Course Syllabus

AST 109.1001:
Course Title: Planetary Astronomy (3 units)

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

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Office Hours: TR 12:30-2:15 pm (or after my 2:30-3:45 pm class)

Course Description: Descriptive introduction to current concepts of the solar system. Modern observational techniques and their results. Supplementary use of telescopes and planetarium facilities.

Prerequisite(s): Completion of the Core Curriculum Mathematics requirement or SAT of 610 or ACT of 27 OR COREQUISITE.
Coreq(s): MATH 126 R or MATH 127 R or MATH 128 or MATH 176 or MATH 181.

Required texts, course materials:

Course Objectives:
The learning objectives for this course are
1. To gain knowledge of the historical development of astronomy and physics via the “scientific method”
2. To appreciate the astounding advances in our understanding of the evolution of the Earth, the solar system, and planets orbiting other stars that have resulted from this pursuit.

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 AST 109 will partially satisfy Silver Core Objective 4.

Student Learning Outcomes:
After successful completion of this course, students will be able to
1. Explain natural and physical phenomena observed on and from the Earth such as tides, eclipses, the aurora, and meteorites.
2. Explain natural and physical phenomena as pertinent to the orbital motion and characteristics of planets and moons in our solar system
3. Connect natural and physical explanations to the larger body of scientific knowledge and in particular the design of telescopes across the electromagnetic spectrum, spectroscopy and the structure of atoms,
4. Describe scientific methods and processes applied in the field of planetary astronomy
5. Formulate questions, and analyze scientific evidence to discriminate between sound and unsound claims, for example comparing and contrasting astronomy and astrology.

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, and to access assignments on WebAssign.

Sign up immediately for the WebAssign class by going to https://www.webassign.net/login.html and enter the class key, unr 5885 1826. If you do not yet have the funds to purchase the book, please note that WebAssign allows you a 14-day grace period to view and complete your homework. After 14 days, you must purchase access or you will be locked out of WebAssign and will be unable to submit homework assignments. Homework $40.19; Homework and eBook purchased together $61.44; eBook upgrade purchased separately Single Term($30.00)

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 (10% = a full letter grade):** Homework will be assigned from each chapter using the Web Assign online homework system. Problem solutions will be discussed in class and are available through Web Assign immediately after the due date and time for each assignment. Most exam problems are drawn from the homework problems; 12 out of 15 or so assignments will be counted as full credit. You can essentially miss 3 assignments without serious penalty. On rare occasions I will grant requests for extensions on homework, but these requests must be made before the deadline has expired since the answers are visible after that date, so **KEEP TRACK OF POSTED DUE DATES and TIMES!** Furthermore, assignments are usually due at 11:59 p.m. on the due day, but this time will be reduced to 7:59 p.m. on the eve of an exam. By that time, if you are not done with the homework you should view the answers and move on to studying for the exam. **EXAM POINTS ARE WORTH MUCH MORE THAN HOMEWORK 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.

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 “MY NEVADA” 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. Donot block emails from @unr.edu, or remove such a filter if you have one.

Week 1 - [A26-28] Chapters 1&2 - Observational Astronomy  
Week 2 - [S2-4] Chapters 3&4 - Eclipses/Gravity  
Week 3 - [S9-11] Chapters 4&5  Gravity/Light  
Week 4 - [S16-18] Chapter 5  Light; 6  time permitting Exam 1, Thurs Sept 18  
Week 5 - [S23-25] Chapter 16  Sun; 7 intro  
Week 6 - [S30-O2] Chapters 7&8 - Comparative Planetology  
Week 7 - [O7-9] Chapters 9  Earth Exam 2, Thurs Oct 9  
Week 8 - [O14-16] Chapters 10 & 11  Moon/Mercury/Venus  
Week 9 - [O21-23] Chapters 11  - Mars  
Week 10 - [O28-30] Chapter 11 last day to drop: Oct 30 Exam 3, Tues Oct 28  
Week11 - [N4-6] Chapter 12 &13  - Gas Giants & their moons  
Week12 - [N13] [Nov 11 – Veteran’s Day] Chapter 13  
Week13  - [N18-20] Chapter 14  – Ice Giants, dwarf planets/Pluto, the Kuiper Belt  
Week14 - [N25] [N27 – Thanksgiving Day] Chapters 15  – Asteroids & Comets  
Week15 - [D2-4] Chapter 15  - Asteroids & Comets; Cosmology  
Week16 - [D9]– Tues.- last class meeting; Exam 4  – Thurs, Dec. 11; 12:30 pm
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

Mandatory labs and due dates:
1. Sept 9 – Sun and the Zodiac (requires Aciqra desktop planetarium program)
2. Sept 11 or 16 (In class) Spectra Lab – write up due Sept 25
3. Oct 16 – Kepler’s 1st Law or Kepler’s 3rd Law
4. Nov 6 – Scale of the Universe

Grading Criteria, Scale, and Standards:

- 3 exams (best of 4) = 300 pts (≈70%)
- Homework = 45 pts (≈10%)
- 4 lab exercises (minimum) = 45 pts (≈10%)
- 10 Quizzes = 45 pts (≈10%)
- Total possible points = 435 pts

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

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 videotaping 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."