University of Wisconsin-Milwaukee, Department of Physics Summer 2018
209 (Lc 401/Dis 601) General Physics I (Calculus Treatment): 4 credits

For information on UWM policies and procedures, see: http://www4.uwm.edu/secu/SyllabusLinks.pdf

1. SELECTED LEARNING GOALS:

   At the end of this course, students should:
   1) **Have mastered the application of basic differential and integral calculus to kinematics**
   2) **Know and understand the meaning of Newton’s Laws of Motion**
   3) **Be able to use Newton’s Laws of Motion to interpret and solve problems in mechanics, including problems that involve ONLY variables**
   4) **Demonstrate an understanding of the Laws of Conservation of Energy and Momentum (including linear and angular momentum).**
   5) **Be able to use the conservation principles cited in item 4, above, to interpret and solve problems in mechanics.**
   6) **Demonstrate an understanding of oscillatory motion and its connection with wave motion and wave propagation in material media.**
   7) **Have significantly developed their mathematical fluency and problem solving skills.**

2. PREREQUIS AND SCHEDULE

   **Pre-reqs:** Math 227(C), 228(C), or 232(C). Go to https://catalog.uwm.edu/courses/physics/ for further details. Please note that the (C) in the pre-req list does NOT refer to a grade: it signifies that the course is a **Corequisite** that may be taken as either a prerequisite or as a concurrent registration.

   **Class schedule:**
   - **Lectures:** LEC 401: MTuWTh, 12:30 – 1.45 pm, PHY 133; begins Monday June 25th.
   - **Discussion:** DIS 601 MTuWTh 2:00 – 2.50 pm, PHY 133; begins Monday June 25th.

   Please note that to be properly enrolled in this course, you must enroll in the 209-401 lecture AND the 209-601 discussion.

3. PERSONNEL

   **Instructor:** Robert Wood (Associate Chair of Department)  **Office:** Kenwood IRC 3038
   **Phone:** 414-229-5303  **Email:** chunnaic@uwm.edu

   **Office hours:** TBA on the course website. The instructor’s office hours will be updated every week.

   **Teaching assistant:** TBA

   **Use of e-mail:**
   - If you e-mail the instructor or the TA, please state clearly:
     1) **Who you are** (please use both given and family names)
     2) Please include **Physics 209 Summer 2018** in the subject line.
     3) By default I shall address students as Ms/Mr and use the family name given in the PAWS class roster. If you want me to use another name or form of address, please let me know asap.

   If you don’t follow 1) and 2), above, there will be some delay in my replying to your message. You may not receive replies to e-mails sent after 5.30pm in the evening or at weekends until the following business day.

   **If you choose to send messages by e-mail that can reasonably be described as unintelligible, discourteous, or abusive** do not expect a response and do expect (in the case of discourteous or abusive messages) your e-mail address to be added to the instructor’s spam filter.
4. COURSE MATERIALS

Text: *Physics for Scientists and engineers: Foundation and Connections Vol 1 (Katz)*
The instructor strongly recommends the e-book with WebAssign access. Visit: https://uwm.ecampus.com for updated prices and further details/purchase options. NOTE THAT YOU WILL NEED ACCESS TO THE ON-LINE HOMEWORK SYSTEM, WebAssign, so the cheapest option which includes the e-book and the access card for the WebAssign system is a good deal.

Course website: This course uses a standard Desire to Learn (D2L) website. Any UWM student enrolled in this class can reach the website: if you are unfamiliar with the D2L system, please refer to the notes on page 7 of this syllabus. Some essential course material including the weekly worksheets (see below) will be available ONLY on this website. The following link may also be helpful for students unfamiliar with the D2L system: http://d2l.uwm.edu/

Worksheets: Weekly **worksheets** will be posted on the course website. These worksheets include brief notes, examples/questions for lecture, and questions that you will complete during discussion with the guidance of the TA. New worksheets (for the following week) will be posted on Thursday or Friday: please make sure you have downloaded and printed these worksheets before the Monday lecture of the following week so that you can follow what the instructor and the TA are doing in lecture and discussion.

