

USU INTEGRATED PHYS SCI (BPS) 1360

Course Description

Interdisciplinary course focusing on basic concepts of physical science, including structure of matter and magnitude and character of the forces of nature. Demonstrates role of modeling, prediction, and observation in the process of scientific discovery, which occurs within an historical and social context.

This course attempts to relate the atomic composition and structure of materials to the observed microscopic and macroscopic properties that influence our world. More emphasis is placed on the pragmatic engineering approach of some fields to discuss how different materials can and should be used differently in construction. Further discussion introduces the factors of energy interacting with matter -ranging from the nature of light to the impact of heat transfer on the planetary scale of Earth. The origin of elements in our universe is also discussed along with the ill defined character of dark energy and dark matter.

Material topics include

- carbon allotropes
- glass & ceramics / inorganic minerals
- macro scale inorganics / plate tectonics
- energy and matter interactions
- concrete ... and composite materials
- wood, engineered wood products, paper
- chocolate

Historical examples provide a fascinating backdrop for the discussion of how we use materials and what drives the changing needs of society.

Required Text

Stuff Matters, by Mark Miadownik, Penguin 2013, ISBN 978-0-544-48394-1

Fees

There is no additional fee for this course.

Course Objectives

By the end of this course, you will be able to:

1. Objective
2. Objective
3. Objective

Instructor

Mark D. Noirot, Ph.D.

mark.noirot@usu.edu

office 435-678-8193

Location: USU Blanding, BLT 111

Class Scheduled meetings:

Course Resources

Textbook: Stuff Matters by Mark Miadownik

Course Requirements

Each student will:

1. Access the Course through CANVAS
2. Take exams and complete homework quiz assignments through the CANVAS LMS portal.
 1. Exams can be taken using Proctorio software to monitor ... or
 2. Exams can be taken at USU approved Proctored Testing Centers.

Evaluation Methods and Criteria

Canvas Quizzes, Discussions, and Exam assignments.

Canvas Information

Canvas is the where course content, grades, and communication will reside for this course.

- <http://canvas.usu.edu> (<http://canvas.usu.edu/>)
 - Your **username** is your **A#**, and your **password** is your global password (the same one you use for Banner or Aggiemail).
- For [Canvas](http://canvas.usu.edu/) (<http://canvas.usu.edu/>), [Passwords](https://id.usu.edu/Password/Help/#password) (<https://id.usu.edu/Password/Help/#password>), or any other computer-related technical support contact the [IT Service Desk](http://it.usu.edu/) (<http://it.usu.edu/>).
 - 435 797-4357 (797-HELP)
 - 877 878-8325
 - <http://it.usu.edu> (<http://it.usu.edu/>)
 - servicedesk@usu.edu (<mailto:servicedesk@usu.edu>)

Grade Scheme

The following grading standards will be used in this class:

Grade	Range
A	100 % to 93.0%
A-	< 93.0 % to 90.0%
B+	< 90.0 % to 87.0%
B	< 87.0 % to 83.0%
B-	< 83.0 % to 80.0%
C+	< 80.0 % to 77.0%
C	< 77.0 % to 73.0%
C-	< 73.0 % to 70.0%
D+	< 70.0 % to 67.0%
D	< 67.0 % to 60.0%
F	< 59.0 % to 0.0%

Course Schedule/Outline

Outline dates and assignments

Attendance and Excused Absences Policy

Under construction here - likely to change...

Nonattendance Policy

Students May Be Dropped For Nonattendance

If a student does not attend a class during the first week of the term or by the second class meeting, whichever comes first, the instructor may submit a request to have the student dropped from the course. ***(This does not remove responsibility from the student to drop courses which he or she does not plan to attend.)*** This option is typically used for classes that are full and the instructor is trying to make a seat available for another student, but may be considered for other courses. Requests must be made during the first 20 percent of the course and will be considered on an individual student basis. Students who are dropped from courses will be notified by the Registrar's Office through their preferred e-mail account (see [2018-2019 General Catalog](http://catalog.usu.edu/content.php?catoid=12&navoid=3955) [_\(http://catalog.usu.edu/content.php?catoid=12&navoid=3955\)](http://catalog.usu.edu/content.php?catoid=12&navoid=3955)).

