

**The Nature of Science Across Time and Culture
The Processes and Practices of Science**

Biology 484x, Chemistry 490x, Geology 475x, and Physics 490x

Section 001, 2 Credits

This course is an examination of major concepts of science and how they evolved. This course compares and contrasts of the role and practice of science in various cultures and examination of the interaction between science, technology and culture. CREQ: ILAS 201, 301 or 401; Instructor Permission.

Instructor Information - Fall 2014

- Instructor Name: Dr. Sheldon P. Turner
- Office Location: Health Services Building Room 323
- Office Hours: Wednesdays 10am-12pm, or by appointment.
- Telephone: 815-753-7273
- Email: sturner5@niu.edu

Meeting Days/Times/Location

Class meetings will be held in Montgomery Hall, Room 324 from 4:00-6:00 PM.

Materials

Book required for the course:

- *Just a Theory: Exploring the Nature of Science*, by Moti Ben-Ari (ISBN-10: 1591022851/ISBN-13: 978-1591022855)

Suggested Reading (not required):

- Sagan, C. (1996). *The Demon Haunted World: Science as a Candle in the Dark*. New York, NY: Ballantine Books.
- Dawkins, R., (2011) *The Magic of Reality: How We Know What's Really True*. Free Press. (ISBN-10: 9781451675047/ISBN-13: 978-1451675047)

Learning Outcomes

By the end of this course, I expect that students will:

1. Be able to discuss the basic tenants of the process of Science.
2. Have appreciation for some of the significant scientists and their discoveries;
3. Be able to analyze the influence of science on society and society on science;
4. Consider the impact science has on their students lives.
5. Be able to develop lesson plans that demonstrate these connections.

Illinois Professional Teaching Standards: 1E, 2B, 2C, 2D, 2F, 2H, 2J, 3G, 5N, 9U

Attendance

Should you need to be late, leave early, or miss a class, please notify me in writing (email is fine) as much in advance as possible. Failure to notify me in writing of an absence will be regarded as an unexcused absence and there will be no make-up assignments, quizzes or tests. Due to the nature of the course and the work involved, attendance is very important. If you must miss class it is your responsibility to get the notes from a classmate and to find out what went on in class during your absence.

Assignments

You will be expected to complete a number of assignments throughout the semester. Assignments will be made in class and due on Blackboard before the following class. Late assignments will receive half credit. Assignments that are one week or more late will not be accepted and a zero will be recorded in the grade book.

Recent Discoveries

You will be expected to present a recent scientific discovery to the class at least once. You are welcome to share more than once but will not receive extra credit.

Presentations

You will be expected to give a presentation at the end of the semester. A detailed description and grading rubric will be provided later in the semester. You will be able to use the technology that is available in the room for your presentation

Quizzes and Final

Quizzes may consist of any number of the following: true/false, multiple choice, definitions, short answer and short essay questions. Quizzes will be on blackboard. I will announce in class when online homework is assigned. The final exam is an in-person essay exam held during normal Final Exam scheduling. It is your responsibility to make sure your computer works with Blackboard technology.

Grading:

Assignments	40%
Recent Discoveries	5%
Reading Assignments	15%
Presentation	15%
Quizzes (x4)	10%
Final Exam	15%

95-100%	A	4.00
90-94.9%	A-	3.67
86-89.9%	B+	3.33
82-85.9%	B	3.00
78-81.9%	B-	2.67
74-77.9%	C+	2.33
70-73.9%	C	2.00
60-69%	D	1.00
0-59%	F (fail)	0.00

Expectations

We will set a standard of professional comportment, in which professional behavior, including attendance, dress, participation, courtesy, and the submission of assignments by the due date are both expected and required. Professional demeanor, of the type that we expect in the educational workplace, is required at all times in this course. Please silence your cell phone and other electronic devices during class.

Plagiarism Statement from the Northern Illinois University Undergraduate Catalog: "Good academic work must be based on honesty. The attempt of any student to present as his or her

own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are guilty of plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students guilty of, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.."

Student resources

Tutoring services

Chem help room (Faraday 247)

COMS 100 skills lab

ESL Center

Philosophy

Physics help room

Language Learning Center

Math Assistance Center (Dusable 326)

Statistics Assistance Center (Dusable 326)

Volunteer tutors for all subjects: Sign up for help, or to help others

<http://acm.cs.niu.edu/basic/tutoring.php>

Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu.

Date	Topic	Reading Assign.	Quiz Dates
8/27	What is Science?		
9/3	Science is...observation driven.	Chapter 1	
9/10	Science is...hypothesis driven.	Chapter 4	
9/17	Science is...deductive.	Chapter 11	Quiz 1
9/24	Science is...inductive.	Chapter 10	
10/1	Science is...when scientists disagree.	Chapter 12	Quiz 2
10/8	Science is...when scientists agree.	Chapter 6	
10/15	Science is...a body of knowledge.	Chapter 2	Quiz 3
10/22			
10/29	Science is...a way of thinking.	Online Reading	
11/5	Science is...contextless.	Chapter 9	Quiz 4
11/12	Science is...contextual.	Chapter 7	
11/19	Student Presentations		
11/26	Student Presentations		
12/3	Student Presentations		
12/10	FINAL EXAM 4:00 - 5:50pm		