WebAssign access: Title and section of the class: **Physics 209 - Summer 2018**
Course Key for students: uwm 4142 5973
Institutional Code: uwm
Student Quick Start Guide: https://www.webassign.net/manual/WA_Student_Quick_Start.pdf

**IT IS ESSENTIAL THAT YOU USE THE INFORMATION GIVEN ABOVE TO ACCESS WEBASSIGN AS SOON AS POSSIBLE! STUDENTS WHO HAVE NOT CREATED A WEBASSIGN ACCOUNT AND LOGGED IN BY THE END OF THE FIRST DAY OF CLASS MAY START TO MISS HOMEWORK DEADLINES AND LOSE POINTS!**

5. EXPECTED AVERAGE STUDENT TIME INVESTMENT

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class contact (lecture)</td>
<td>1.15 x 28 = 32.20 hrs</td>
</tr>
<tr>
<td>Class contact (discussion)</td>
<td>50/60 x 28 = 23.33 hrs</td>
</tr>
<tr>
<td>Assigned Reading</td>
<td>8 weeks x 5 hrs = 40 hrs</td>
</tr>
<tr>
<td>On line quizzes</td>
<td>28 x 30/60 = 14 hrs</td>
</tr>
<tr>
<td>Reviewing worksheets before lecture/discussion</td>
<td>28 x 1 hr = 28 hrs</td>
</tr>
<tr>
<td>Assignments (on line)</td>
<td>24 x 1 hrs + 7 x 2 = 38 hrs</td>
</tr>
<tr>
<td>Reviewing for 3 tests</td>
<td>3 x 8 hrs = 24 hrs</td>
</tr>
<tr>
<td>3 tests</td>
<td>2 tests x 1.15 +1x2 = 4.3 hrs</td>
</tr>
<tr>
<td>Total semester commitment (including tests and online quizzes):</td>
<td>203.83 hrs</td>
</tr>
<tr>
<td>Weekly average (using 8 weeks):</td>
<td>25.48 hours</td>
</tr>
<tr>
<td>Hours per credit:</td>
<td>50.96 hrs/credit</td>
</tr>
</tbody>
</table>

6. GENERAL INFORMATION

Level of difficulty: *The importance of basic math cannot be over-emphasized.* You must be comfortable with basic algebra, arithmetic, and trig: most students who perform poorly in this class do so not because of a weak background in physics but because of their weak math skills. Note that you are expected to handle problems that use only algebraic variables.

Lab: The 214 Lab (1 credit) is separate from the 209 Lecture course (4 credits); it is graded independently. You do not have to enroll in the 214 lab course if you are enrolled in the 209 lecture course: whether you take the lab is your decision. Ask your program advisor(s) whether you need to take the lab course. Please note that the instructor of 209 CANNOT tell you whether your program/major requires the lab unless you are a UWM physics major: all UWM physics majors **MUST** take the lab to satisfy the requirements of the major.
**Calculator:**

1) Please bring a simple scientific calculator to each lecture and discussion. You do **NOT** need a fancy and expensive programmable calculator such as a TI-83 for basic calculations, but you do need a calculator that can handle trig functions and their inverses, logarithms and antilogarithms to base 10 and to base e, and exponent (scientific) notation.

2) The use of a non-programmable, non-graphing, "Scientific" calculator is allowed in tests, but under no circumstance will programmable and/or graphing calculators, cell phones, and web-capable devices be considered appropriate. Calculators built into cell phones may **NOT** be used during tests.

<table>
<thead>
<tr>
<th>7. Proposed schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>June</strong></td>
</tr>
<tr>
<td>M 25</td>
</tr>
<tr>
<td>Chapter 1: Units and dimensions</td>
</tr>
<tr>
<td>Tu 26</td>
</tr>
<tr>
<td>Chapter 2: 1-dimensional motion</td>
</tr>
<tr>
<td>W 27</td>
</tr>
<tr>
<td>Chapter 2: 1-dimensional motion</td>
</tr>
<tr>
<td>Th 28</td>
</tr>
<tr>
<td>Chapter 3: Vectors</td>
</tr>
<tr>
<td><strong>M 09</strong></td>
</tr>
<tr>
<td>Chapter 5: Newton’s laws of motion</td>
</tr>
<tr>
<td>Chapter 6: Applications of Newton’s laws of motion</td>
</tr>
<tr>
<td>Tu 10</td>
</tr>
<tr>
<td>Chapter 6: Applications of Newton’s laws of motion</td>
</tr>
<tr>
<td>W 11</td>
</tr>
<tr>
<td>Chapter 7: Gravity</td>
</tr>
<tr>
<td>Th 12</td>
</tr>
<tr>
<td><strong>Test 01 (75 minutes)</strong></td>
</tr>
<tr>
<td>M 16</td>
</tr>
<tr>
<td>Chapter 8: Energy Conservation</td>
</tr>
<tr>
<td>Tu 17</td>
</tr>
<tr>
<td>Chapter 8: Energy Conservation</td>
</tr>
<tr>
<td>Chapter 9: Energy in nonisolated systems</td>
</tr>
<tr>
<td>W 18</td>
</tr>
<tr>
<td>Chapter 9: Energy in nonisolated systems</td>
</tr>
<tr>
<td>Th 19</td>
</tr>
<tr>
<td>Chapter 10: Systems of particles and momentum conservation</td>
</tr>
</tbody>
</table>

**8. IMPORTANT UWM DATES**

*Please understand that these dates (see below) are decided by the school, NOT by the instructor, who cannot change them either for your or for his own convenience.*

**June 29** is the **LAST DAY** for students to add courses, late register or change grading basis for 8-week session classes.

**July 6** is the **LAST DAY** to withdraw from 8-week session or drop 8-week session classes without transcript notation (W).

**July 29** is the **LAST DAY** to drop 8-week session classes with transcript notation (W). After this date, drops and withdrawals require the signature of the instructor and the school/college advising office. Signatures are given on appeal only for non-academic reasons.

See also: [http://uwm.edu/onestop/dates-and-deadlines/important-dates-by-term/](http://uwm.edu/onestop/dates-and-deadlines/important-dates-by-term/)

**9. IMPORTANT COURSE DATES** (decided by instructor)

THREE tests will be held during the semester at regularly scheduled class times on the following dates: **THURSDAY JULY 12**, **TUESDAY JULY 31**, AND **THURSDAY AUGUST 16**. Test dates will be rearranged for students who have conflicts with religious observance (see note 4, page 6 for official UW policy).
10. QUIZZES, ASSIGNMENTS, AND TESTS

Quizzes: On-line, multiple-choice quizzes will be available each MONDAY, TUESDAY, WEDNESDAY, AND THURSDAY, beginning MONDAY JUNE 25th. The quizzes open and close according to the following schedule:

<table>
<thead>
<tr>
<th>Quiz</th>
<th>Open Time</th>
<th>Close Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday quiz</td>
<td>3pm Monday</td>
<td>10pm Wednesday</td>
</tr>
<tr>
<td>Tuesday quiz</td>
<td>3pm Tuesday</td>
<td>10pm Thursday</td>
</tr>
<tr>
<td>Wednesday quiz</td>
<td>3pm Wednesday</td>
<td>10pm Monday</td>
</tr>
<tr>
<td>Thursday quiz</td>
<td>3pm Thursday</td>
<td>10pm Tuesday</td>
</tr>
</tbody>
</table>

The quizzes are timed and graded automatically, and you have **THIRTY MINUTES** to complete each attempt at any quiz; you are allowed TWO separate attempts at each quiz, and the average of the two scores will be used as your overall score for that quiz. After your first attempt, the questions which you answered incorrectly will be displayed to guide you through your second attempt; no scores/answers will be available until after the quiz has closed for the whole class. There are no make-up quizzes. To take care of illness etc., four quizzes will be dropped for each student at the end of the semester. The quizzes will cover a topic or topics taken directly from lecture, so if you have not been to lecture, don’t expect to be able to do the quiz. Scores (on the D2L course website gradebook) and the answer key for any quiz will be available **ONLY** after that quiz has closed. See Note 4, page 6 for Religious Observance. **Exception: no quiz will be due on July 4**

Assignments: Short assignments are also available online using the WebAssign system. Instructions for using WebAssign are given in the link provided on page 2 of this syllabus. Beginning Monday June 25th, a new assignment will be available at 3pm after EACH lecture/discussion, that is on Monday, Tuesday, Wednesday, and Thursday. Each assignment is focused on a topic covered in lecture and/or discussion. No extensions will be given and no make-up assignments will be allowed. To take care of illness etc., four assignments will be dropped for each student at the end of the semester (but see Note 4, page 6 for Religious Observance). The assignments open and close according to the same schedule as that for the quizzes, which is repeated below.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Open Time</th>
<th>Close Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday assignment</td>
<td>3pm Monday</td>
<td>10pm Wednesday</td>
</tr>
<tr>
<td>Tuesday assignment</td>
<td>3pm Tuesday</td>
<td>10pm Thursday</td>
</tr>
<tr>
<td>Wednesday assignment</td>
<td>3pm Wednesday</td>
<td>10pm Monday</td>
</tr>
<tr>
<td>Thursday assignment</td>
<td>3pm Thursday</td>
<td>10pm Tuesday</td>
</tr>
</tbody>
</table>

**Exception: no assignment will be due on July 4**

Tests: 1) Three tests will be held during the semester at regularly scheduled class times on the following dates: THURSDAY JULY 12th, TUESDAY JULY 31st, AND THURSDAY AUGUST 16th. The material covered in each test will be specified in a brief test review guide that will be posted on the course website at least three days before the test. **NOTE THAT TEST 03 (FINAL TEST) WILL BE 2 HOURS LONG AND WILL BE COMPREHENSIVE (CUMULATIVE)**

2) If you want a passing/good grade, then you must attend all tests. Failure to do so will adversely affect your overall grade. Note that each test is administered during the regularly scheduled class time: Tests 01 and 02 are each 1 hour and 15 minutes long, and Test 03 is 2 hours long.

3) It is the responsibility of each student to attend the tests: oversleeping, lapses of memory, and similar excuses will not be considered grounds for a make-up.

4) Make up tests will be allowed only in cases of: illness resulting in hospitalization or a documented emergency/urgent care visit to a physician; documented family emergencies/bereavement; and verifiable (documented) traveling difficulties. All such absences must be supported by appropriate documents. If a student misses any test for medical reasons, a physician’s note, clearly showing the signature and letterhead of the physician, must be produced before a make-up can be allowed. The note must state clearly that in the student was not fit to take the test. A note stating only that a student visited (for example) the campus Norris Health Center is not sufficient. Notes from family members/relations are not acceptable.

5) Tests will be rearranged for students who have conflicts with religious observance. See Note 4, page 6 for Religious Observance.
6) Students may NOT leave a test during the first thirty minutes. Students arriving late may NOT take the test if they arrive after any student has already left.

**Test format:**

All tests are multiple-choice format and contain thirty, 5-response multiple-choice questions, each worth two points; the test questions involve both conceptual understanding and definitions, and more substantial quantitative problems involving interpretation, detailed calculations, algebraic manipulation. Some questions may involve working ONLY with algebraic variables.

Make sure you bring to each test:

1) Two #2 pencils, because you will record your answers on a standard scantron sheet which will be machine read.
2) A record of your UWM student id# (you can find out what this is from the PAWS website if you do not know it), which MUST be recorded on your scantron sheet.
3) A PHOTO ID.

**Test content:**

Test problems will be based on the material covered during lecture, the material covered during discussion, the quizzes, and the questions you will find in the assignments. Please note that this **DOES NOT** mean that questions you have already seen will simply be repeated word for word on tests. **You may NOT use note-cards, notes, solution sets, or textbooks during any test; you may use a calculator, and a formula sheet will be provided with the question paper for each test.**

**11. GRADES AND INCOMPLETES**

**Grades:**

The overall course grade will be determined as follows:

1) 65% from three tests (20% from each of tests 01 and 02 and 25% from test 3 =20+20+25=65%)
2) 17.5% - from on-line quizzes (4 quiz scores will be dropped for each student before overall grades are decided).
3) 17.5% - from online assignments (4 assignment scores will be dropped for each student before overall grades are decided).

Letter grades are determined such that the B-/C+ break point (grade boundary) coincides with the median total score determined by combining scores of the course components listed above with the weights also listed above. Estimated letter grades will be posted after each of the tests to give all students a clear indication of their progress in this course.

**Incompletes:**

Incompletes. A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work.

See [https://www4.uwm.edu/secu/docs/other/S_31_INCOMPLETE_GRADES.pdf](https://www4.uwm.edu/secu/docs/other/S_31_INCOMPLETE_GRADES.pdf)

**INCOMPLETE POLICY FOR UNDERGRADUATES** (Fac. Doc. #1558, 2536) An incomplete may be given to a student who has carried a subject successfully until near the end of the semester but, because of illness or other unusual and substantiated cause beyond that student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. An incomplete is not given unless the student proves to the instructor that s/he was prevented from completing course requirements for just cause as indicated above.

A course marked incomplete must be completed during the next succeeding semester, excluding summer sessions and UWinterim. If the student does not remove the incomplete during this period, the report of "I" will lapse to "F".

**12. OTHER IMPORTANT INFORMATION: PLEASE READ THIS CAREFULLY**

1. **Discriminatory conduct (such as sexual harassment):** Discriminatory conduct will not be tolerated by the University. It poisons the work and learning environment of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff.

[https://www4.uwm.edu/secu/docs/other/S_47_Discriminatory_Policy.pdf](https://www4.uwm.edu/secu/docs/other/S_47_Discriminatory_Policy.pdf)

2. **Cheating and academic misconduct:** all work handed in for grading (including electronic submissions) must be the result of your own efforts. Copying the work of another student or reproducing the solutions/answers to problems from an on-line or
other source and presenting them as your own, original work, will be regarded as
cheating. Cheating/academic misconduct will be dealt with by the instructor according
to the UW policies and procedures. Cheating on exams or plagiarism are violations of
the academic honor code and carry severe sanctions, including failing a course or even
suspension or dismissal from the University. See: http://www4.uwm.edu/dos/conduct/

3. Special Consideration. The principle of equal treatment of all students shall be a
fundamental guide in responding to requests for special consideration. No student
should be given an opportunity to improve a grade that is not made available to all
members of the class. This policy is not intended to exclude reasonable
accommodation of verified student disability, or the completion of work missed as the
result of religious observance, verified illness, or justified absence due to
circumstances beyond the student's control. (Authority: UWM Faculty Documents
860B and 1927)

4. Religious observance. In the syllabus, you will find a schedule of tests. Please
inform the instructor ASAP and no later than June 28th if you see a conflict with
religious observance. Also inform the instructor ASAP and no later than June 28th if
the deadline of a quiz or an assignment conflicts with religious observance. A suitable
date/time for the test (that does not conflict with the religious observance) or other
deadline can then be arranged. Please note the following official UW policies:
http://www4.uwm.edu/secu/docs/other/S1.5.htm