Assumption of Risk

All classes, programs, and extracurricular activities within the University involve some risk, and certain ones involve travel. The University provides opportunities to participate in these programs on a voluntary basis. Therefore, students should not participate in them if they do not care to assume the risks. Students can ask the respective program leaders/sponsors about the possible risks a program may generate, and if students are not willing to assume the risks, they should not select that program. By voluntarily participating in classes, programs, and extracurricular activities, a student does so at his or her own risk. General information about University Risk Management policies, insurance coverage, vehicle use policies, and risk management forms can be found at: <http://www.usu.edu/riskmgt/> (<http://www.usu.edu/riskmgt/>)

Library Services

All USU students attending classes in Logan, at our Regional Campuses, or online can access all databases, e-journals, and e-books regardless of location. Additionally, the library will mail printed books to students, at no charge to them. Students can also borrow books from any Utah academic library. Take advantage of all library services and learn more at libguides.usu.edu/rc (<http://libguides.usu.edu/rc>)

Classroom Civility

Utah State University supports the principle of freedom of expression for both faculty and students. The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual engaging in such behavior may be subject to disciplinary action. Read [Student Code Article V Section V-3](https://studentconduct.usu.edu/studentcode/article5) (<https://studentconduct.usu.edu/studentcode/article5>) for more information.

University Policies & Procedures

COVID-19 Classroom Accommodations

If you face COVID-19 related challenges and feel you need accommodations, you must request those accommodations by filling out the [COVID-19 Questionnaire](https://www.usu.edu/covid-19/questionnaire/index.php) [_ \(https://www.usu.edu/covid-19/questionnaire/index.php\)](https://www.usu.edu/covid-19/questionnaire/index.php). Upon doing so, the University [COVID CARE Team](https://www.usu.edu/covid-19/if-you-are-sick/care-team.php) [_ \(https://www.usu.edu/covid-19/if-you-are-sick/care-team.php\)](https://www.usu.edu/covid-19/if-you-are-sick/care-team.php) will contact you to determine your needs and how to support you. The CARE Team will also contact your instructors and provide important direction on how best to accommodate your needs. For additional reference, please see USU's [Attendance and Excused Absence](https://catalog.usu.edu/content.php?catoid=12&navoid=3160) [_ \(https://catalog.usu.edu/content.php?catoid=12&navoid=3160\)](https://catalog.usu.edu/content.php?catoid=12&navoid=3160) policy and the [COVID-19 Classroom Accommodations](https://www.usu.edu/covid-19/operations/accomodations) [_ \(https://www.usu.edu/covid-19/operations/accomodations\)](https://www.usu.edu/covid-19/operations/accomodations) page.

Reducing COVID-19 Risk

You can help keep classes, events, and activities happening in person this semester by following these steps:

1. **Get vaccinated if you're able.** Vaccines are the best available tool to help stop the spread of COVID-19. They are safe, free, and easy to access.
2. **If you are vaccinated, let USU know.** Please [upload your proof of full vaccination](http://aggiehealth.usu.edu/) [\(http://aggiehealth.usu.edu/\)](http://aggiehealth.usu.edu/) to AggieHealth. If you are exposed to COVID-19, USU's case containment will not require you to quarantine if they know you are vaccinated and you do not have symptoms.
3. **Stay home if you're sick** and [get tested for COVID-19](#) if you have symptoms or have been exposed. It's important to not bring any illness to campus.
4. **Wear a mask indoors.** Public health experts recommend that even vaccinated people wear masks indoors in high COVID-19 transmission areas, which includes most of Utah.

