Course Syllabus

PHYS 100.1001:
Course Title: Introduction to Physics (3 units)

Instructor Name: Dr. Matt Bailey
Office Location: Leifson Physics, Room 102 (LP 102)

Phone Number: (775) 784-6792 Email Address: mbailey@unr.edu
Office Hours: TR 12:30-2:15 pm (or after my 2:30-3:45 pm class)

Course Description: Concise treatment of mechanics, electricity, magnetism, heat, light, sound, relativity, and quantum mechanics.

Prerequisite(s): Completion of the Core Curriculum Mathematics requirement or SAT 610 or ACT 27 or Corequisite: MATH 127 or MATH 128 or MATH 176 or MATH 181.

Required texts, course materials:
Physics and Technology For Future Presidents (the text book, not the popular book with a similar title) Author: Richard A. Muller; course materials at WebCampus

Course Objectives: This is an introductory course in physics, a survey of important topics and concepts in physics, designed for general interest and in particular, students outside the science and engineering majors. It is a qualitative course but the physics is not trivial. You will be learning material that is important for understanding the past, present, and future in a technologically advancing world.

Neil deGrasse Tyson said “If you’re scientifically literate the world looks very different to you, and that understanding empowers you”.

SILVER CORE OBJECTIVE 4:
To satisfy Silver Core Objective 4 (Physical and Natural Phenomena) students must take “6 credits in the Core Natural Science course list. So as to satisfy the requirement for a laboratory or similar experience, at least 1 course must be taken from the A-group Natural Science courses.” In addition, “This objective aims to ensure that students gain a basic understanding of the natural world/universe and how human knowledge was developed and enhanced through scientific exploration.
Successful completion of PHYS 100 will partially satisfy Silver Core Objective 4.

Student Learning Outcomes:
After completing this course, students will be able to
1. Identify and describe the fundamental forces in nature
2. Describe the role played by energy in a number of physical phenomena, including planetary systems, atoms and molecules, nuclear reactions, electromagnetic radiation, and the future of the universe.
3. Discuss the physical concepts behind a number of existing and future technologies, including x-ray and MRI medical diagnostic techniques, lasers, electronics and quantum computing.

CO4 Objectives: Student Learning Outcomes:
4. Demonstrate a basic understanding of the foundational principles of physics
5. Relate the foundational principles of physics to a number of real-world and societal problems
6. Formulate questions, and analyze evidence to discriminate between sound and unsound scientific claims.

Unique class procedures /structures: Although this is a traditional face-to-face class, you will need access to the internet to download course materials from WebCampus.
LAB Experiences: This course also includes lab experiences.
You must complete ALL four lab experiences to pass the course.
Procedures for the labs and submission of lab reports are available on WebCampus and will be discussed in class.

**Mandatory labs and due dates:**
1. Sept 16 - Determining the Mass of the Earth (“Weighing the Earth”)
2. Sept 30 - Radiometric Dating
3. Oct 7 or 9 - Spectra Lab (In class)
4. Nov 4 - Scale of the Universe

Description of Course Requirements:

**Exams:** There will be 4 blocks of material and 4 exams. The 4th exam, the final, and is not comprehensive. *NOTE: There are NO make-up exams!* The final exam is optional and can replace any of the three semester exams, so *if you miss an exam you will need to take the final*. If you are happy with your grade after the three semester exams, you may excuse yourself from the final, or take it just to test your knowledge. The final exam cannot lower your grade! If it’s your lowest score, it will be dropped.

**Homework:** We will cover all the chapters in the book, so about one assignment due per week. Homework will be submitted via scantron sheets provided in class on assignment due dates. *Late homework will not be accepted without prior notification and justification.* Homework is worth a full letter grade or 10% of total points.

**Quizzes:** Quizzes will be given most weeks and will include material from the reading and class discussion. *There are NO make-up quizzes!* I will drop at least 2 quizzes before calculating the final grade. Quizzes are worth a full letter grade or 10% of total points.

**Attendance:** Attendance is not mandatory, but neither is giving you a passing grade. Showing up sporadically and making hastily or poorly prepared attempts on exams is not a recipe for success in any class, but especially one on physics. Students interested in doing well and building a strong GPA attend class regularly. Treat
college like the job you hope to have someday. You don’t show up, you don’t get paid, and you don’t get promoted. Your attendance will be clear through your quiz and homework submissions, and will be one subjective factor in determining your final grade, especially if you end up near the boundary between grade categories. Only those who have clearly made the effort will be rewarded.

