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SCN 175N.01: Integrated Physical Science I

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INTEGRATED PHYSICAL SCIENCE I
SCN175N
COURSE SYLLABUS

Course Rubric and Title: SCN 175N Integrated Physical Science I
Semester Credits: 3
Professor: Ashley Preston
Office: HB Building "Office"/HB02, Missoula College
Email: ashley.preston@umontana.edu
Office Hours: MW 12:30-1:30 or by appointment; CHCB463 (mountain campus) TuTh 9:30-10:30 a.m.

Course Description: SCN175N Integrated Physical Science I, 3cr. Offered every term. An introduction to the fundamental principles of physics and chemistry with an emphasis on the scientific method and process.

Course Overview: The course offers an introduction to the scientific method as a tool for understanding natural phenomena. The course begins with an examination of the scientific method, introducing students to methods of observation, data collection, experimentation, validation, interpretation, and theory building. Science is presented as an ongoing process, one that aims to construct a seamless web of knowledge about the workings of the world around us and the universe as a whole. SCN175 takes an integrated approach to the presentation of basic concepts and principles in physics and chemistry. Topics emphasized include: mechanics, energy and thermodynamics, electricity and magnetism, waves and electromagnetic radiation, the atom, quantum mechanics, basic chemistry, and the atomic nucleus. In each instance, connections between the branches of science are emphasized, focusing on real-world situations and applications.

Required Text: Hewitt et al. 2013. *Conceptual Integrated Science*, 2nd edition. Pearson Education, Inc. ISBN 9780321818508. If you buy a new book, you have access to Pearson's Mastering Physics as well as an e-book. If you buy a used book, and you wish access to these resources, you will need to contact Pearson directly.

Student Learning Outcomes: Upon completion of this course, the student will be able to:

1. Understand and critically evaluate the merit of basic scientific claims and /or findings encountered in education, the workplace, the marketplace, or the media.
2. Identify and differentiate between observations, hypotheses, theories, and laws (e.g., to understand the scientific method and its relationship to creativity, logic, and intuition).
3. Gather information, interpret observations, and quantify data on natural phenomena.
4. Recognize patterns in natural processes and structures; formulate and test elementary predictions based on pattern recognition; draw conclusions and construct hypotheses and/or theories.
5. Understand the meaning and broader significance of the basic principles and concepts of the major scientific disciplines.
6. Make connections between the different sciences to construct an integrated web of knowledge about the natural world.
7. Apply scientific methods and principles to real-world situations; assess the social, economic, political, environmental, and ethical impacts of scientific findings or research agendas.

Student Conduct Code

In an effort to ensure that students are informed about the consequences of academic misconduct, the Academic Officers of The University of Montana have determined that the following statement must be present on every course syllabus. You will be held to these standards in this course.

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#).

Plagiarism will not be tolerated. The first offense will earn you an F on the assignment; the second will earn you an F in the course and I will send your name forward to the Academic Dean for expulsion from the University and a record will be put in your permanent file.

Course Accommodations Statement (DSS)

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS).

“Reasonable” means the University permits no fundamental alterations of academic standards or retroactive modifications.

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommason 154 or 406.243.2243. I will work with you and DSS to provide an appropriate modification.

For further information contact UM’s Disability Services for Students Office. Make an appointment or stop by during office hours to bring me your form and discuss accommodations.

Email policy at UM

According to the University email policy effective on 1 July 2007, an “employee must use *only* UM assigned student email accounts for all email exchanges with students, since such communication typically involves private student information.” This means that you *must* send any correspondence through your official UM student email account. For more information on setting up and using your official UM email account contact tech support.

Assessment Methods and Grading

This class is offered for traditional letter grade only; it is not offered under the credit/no credit option.

1. **Six Unit Tests. Exams cannot be made up** without prior approval. You must contact me **in advance** of the exam date to make arrangements to take the exam prior to the regularly scheduled time.
2. **Projects/Homework**
 - Scientist bio sketch (1)
 - Science Journal Article Summaries (4)
 - Intro Test Chapter 1 (1)
 - Other work as assigned

Note: **Late assignments are not accepted.** You will receive a 0 for any assignment not submitted by the due date and time.

3. **Attendance/participation**
For **online** students participation is measured by the frequency and quality of contributions to the Discussion Board (quantity will not replace quantity; consult the grading rubric for details), and timely completion of ALL work.
For **face to face** students, attendance is required and participation in class is strongly recommended; both will impact grades. **Your final grade will drop one full letter on the 4th unexcused absences (i.e. after 3 unexcused absences). The 5th unexcused absence will result in an F for the course.**
4. **Comprehensive Final Exam.** The final is cumulative.

Unit Tests (6) (drop lowest score)	500 points	50%
Homework	300 points	30%
Comprehensive Final Exam	<u>200 points</u>	<u>20%</u>
	1000 points	100%

Grading Scale

A- - A	= 90 - 100
B- - B+	= 80 - 89
C- - C+	= 70 - 79
D- - D+	= 60 - 69
F	= 59 and below

Topical Outline SCN 175N

Scientific Method and Process	Mechanics	Energy	Heat and Temperature	Wave Motion and Sounds
Electricity and Magnetism	Light		Atoms and Periodic Properties	Chemical Reactions
Matter	Nuclear Reactions	Organic Compounds		