If USU's COVID Case Containment team identifies an uncontained situation in the classroom, you will be notified of any temporary changes to your course delivery method through a Canvas announcement. Please make sure you are receiving immediate notifications of new Canvas announcements. The situation will be handled according to protocols on the [COVID Classroom Exposure](https://www.usu.edu/covid-19/students/classroom-exposure) [_ \(https://www.usu.edu/covid-19/students/classroom-exposure\)](https://www.usu.edu/covid-19/students/classroom-exposure) page.

Class Seating Charts (For In-Person Classes)

In classes with more than 10 students, a seating chart will be used to track where you are sitting. After the first week of classes, your instructor will tell you how to enter your seat number in Canvas. **You must sit in the same seat for the rest of the semester.** This is extremely important for tracking cases of COVID-19 and helping classes remain in person.

Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. [Faculty Code Policy #403](http://www.usu.edu/hr/files/uploads/Policies/403.pdf) (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>) further defines academic freedom and professional responsibilities.

Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:

"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University's Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating:** using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
 - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually;"
 - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
 - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
 - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
 - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
 - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.

- **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

For additional information go to: [ARTICLE VI. University Regulations Regarding Academic Integrity](https://studentconduct.usu.edu/studentcode/article6) [_\(https://studentconduct.usu.edu/studentcode/article6\)](https://studentconduct.usu.edu/studentcode/article6)

Sexual Harassment/Title IX

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and [USU Policy 339](http://www.usu.edu/policies/339) [_\(http://www.usu.edu/policies/339\)](http://www.usu.edu/policies/339) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU's [Office of Equity](https://equity.usu.edu/) [_\(https://equity.usu.edu/\)](https://equity.usu.edu/) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment ([USU Policy 305](http://www.usu.edu/policies/305/) [_\(http://www.usu.edu/policies/305/\)](http://www.usu.edu/policies/305/)), and has designated the Office of Equity Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

Withdrawal Policy and "I" Grade Policy

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Students with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the [Disability Resource Center \(DRC\)](http://www.usu.edu/drc/) [_\(http://www.usu.edu/drc/\)](http://www.usu.edu/drc/) as early in the semester as possible (University Inn # 101, (435) 797-2444, drc@usu.edu [_\(mailto:drc@usu.edu\)](mailto:drc@usu.edu)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

Students who are at a higher risk for complications from COVID-19 or who contract COVID-19 may also be eligible for accommodations.

Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Division of Student Affairs: <https://studentaffairs.usu.edu> [\(https://studentaffairs.usu.edu/\)](https://studentaffairs.usu.edu/), (435) 797-1712, studentservices@usu.edu <mailto:studentservices@usu.edu>, TSC 220
- Student Legal Services: <https://ususa.usu.edu/student-association/student-advocacy/legal-services> [_ \(https://ususa.usu.edu/student-association/student-advocacy/legal-services\)](https://ususa.usu.edu/student-association/student-advocacy/legal-services), (435) 797-2912, TSC 326,
- Access and Diversity: <http://accesscenter.usu.edu> [_ \(http://accesscenter.usu.edu/\)](http://accesscenter.usu.edu/), (435) 797-1728, access@usu.edu <mailto:access@usu.edu>; TSC 315
- Multicultural Programs: <http://accesscenter.usu.edu/multiculture> [_ \(http://accesscenter.usu.edu/multiculture\)](http://accesscenter.usu.edu/multiculture), (435) 797-1728, TSC 315
- LGBTQA Programs: <http://accesscenter.usu.edu/lgbtqa> [_ \(http://accesscenter.usu.edu/lgbtqa/\)](http://accesscenter.usu.edu/lgbtqa/), (435) 797-1728, TSC 3145
- Provost's Office Diversity Resources: <https://www.usu.edu/provost/diversity> [_ \(https://www.usu.edu/provost/diversity/\)](https://www.usu.edu/provost/diversity/), (435) 797-8176

You can learn about your student rights by visiting:

The Code of Policies and Procedures for Students at Utah State

University: <https://studentconduct.usu.edu/studentcode>

[\(https://studentconduct.usu.edu/studentcode/\)](https://studentconduct.usu.edu/studentcode/)

Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: [Article VII](#)

[\(https://studentconduct.usu.edu/studentcode/article7/\)](https://studentconduct.usu.edu/studentcode/article7/).