**Labs:** The objective of the lab component of this course is to introduce the scientific procedure through writing, modest mathematics, and observation. Since this is a core science class you must complete four lab exercises to pass the class (this is regardless of your overall grade). Each student is responsible for completing their own lab report, though you are free to work together on the assignments. Failure to complete labs and to submit them on schedule will result in significant penalty. Labs are worth a full letter grade or 10% of total points. Students may work together on labs, but each student must submit his own report. No identical copies of reports with different names on them will be accepted.

**Grading Criteria, Scale, and Standards:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3):</td>
<td>350 pts</td>
<td>70%</td>
</tr>
<tr>
<td>Quizzes:</td>
<td>50 pts</td>
<td>10%</td>
</tr>
<tr>
<td>Labs (4):</td>
<td>50 pts</td>
<td>10%</td>
</tr>
<tr>
<td>Homework:</td>
<td>50 pts</td>
<td>10%</td>
</tr>
<tr>
<td>Total points:</td>
<td>500 pts</td>
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</tbody>
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Letter grades will be assigned for the course as follows:

- 95-100% A
- 90-95% A-
- 87-90% B+
- 83-87% B
- 80-83% B-
- 77-80% C+
- 73-77% C
- 70-73% C-
- 67-70% D+
- 63-67% D

(exams are scored according to 100% for ease of assessment;
exam total rated against 350 pts.)

Policies regarding late work and make-up exams:
EXAMS: There are NO make-up exams! The final exam is optional and can replace any of the three semester exams, so if you miss an exam you will need to take the final.
HOMEWORK: Late homework will not be accepted without prior notification and justification.
QUIZZES: There are NO make-up quizzes! I will drop at least 2 quizzes before calculating the final grade.

Course Calendar/Topics Outline:
Approximate lecture schedule - subject to change; updates given in lecture, by email, and through “Announcements” posted at Web Campus and sent by Web Campus email, so MAKE SURE YOU’RE “MyNevada” ACCOUNT HAS AN ACTIVE EMAIL ADDRESS LISTED, OR YOU WILL NOT RECEIVE IMPORTANT ANNOUNCEMENTS. No excuses will be accepted concerning missed updates and announcements. It’s your responsibility to be connected to the class. Do not block emails from @unr.edu, or remove such a filter if you have one.

Week 1 - [A26-28] Chapters 1&2
Week 2 - [S2-4] Chapters 3
Week 3 - [S9-11] Chapters 4
Week 4 - [S16-18] Chapter 5
Week 5 - [S23-25] [Chapter 6 – Sept 25] Exam 1 Tues Sept 23
Week 6 - [S30-02] Chapters 6&7
Week 7 - [O7-9] Chapters 8&9
Week 8 - [O14-16] Chapter 9
Week 9 - [O21-23] [Chapter 11] Exam 2, Tues Oct 21
Week 10- [O28-30] Chapter 11 last day to drop class: Oct 30
Week11 - [N4-6] Chapter 11&10
Week13 - [N18-20] Chapter 12
Week14 - [N25] Chapters 12&13 [N27 – Thanksgiving Day]
Week15 - [D2-4] Chapter 13
Final exam times for any class can be found at http://www.unr.edu/academic-central/academic-resources/schedules-and-catalogs (holidays, fee due dates, etc.)
http://catalog.unr.edu/content.php?catoid=6&navoid=1462

Statement on Academic Dishonesty: "Cheating, plagiarism or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include canceling a student's enrollment without a grade, giving an F for the course or for the assignment. For more details, see the University of Nevada, Reno General Catalog."

Statement of Disability Services: "Any student with a disability needing academic adjustments or accommodations is requested to speak with the Disability Resource Center (Thompson Building, Suite 101) as soon as possible to arrange for appropriate accommodations."

Statement for Academic Success Services: For example, "Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring-center), and University Writing Center (784-6030 or http://www.unr.edu/writing-center). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student."

Statement on Audio and Video Recording: "Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written
permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded."