

Physics 201-01: College Physics 1 (Fall 2017, CRN 80432)

Instructor: Dr. P. W. Mengyan **Office:** West Science 2513 **Phone:** 906.227.2183

Email: pmengyan@nmu.edu [preferred comm. method]. Begin subject line with "PH 201-01:"

Office Hours: {M,W,R} at {10–10:55, 15:00–15:55} in WS 2513. Other times by appointment

Class Meetings {M,W,R,F} 14:00 to 14:50 in J.X. Jamrich 1318

Webpage: <https://www.webassign.net> [class key: nmu 0273 8892]

Required for HW Self-enroll with class key. Instructions available at

http://www.webassign.net/manual/WA_Student_Quick_Start.pdf

For 'Name', 'Student ID Num' and 'Email', see homework section for instructions

Suggested Texts: - OpenStax College, College Physics. *OpenStax College*. 21 June 2012.

For lecture ISBN: 1938168003. Download for **free** at <http://cnx.org/content/col11406/latest/>

- Giancoli, Physics Principles with Applications in the 4th, 5th or 6th edition (one of the older editions) can be purchased for *less* than \$30 and is an *excellent* textbook.

For Lab - The Physics department will provide documentation for each lab.

Course Description (outline and expected outcomes): This algebra based introductory Physics course will cover the basics of classical Newtonian mechanics, encourage critical thinking and general problem solving skills. Progress towards these outcomes will be assessed through in-class exams, homework assignments, quizzes, laboratory and discussion exercises.

More information is available via the teaching section of the instructor's webpage.

General Education Requirements: PH 201 satisfies the Laboratory Science University Requirement (LAB) and part of the Scientific Inquiry (SCII) requirements. SCII relates to the ability to use of the scientific process to investigate and report knowledge about natural or social phenomena.

Liberal Studies Requirement (*applicable to pre-2017 bulletin*): PH 201 satisfies part of the Division III: Foundations of Natural Sciences-Mathematics liberal studies requirement. *Students who complete the science courses should be able to recognize and understand the scientific method; understand and use scientific concepts; understand and discuss general scientific articles; and apply their knowledge of science to everyday experience. Students who complete the mathematics courses should be able to demonstrate a basic understanding of mathematical logic; use mathematics to solve scientific or mathematical problems in college classes; express relationships in the symbolic language of mathematics; and appreciate the role of mathematics in analyzing natural phenomena.*

Homework: Assigned periodically via www.webassign.net (*) and may include suggested questions, readings and other activities to supplement lecture. Due date, time and assignment description will be indicated on each assignment. Late assignments are *not* typically accepted.

The homework will take time and effort to work and may be difficult. Do yourself a favor, start the homework as soon as it is available, and allow plenty of time to work through each question. Be warned that some questions may go quickly and others may take a significant amount of time.

*NOTE: To get started, see http://webassign.net/manual/Student_Quick_Start_Guide_SE.pdf and use

- Class Key: ** See top of page **
- Name: Full legal name as on record with NMU (so I know who you are)
- Email Address: Your official @nmu.edu email is required to be used for all university business
- ID Number: MUST be your *complete* NMU IN with leading zeros. This is the *only* way to uniquely identify students; without it, you will NOT receive any credit for work completed via webassign. No exceptions.

Quizzes: May be administered during the regularly scheduled class time and may include content from lecture, homework, exams, labs or any other relevant course related information. Please note that quizzes may or may not be announced during lecture and will *never* be announced via email. **Make up quizzes will not be administered.** These will be designed with a few goals in mind (1) provide students the opportunity to check their understanding of relevant material and receive feedback from the instructor (2) provide the instructor with feedback as to how well students are understanding the material (3) encourage students to continue to stay on top of the material, develop sound study habits, regularly attend class, etc

Exams: There will be three (3) scheduled exams during the semester plus a final exam. Each in-class exam is equally weighted. If the final exam score is higher than the lowest in-class exam score, the final exam score will replace this lowest in-class exam score. Exams 1, 2 and 3 will be administered in the normal lecture room and during the normal meeting time. The final exam will be administered in the same room as lecture and at a time pre-determined by NMU. **Make up exams will not be administered.** If an exam is to be missed due to extenuating circumstances, contact me via email BEFORE the scheduled exam time to see about making the appropriate arrangements. Use of notes, books or electronic gizmos of any sort will not be permitted on the exams unless otherwise specified by the instructor.

TENTATIVE Exam Schedule:**

| | | | | |
|-------------|-------------------|-----|--------------|---|
| Exam 1: | Normal class time | Fri | ~29 Sep 2017 | Ch 1 – 6 [<i>#’s w.r.t. OpenStax</i>] |
| Exam 2: | Normal class time | Fri | ~27 Oct 2017 | Ch 7 – 9 |
| Exam 3: | Normal class time | Fri | ~17 Nov 2017 | Ch 10 – 15 |
| Final Exam: | 14:00 to 15:50 | Wed | 13 Dec 2017 | All material covered in class |

**Exam *times* and *content* will be adjusted appropriately to accommodate the course schedule.

Deviations from this tentative schedule will be discussed, *in class*, as they become relevant. Exam dates will typically be finalized a minimum of one week before the exam is administered.

The final exam time is predetermined by NMU and will *not* be modified by the instructor.

Grades:

| | | | |
|---|-------------|--|--------------------|
| Lab***, Quizzes, Homework, etc: | 30% | | A: ≥ 90%; B: ≥ 80% |
| Exams (1, 2, 3, Final, Final; Best 4 of 5): | 70% | | C: ≥ 70%; D: ≥ 60% |
| <u>Total:</u> | <u>100%</u> | | F: < 60% |

'+' and '-' grades are typically assigned when a grade is within ± ~2.0% of the letter grade cutoff.