Authority: UWS 22 and UWM Fac. Doc. 1918
I. Declaration of policy. It is the policy of the board of regents that students' sincerely
held religious beliefs shall be reasonably accommodated with respect to all
examinations and other academic requirements. The board of regents adopts this
chapter in order to ensure that all institutions of the university of Wisconsin system
have in place appropriate mechanisms for ensuring the reasonable accommodation of
students' sincerely held beliefs, and for appeals related to these matters.
II. Accommodation of religious beliefs.
1. A student shall be permitted to make up an examination or other academic
requirement at another time or by an alternative method, without any prejudicial
effect, where:
(a) There is a scheduling conflict between the student's sincerely held religious beliefs
and taking the examination or meeting the academic requirements; and
(b) The student has notified the instructor, within the first three weeks of the
beginning of classes (within the first week of summer session and short courses), of
the specific days or dates on which he or she will request relief from an examination or
academic requirement.
2. Instructors may schedule a make-up examination or other academic requirement
before or after the regularly scheduled examination or other academic requirement.
3. Instructors shall accept, at face value, the sincerity of students' religious beliefs.
4. Student notification of instructors and requests for relief under sub. (1) shall be
kept confidential.
5. Complaints of failure to provide reasonable accommodation of a student's sincerely
held religious beliefs as required by this rule may be filed under UWM Complaint and
Grievance Procedures.
6. The chancellor shall, through appropriate institutional publications (to include at a
minimum the Schedule of Classes and Bulletin), provide notification to students and
instructors of the rules for accommodation of religious beliefs, and of the procedure
and appropriate office for filing complaints.

5. Students with disabilities: please give me the written authorization issued by
the Accessibility Resource Center (ARC) as soon as possible. Suitable arrangements
can then be made for tests, quizzes etc. In all lecture theaters, there are tables
(usually at the back of the lecture theaters) which are reserved for mobility-impaired
students. DO NOT USE THESE TABLES UNLESS YOU ARE MOBILITY IMPAIRED.
Students with special requirements/learning disabilities should see me as early as
possible during the semester: this is the student's responsibility. Please note that I
cannot allow students to take tests under conditions different from those experienced
by the rest of the class (extra time, separate room, etc.) unless they have permission
(written authorization) from the ARC. The ARC will issue formal instructions to me
about how students with disabilities are to be accommodated. Because of limited
space in the Physics building, **ALL STUDENTS WHO REQUIRE SPECIAL ACCOMMODATIONS SUCH AS EXTRA TIME MUST ARRANGE TO TAKE THEIR TESTS IN ARC.** (See http://www4.uwm.edu/sac/ for ARC contact information).

6. **Students called to active military duty:** accommodations for absences due to call-up of reserves to active military duty are available at this link: http://www4.uwm.edu/current_students/military_call_up.cfm

7. **Complaint procedures:** Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy. https://www4.uwm.edu/secu/docs/other/S_47_Discrimina_duct_Policy.pdf

   For your information: **Chair of Physics:** Professor Prasenjit Guptasarma: KEN 3077, (414)229-6497, pg@uwm.edu

   **Dean of Students’ Office:** http://www4.uwm.edu/dos/

   **Equity and Diversity:** http://uwm.edu/equity-diversity-services/about/#

   **Please remember that instructors have the same legal protection and redress against libel, slander, defamation, and harassment as you: some students seem not to know or understand this**

8. **Grade appeal procedures:** A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides or in the case of graduate students, the Graduate School. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School. Two useful links are given below.

   http://uwm.edu/letters-science/advising/answers-forms/policies/appeal-procedure-for-grades

   http://www4.uwm.edu/secu/docs/other/S%5F28%5FGrade%5FAppe%5FBy%5FStudents%2Epdf

9. **Behavior during lecture:** please do not disrupt the lecture or discussion by talking loudly with neighbors, refusing pay attention when the instructor has started teaching by ostentatiously reading the newspaper, texting etc. Please be civil and reasonable.

