems on your own at home and then discussing your responses with classmates and staff before turning in the assignment. Each homework will be assigned on material recently covered in class. We recommend that you review relevant course material to aid you in completing the homework. Homework will be evaluated for grammar, spelling, punctuation, and clarity of thought as well as for the physics discussed. Homework will be collected at the BEGINNING of class on the day it is due. Late homework can be submitted for half credit.

Each homework problem will be graded out of a possible 4 points. In order to earn a grade of 4, the problem solution must be PERFECT in content and presentation. Solutions which have minor deficiencies in content or presentation will earn a grade of 3. Solutions

that demonstrate some thought and effort but have more serious deficiencies will receive a grade of 2. Solutions that demonstrate a lack of thought or effort will receive a 1.

CHECKOUTS: Key experiments and exercises direct you to have your responses checked by a staff member. After performing the required experiments and discussing the relevant issues with partners and staff members, prepare a written response to the questions and exercises. When you and your partners are satisfied with your responses and explanations, sign up for a check-out. The staff member will ask you to read your response aloud and discuss it with you. The staff member will then either give your response a check (✓) or will discuss the issues further with you and ask you to reconsider the experiment or exercise if your reasoning or results are unsatisfactory.

COURSE GRADE: The final grade for the course will be based on your performance on the midterm exam, the final exam, the homework, and class participation. Each of these four components will be weighted equally. The class participation component of the grade includes an evaluation of your class notebook.