***Minimum grade of 60% in the laboratory component, in addition to appropriate performance in the rest of the course, is *required* to earn an overall passing grade in this course.

Lab:

Lab is a separate course in which you must be enrolled. A minimum score of 60% is *required* in order to qualify for a passing score in the lecture. To be clear, that means if your score is any less than 60.0%, you will have earned a FAILING grade in your *lecture* section. The final grade from the laboratory course part of your lecture score and likely to be weighted at ~20%. The laboratory section of this course is designed to provide hands on experience with the topics covered in lecture.

Important Notes:

- **ADA Statement:**
In compliance with the ADA and university policy
“If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2101 C. B. Hedgcock Building (227-1700 or disserv@nmu.edu). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.”
- **Religious Holidays:**
Pursuant to university policy, a student who intends to observe a religious holy day should make that intention known, in writing, to the instructor prior to an absence. A student who is absent from a class, exam or exercise for the observance of a religious holy day shall be allowed to complete an assignment or exam scheduled for that day within a reasonable time around that absence.
- **Academic Integrity:**
Section 2.3.1 of the NMU Student Handbook discusses scholastic dishonesty; all of which will be upheld in all aspects of this course. Academic dishonesty will not be tolerated.
- **Appropriate behavior:**
I expect students to behave in a respectful, considerate and courteous fashion in any activity related to this course (e.g. Lecture, lab, discussion, office hours etc).
Rude, disrespectful or disruptive behavior will *never* be tolerated.

Final Notes and Suggestions to Succeed:

- **Course Assistance:** A plethora of options are available to support your success in this course (e.g. Lecture [Dr. Mengyan], lab and discussion via class, office hours, email or special appointment), your textbook, the library, other text books and physics department tutors. Take advantage of the available resources. **DO NOT HESTIATE TO ASK QUESTIONS AS THEY ARISE!**
- Preparation is the key!
 - o Read your book material before AND after we cover it in class
 - o Take good notes during lecture
 - o Study your notes
 - o Take advantage of available resources (e.g. *actually* attend class, read the book)
 - o If something is unclear during lecture or your own studying, **ASK ABOUT IT!**
- Homework and supplemental work:
 - o Work each question using the problem solving process. Getting the ‘correct’ numerical answer is *meaningless* if you do not understand the process used to arrive there.
 - o Start your homework assignments as early as possible
 - o Read the homework questions when they are available before the related material is presented in class; familiarity with the questions will help you associate the relevant concepts as they are introduced in lecture, lab and while you read the material
 - o Give yourself plenty of time to complete the assignments as you will likely need to think carefully about the questions, review the relevant sections of the text or your notes and then work towards a solution
 - o Use a dedicated notebook to *fully* work out homework and supplemental questions
- Studying for any exam should be an ongoing exercise. Structured reviews of material built into your schedule promotes better long-term retention and higher understanding of the material
- I cannot stress enough: **ASK QUESTIONS WHEN YOU HAVE THEM!**

TENTATIVE Schedule of Course Content:

| <u>Week</u> | <u>Start Date</u> | <u>Chapter[s]</u> | <u>Content / Additional Detail</u> |
|-------------|-------------------|--|--|
| 1 | 28 Aug 17 | Intro, 1, 2 | Syllabus, expectations Scientific method, problem solving process, General intro to Physics, Physical Quantities, Measurement, Coordinate systems, 1-D Kinematics |
| 2 | 4 Sep 17 | 2,3 | 2-D Kinematics |
| 3 | 11 Sep 17 | 3,4,5 | Laws of motion/Forces/FBD's |
| 4 | 18 Sep 17 | 4,5,6 | Laws of motion/Forces/FBD's; Friction; Uniform circular motion, Gravitation |
| 5 | 25 Sep 17 | 7 | Exam 1 (Ch 1-6: ~29 Sep 2017) Work, Energy, Conservation of Energy |
| 6 | 2 Oct 17 | 7,8 | Linear Momentum, Collisions, Center of mass |
| 7 | 9 Oct 17 | 8,9 | Collisions, Torque, Statics, Equilibrium |
| 8 | 16 Oct 17 | 8,9,10 | Collisions, Torque, Statics, Equilibrium, Rotational Motion |
| 9 | 23 Oct 17 | 8,9,10 | Exam 2 (Ch 7-9: ~27 Oct 2017) Torque, Newton's 2nd law, Moment of inertia, Statics, Equilibrium, Rotational Motion, Rotational kinetic energy, angular momentum |
| 10 | 30 Oct 17 | 10,11,12 | Rotational Motion (etc); Fluid statics and Dynamics |
| 11 | 06 Nov 17 | 11,12 | Fluid statics and dynamics |
| 12 | 13 Nov 17 | 13,14,15 | Temperature, heat, thermodynamics Exam 3 (Ch 10-15: ~17 Nov 2017 – PLAN CAREFULLY) |
| | 20 Nov 17 | %% Fall Break, No Class 20 to 24 Nov 2017 %% | |
| 13 | 27 Nov 17 | Special topics from 16+ | Selected topics from later in the book |
| 14 | 04 Dec 17 | Special topics from 16+ | Selected topics from later in the book; General review |
| 15 | 13 Dec 17 | FINAL EXAM: 14:00 to 15:50 on Wed 13 Dec 2017 in JXJ 1318 | |

Notable Dates:

28 Aug 2017: First official day of class
04 Sep 2017: Labor Day (No Class)
20 Nov 2017: Fall Break (No Class)
21 Nov 2017: Fall Break (No Class)
22 Nov 2017: Fall Break (No Class)
23 Nov 2017: Fall Break (No Class)
24 Nov 2017: Fall Break (No Class)
09 Dec 2017: Last day of class
13 Dec 2017: Final Exam (14:00 to 15:50)