10. **Cell phones:** please turn off cell phones during lectures, discussions, and tests; please do not sit in front of the instructor or TA during class while texting your friends (or anyone else).

11. **Attendance:** if you do not attend each lecture and discussion, you are wasting tuition dollars and almost certainly damaging your overall grade. Your choice, your responsibility.

13. **UW-Milwaukee Desire2Learn (D2L) course web sites:**

   Materials for this course are available on a Desire2Learn (D2L) course web site. Students may see these materials there anytime using a standard web browser.

   **Recommended browsers:** A complete and up-to-date list of recommended browsers and settings can always be found at: http://kb.wisc.edu/helpdesk/page.php?id=3210. Please contact the UWM Help Desk, as described at the bottom of this page, with any questions about these requirements.

   **To find and browse the D2L course web site:**


   2. On the D2L **Landing** page, choose the button labeled **[UWM ePanther]**.

   3. On the next page, type in your ePanther **Username** (your ePanther campus email, but without the "@uwm.edu") and **Password** (the same password you use for Panther Link and PAWS). Then hit [Login].

      - You may bookmark the D2L.UWM.edu landing page, if you wish.
      - To prevent failed log-ins, please DO NOT BOOKMARK the UWM ePanther login page.
4. On the D2L My Home screen, find the area called My Courses. You’ll see your active courses here, arranged by Semester, with the newest semester at the top.

5. Click any course title to see the Course Home page. Click [Content] in the navigation bar to begin exploring the site.

6. If you have any difficulty getting into the course web site, please close down your web browser completely and open it up again. Then try logging on again, using the instructions above. If you do not know your ePanther username or password, please get help as indicated below.

7. When you are finished looking around your D2L course sites, always click on [Logout]. This is especially important if you are in a computer lab. Otherwise, the next person who uses the machine will be using your D2L account!

What to do if you have problems with Desire2Learn (D2L)

If you have any difficulties with D2L, including problems with your login (e.g., you forgot your password, or if you just can’t get on), please contact the UWM Help Desk. You may do one of the following:

- Report the problem via online web form at GetTechHelp.uwm.edu
- Call the UWM Help Desk at 414.229.4040 if you are in Metro Milwaukee.
- Go to Bolton 225 (this lab is not open all day or on weekends – call 414.229.4040 for specific hours)
- From outside the 414 or 262 area codes, but from within the USA, you may call the UWM Help Desk at 1.877.381.3459

14. Physics 209 Physics I (Calculus-based) is aligned with divisional criteria 1), 2) and 4) and UW Shared Learning Goal 2

Student Learning Outcomes:

1) Students will understand kinematics in 1, 2, and 3 dimensions using the appropriate mathematical tools of calculus and vector algebra. Students will understand clearly the significance of the instantaneous rate of change of a quantity and the role that such rates of change play in kinematics. Students will be able to apply this knowledge to real world problems from physics, engineering, and biomechanics. (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

2) Students will understand Newton’s Laws of Motion both conceptually and quantitatively, and will be able to apply the same to the solution of real world problems in physics, engineering, and biomechanics. Students demonstrate mastery of concepts such as mass, force, and momentum both qualitatively and quantitatively. (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

3) Students will understand the significance and application of conservation laws in both momentum and energy. Students will be able to apply this knowledge to real world problems from physics, engineering, and biomechanics. (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

4) Students will learn to apply the above topics to new situations involving rotational motion. Students will be able to apply this knowledge to real world problems from physics, engineering, and biomechanics. (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

5) Students will learn to apply and extend the principles assimilated in topics 1) through 3), above, to periodic (oscillatory) motion, the motion of fluids, and wave motion; they will demonstrate their ability analyze and solve quantitative problems. (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