Full details for USU Academic Policies and Procedures can be found at:

- [Student Conduct](http://www.usu.edu/studentconduct) [_ \(http://www.usu.edu/studentconduct\)](http://www.usu.edu/studentconduct)
- [Student Code](https://studentconduct.usu.edu/studentcode/) [_ \(https://studentconduct.usu.edu/studentcode/\)](https://studentconduct.usu.edu/studentcode/)
- [Academic Integrity](https://studentconduct.usu.edu/studentcode/article6) [_ \(https://studentconduct.usu.edu/studentcode/article6\)](https://studentconduct.usu.edu/studentcode/article6)
- [USU Academic Policies and Procedures](http://catalog.usu.edu/content.php?catoid=4&navoid=546) [_ \(http://catalog.usu.edu/content.php?catoid=4&navoid=546\)](http://catalog.usu.edu/content.php?catoid=4&navoid=546)
- [Academic Freedom and Professional Responsibility Policy](http://www.usu.edu/hr/files/uploads/Policies/403.pdf) [_ \(http://www.usu.edu/hr/files/uploads/Policies/403.pdf\)](http://www.usu.edu/hr/files/uploads/Policies/403.pdf)

Emergency Procedures

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking






ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.

Mental Health

Mental health is critically important for the success of USU students. As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Utah State University provides free services for students to assist them with addressing these and other concerns. You can learn more about the broad range of confidential mental health services available on campus at [Counseling and Psychological Services \(CAPS\)](https://counseling.usu.edu) (<https://counseling.usu.edu>).










Students are also encouraged to download the [“SafeUT App”](https://healthcare.utah.edu/uni/programs/safe-ut-smartphone-app) (<https://healthcare.utah.edu/uni/programs/safe-ut-smartphone-app>) to their smartphones. The SafeUT application is a 24/7 statewide crisis text and tip service that provides real-time crisis intervention to students through texting and a confidential tip program that can help anyone with emotional crises, bullying, relationship problems, mental health, or suicide related issues.

Course Summary:

Date	Details	Due
Sat Oct 17, 2020	 Expanding Universe (https://usu.instructure.com/courses/700875/assignments/3611040)	due by 11:59pm
Fri Jun 4, 2021	 The Big Bang NucleoSynthesis (BBN) produced mostly Hydrogen and Helium. (https://usu.instructure.com/courses/700875/assignments/3611043)	due by 10:59pm
Sun Jun 6, 2021	 Discussion: Light - Perception - Color (https://usu.instructure.com/courses/700875/assignments/3611046)	due by 11:50pm
Mon Jun 14, 2021	 Nucleosynthesis II (Quiz 3) (https://usu.instructure.com/courses/700875/assignments/3611014)	due by 12:59am
	 Multiverse Quiz (https://usu.instructure.com/courses/700875/assignments/3610992)	due by 10pm

