SYLLABUS

HNRS 353-004 SCIENCE
Spring 2018

Jan 23 The Nature of Science, organization of groups
The State of Astronomy in 1900

Jan 29 --State of Physical Sciences in 1900
work in groups

Feb 6 -- State of Life Science in 1900
Work in groups

Feb 13--Relativity, work in groups

Feb 20 -- Quantum Mechanics and the Structure of Matter
Theory of Everything, Work in groups

Feb 27 -- EXAM I

March 5-- rough draft presentations

March 12-March 18—SPRING BREAK

March 19 -- First Class Presentations

March 26 -- private meeting with instructor to evaluate presentations, discuss term paper

April 3 —The Molecular Revolution in Biology, Biotechnology
New topic assignments, work in groups

April 10--plate Tectonics and Exoplanets, New Vistas in Astronomy/Cosmology
Work in groups

April 17 --rough draft presentation

April 24 Second Class Presentation

May 1 presentation of term papers
EXAM II
COURSE DESCRIPTION

HNRS 353 SCIENCE
Spring 2017

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COURSE DESCRIPTION

This course will examine the rather extraordinary changes in the way we view the universe as a result of scientific advances since 1900. Students will work in interdisciplinary teams to present various topics to the class, and there will be several individual writing assignments that will be closely supervised by the instructor.

ABOUT THE COURSE

This course is going to stress individual research and the development of communication skills. If you are looking for the standard lecture-exam-term paper format you will be disappointed. The course will emphasize communicating ideas. You will get practice in three areas: (1) making presentations as part of a group, (2) writing short essays on specific topics, and (3) writing a longer report. In each area there will be individual meetings with the instructor to evaluate and improve student skills.

RESEARCH TEAMS

During the first class we will split the class into research teams of 6-7 people each. Each team will choose a topic for later presentation from a list prepared by the instructor. Groups may choose topics not on the list with the instructor’s approval. The general topic of the presentations will be the way new scientific advances have affected society at large. The first presentation will deal with the question of how we got to our present state of affairs, and the second with what changes might happen in the future. Teams might choose to talk about subjects like medicine, communication, energy, and so on. After the team topic is approved by the instructor, individuals in the team will take on specific assignments. Each team will meet privately with the instructor to present a ‘rough draft’ version of their report before the report is presented to the class as a whole.

The team can decide how its presentation to the class will be made, but all presentations must be in PowerPoint. In addition, each individual member of the team will write a 500 word paper describing his or her individual topic. These papers will be handed in at the time of the individual meeting and will be discussed, along with the presentation, in a private meeting with the instructor as scheduled. All written work in this course must be done on a word processor. Each student in the class will be asked to turn in a list of questions or comments (one per group presentation) at the end of the class period in which presentations are made.
TERM PAPER

The last part of the course will include the development of a term paper. These will be done individually, and will be written on a topic to be chosen by the student and approved by the instructor. Students will meet individually with the instructor to develop their papers, and the papers will be due the last day of class. Further details will be given in a future handout.

On the last day of class, each student will hand in a portfolio consisting of all written (and/or revised) work and the term paper.

BOOKS

*Science in World History* (Routledge) James Trefil
*Einstein’s Relativity* (Routledge) James Trefil

NOTE: I AM TEACHING TWO SECTIONS OF HNRS 353 THIS SEMESTER. WHEN SENDING EMAILS, PLEASE SPECIFY ‘HNRS 353 SCIENCE’ SO I KNOW WHICH SECTION YOU ARE IN
POSSIBLE GROUP PRESENTATION TOPICS

The following general categories should be use to guide the group discussions as you pick your topic. These topics are pretty broad, and you will want to focus on specific topics—for example, under ‘transportation’ you might want to talk about drones or driverless cars. Feel free to propose other topics to the instructor.

Computers

IT-- communication

Agriculture

Medicine

Transportation

Materials

Buildings and infrastructure

Energy