6) Students will learn to apply and extend the principles assimilated in topics 1) through 3), above, to basic kinetic theory and hence to basic thermal physics; they will demonstrate their ability analyze and solve quantitative problems (Aligns with criteria 1 and 2, and UW System Shared Learning Goal 2)

7) In general, in all topics, students will explore general principles by constructing and solving mathematical models for specific examples which will be drawn from many different fields, including basic mechanical engineering, biomechanics, practical acoustics, and thermal physics. Students are encouraged to consider the assumptions built into their models, the limitations these assumptions impose on their results, and to explore to (within the mathematical limitations of the course) the consequences of relaxing these assumptions. Students will consider how well the predicted behavior of their model systems differs from that actually observed for such a system. (Aligns with criteria 1, 2 and 4, and UW System Shared Learning Goal 2).
8) Ideas will be put in their historical context: for example, a clear statement of Aristotelian concepts assists students to understand the scope and impact of the "Newtonian revolution" and its affect not only on the development of physics but also on the development of mechanical engineering. It is important for students to understand that hypotheses/theories that are now regarded as incorrect were once consistent with the best experimental evidence available. However, examples of "bad science" are also exposed, such as the erroneous presentations to be found in many biomechanics/medical physics textbook of the lung-chest system as a lightly damped oscillator (Aligns with criterion 4).

**Assessment:** attainment of GER-NS Criteria 1, 2, and 4, and UW System Shared Learning Goal 2 will be assessed through recording the student responses to predetermined questions on two semester tests and the final. These questions are all five-response, multiple choice format with no partial credit given; both conceptual questions and questions that require calculus and problem solving skills are included. Although students take daily quizzes and regularly complete assignments, the result of these course components are not be used for formal assessment. This is because in tests, almost the whole student body participates under controlled conditions.

It is significant that the same concepts will recur not in repeated questions but in new contexts: monitoring the count of correct responses for questions associated with a key concept, as it is applied to different contexts, provides a significant metric not only of student knowledge base but also of student ability to apply existing knowledge to novel or unfamiliar situations – in short, the development of critical scientific thinking. Monitoring collective student performance during the semester will allow the instructor quickly to identify topics that require more (or less) attention. However, the instructor(s) will collect detailed information every semester and it will be considered before the following semester by the undergraduate committee of the department; this will allow the department to suitably modify the teaching materials and presentation in future offerings of this course.

The assessment concerns questions that specifically address:

1) **Newton’s Laws of Motion applied both qualitatively and quantitatively**
   - Understanding of rate of change of a quantity as expressed by its tangent slope in kinematics (central to understanding Newtonian physics and the significance of accelerated motion).
   - Newton’s Laws of Motion applied both qualitatively and quantitatively in the linear case
   - Newton’s Laws of Motion applied to the rotational case.

2) **Conservation Laws**
   - Conservation of energy
   - Conservation of linear momentum
   - Conservation of angular momentum
Each student enrolled in this course are asked to sign the following statement and return it to the instructor no later than lecture on Wednesday June 27th. The instructor may administratively drop students who fail to do so this.

Please print your name on the line below.
FAMILY NAME FIRST, GIVEN NAME LAST________________________________________________________________________

Statement by student:
1) I have READ THE SYLLABUS FOR THIS COURSE (Physics 209-401) and acquainted myself with the policies therein.
2) I have checked that I satisfy the pre-reqs for this course; if I do not satisfy them, I have discussed my situation with the instructor.
3) I have checked the schedule of tests for conflicts with religious observance and informed the instructor if such conflicts exist.
4) If I intend to ask for special accommodations because of a disability, I have at this date either handed the ARC forms to the instructor or I have notified the instructor that I have contacted the ARC which is currently assessing my case.
5) I have noted the two UWM drop dates clearly stated on page 3 of this syllabus.
6) I have created an account on, and logged in to, the WebAssign system.
7) I understand that failure to participate may lead to my being dropped from the class.

Date________________________________________________________________________

Please sign your name legibly here________________________________________________________________________