Date	Details	Due
Wed Jul 21, 2021	 USU 1360 Exam 2 FL15 https://usu.instructure.com/courses/700875/assignments/3610984	due by 12:15pm
Mon Aug 2, 2021	 Dis: New Composite Ideas https://usu.instructure.com/courses/700875/assignments/3611035	due by 11:59pm
Wed Aug 11, 2021	 Momentum Quiz https://usu.instructure.com/courses/700875/assignments/3611006	due by 12:59am
	 Q4 Newton https://usu.instructure.com/courses/700875/assignments/3611024	due by 12:59am
Tue Sep 7, 2021	 Project 3 Assessment https://usu.instructure.com/courses/700875/assignments/3611057	due by 11:59pm
Wed Sep 29, 2021	 USU 1360 Exam 4 FL15 https://usu.instructure.com/courses/700875/assignments/3611009	due by 8pm
Fri Oct 1, 2021	 Fundamental Wood Structures https://usu.instructure.com/courses/700875/assignments/3611032	due by 11:59pm
Sun Jan 16, 2022	 USU 1360 Carbon Quiz https://usu.instructure.com/courses/700875/assignments/3611004	due by 12:59am
Fri Jan 21, 2022	 Chapter 8 - Unbreakable - text https://usu.instructure.com/courses/700875/assignments/3611052	due by 11:59pm
	 Dis: Carbon and Carbon Materials https://usu.instructure.com/courses/700875/assignments/3611037	due by 11:59pm
Sun Jan 30, 2022	 Read wiki-Carbon https://usu.instructure.com/courses/700875/assignments/3611058	due by 11:59pm
Fri Feb 4, 2022	 Chapter 3 - Fundamental - text https://usu.instructure.com/courses/700875/assignments/3611050	due by 11:59pm
	 Read wiki - Concrete https://usu.instructure.com/courses/700875/assignments/3611059	due by 11:59pm

Date	Details	Due
Fri Feb 11, 2022	 Chapter 7 - Invisible - text (https://usu.instructure.com/courses/700875/assignments/3611051)	due by 11:59pm
Sat Feb 12, 2022	 Earth Materials Quiz (https://usu.instructure.com/courses/700875/assignments/3611026)	due by 11:59pm
Mon Feb 14, 2022	 USU 1360 Exam Carbon and Earth Materials (https://usu.instructure.com/courses/700875/assignments/3610999)	due by 5pm
Wed Feb 23, 2022	 Glass - The transparent material (https://usu.instructure.com/courses/700875/assignments/3611029)	due by 11:59pm
Sat Feb 26, 2022	 Heat Transfer Quiz (https://usu.instructure.com/courses/700875/assignments/3611027)	due by 11:59pm
Thu Mar 10, 2022	 Exam 2 CH 4,5,6 -II (https://usu.instructure.com/courses/700875/assignments/3611054)	due by 11:59pm
Wed Mar 16, 2022	 USU 1360 Exam 2 Geo plus (https://usu.instructure.com/courses/700875/assignments/3610989)	due by 11:59pm
Fri Mar 25, 2022	 RadioLab Quiz (https://usu.instructure.com/courses/700875/assignments/3610994)	due by 11:59pm
Thu Apr 7, 2022	 EXAM 3: Light, Energy, Cosmology, and the Evolution of Matter (https://usu.instructure.com/courses/700875/assignments/3611016)	due by 11:59pm
Wed Apr 20, 2022	 Science Conceptions II (https://usu.instructure.com/courses/700875/assignments/3610980)	due by 11:59pm
Mon Apr 25, 2022	 Exam 4: Wood/ Chocolate/ BioMaterials (https://usu.instructure.com/courses/700875/assignments/3611020)	due by 11:58pm
	 Chocolate Quiz (https://usu.instructure.com/courses/700875/assignments/3610977)	due by 11:59pm

Date	Details	Due
	 EC for survey(s) (https://usu.instructure.com/courses/700875/assignments/3611053)	
	 Energy Quiz (https://usu.instructure.com/courses/700875/assignments/3611012)	
	 Gravity Quiz (https://usu.instructure.com/courses/700875/assignments/3611002)	
	 Light Quiz (https://usu.instructure.com/courses/700875/assignments/3610986)	
	 Nucleosynthesis Quiz (https://usu.instructure.com/courses/700875/assignments/3610982)	
	 Post-Breadth Physical Sciences (BPS): Criteria 1 (https://usu.instructure.com/courses/700875/assignments/3611055)	
	 Pre-Breadth Physical Sciences (BPS): Criteria 1 (https://usu.instructure.com/courses/700875/assignments/3611056)	
	 Roll Call Attendance (https://usu.instructure.com/courses/700875/assignments/3611060)	
	 Science Conceptions (https://usu.instructure.com/courses/700875/assignments/3610996)	