

# HIST 3360.001: Perspectives on Science & Math

## Spring 2011 Syllabus

### The University of Texas at Tyler

#### MWF, 11:00-11:50 AM

### Instructor Contact Information and Office Hours

#### Instructor Contact Information

Dr. Neil Gray  
 Office: RBS 3002  
 Phone: 566-7206  
 Email: [ngray@mail.uttyl.edu](mailto:ngray@mail.uttyl.edu)  
 Research Lab: RBS 3034  
*Best method of contact is email.*

#### Course Website

Note: Additional information, including the tentative course schedule can be found at the course blackboard website located at [ccs.uttyler.edu/blackboard/](http://ccs.uttyler.edu/blackboard/).

#### Course Description

Perspectives on Science and Mathematics is a 3 credit upper-division History course designed to meet the unique needs of future teachers. It is one of the specially designed content courses in the **UTeach** sequence.

This upper-division history course explores a selection of topics and episodes in the history of science

#### Office Hours

In general it has been my policy to be available for help anytime I am at the University.

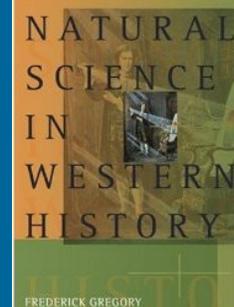
MWF 10:00-11:00  
 TR 11:00-12:00

#### My Teaching Schedule

- MWF 9:00-9:50 (RBS 2015)  
Advance Organic Chemistry
- MWF 11:00-11:50 (RBS 2024)  
Advance Organic Chemistry
- TR 9:30-10:45 (BUS 158)  
Organic Chemistry

and mathematics. The course has four broad goals:

- to provide an overview of the history of science and mathematics;
- to put these historical perspectives to work in pedagogy;
- to promote intellectual curiosity and sharpen critical thinking skills; and
- to improve your presentation and writing skills.



Natural Science in Western History (Complete)

Frederick Gregory  
 ISBN: 978-0618224104

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**...science and mathematics have advanced by the struggles of diverse people...**

## Course Overview

Many math and science students are surprised to learn that math and science have a history at all; so far as they know, math and science have simply been handed down in textbooks. To discover instead, that science and mathematics have advanced by the struggles of diverse people, on the basis of often-conflicting criteria and interests, can be mind-boggling to students. Students have studied extensively the methods of science and math, but by studying the history of these fields they learn how such approaches were originally developed, contested, and accepted. They also get a sense of how such approaches will continue to evolve. In this way, the Perspectives course aims to foster an understanding that science and mathematics are not finished or set in stone.

The course has several interlocking purposes:

- It is intended to help future math and science teachers learn how to think about math and science "from the outside"—to ask questions about what scientists and mathematicians do and why, about where science and technology came from and how they got to be so important in the world today, and about what kinds of questions scientists and mathematicians have tried to

answer and why.

- It is designed to strengthen students' skills in the liberal arts, including sophisticated research and information analysis, fluent writing, and substantive argument.
- It requires students to put to work the insights and skills they have learned in science and math pedagogy classes by designing secondary school lesson plans that are built around events and concepts from the history of science and mathematics.

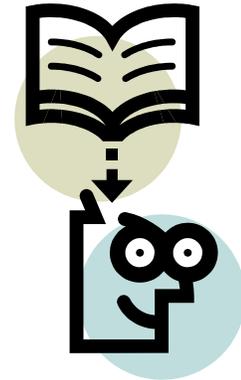
By studying history, students cultivate independence of thought and become progressively aware that many prominent scientists, and even mathematicians, have often disagreed with one another. Such disagreements deserve to be studied because they have often produced major breakthroughs. Perspectives also explores how various scientists have actually changed their minds and reached consensus.

By conveying particular human stories about why and how various branches of science have originated and evolved, students gain insights into the critical thinking processes that lead to scientific creativity. These stories serve to make science more accessible to K-12 students by revealing the vast array of personalities, experiences, and approaches that have contributed to the historical development of the sciences.

## Student Learning Outcomes

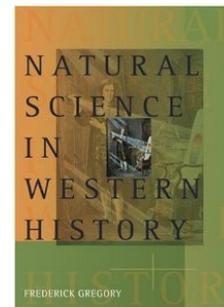
By the end of the course students should be able to:

- describe several analytic frameworks for understanding the history of science and mathematics.
- analyze the history and content of evolutionary theory.
- express ideas and opinions clearly and effectively in formal writing.
- develop skills in searching for, retrieving, and evaluating the provenance and reliability of, source materials, on- and offline, including specific resources available to teachers.
- integrate approaches and material learned in the course with independent research and science or math content to design middle and high school science and math lessons
- reflect on and critique their own work, particularly lesson plans, and that of others



## Textbook (required)

- Natural Science in Western History (Complete)
- Frederick Gregory
- ISBN: 978-0618224104



## Blackboard Learning System

The course website will be hosted on UT Tyler's Blackboard (Release 8) server. This site will contain a significant amount of information that will help you in this course, in addition to being one method through which you can check your current grade. Access to blackboard is required for this course. This access is free and easy to initialize. To

access this site, go to <http://ccs.uttyler.edu/blackboard/> and follow the instructions to login to your account. The Blackboard-course name is:

PERSPECTIVES ON SCI&MATH (2011-SPRING-HIST-3360.001)

You are automatically enrolled in Blackboard when you enroll in the course.



## Blackboard FAQ (Partial)

**Blackboard will be a critical part of the course, so register soon and visit the site often.**

### Login Instructions

You will use your Patriots account to log into Blackboard. Your Patriots account is also used for access to POPS, student email, and the open computing labs.

If you are a new student and have not used your Patriots account before, you can use the "activate your account" link on the Blackboard homepage to set a new password and access the system.

For the protection of your identity, **NEVER** give your password to **ANYONE**, even the Patriot Email or Blackboard Administrator.

### When I log into Blackboard, I have no courses! Why?

Your courses will appear when your instructor has made the course "available". Until then, you may not see any courses on your Welcome screen.

### How do I enroll in a course on Blackboard?

You no longer need to enroll in a course. You will be automatically enrolled in your courses after you are registered. If you do not see a course which your instructor has made available, you should contact the Registrar's office to be sure that you are officially enrolled in the course.

### How do I un-enroll in a course?

Only the instructor of the course can remove a student from Blackboard. Please contact the instructor for assistance.

### How do I view my grades ?

Once you logged in to the course, in the Tools area (on the left), click View Grades.

You will see a list of the courses that you are taking. Click on the appropriate course name.

Click O.K once you're done.

### How do I get to the Student Email Homepage?

Go to the UT Tyler home page at [www.uttyler.edu](http://www.uttyler.edu). Scroll to the bottom of the page and click the STUDENT EMAIL LINK.

On the next page, read the instructions for Logging into the Patriots email server.

Login using your USERNAME and PASSWORD.

Your "USERNAME" is a combination of your first initial, and your last name. You can not use apostrophes, accent marks, underscores, or any type of punctuation except a hyphen. You also can not use Jr., III or other similar endings.

*An example of a "USERNAME" might be **jsmith@patriots.uttyler.edu***

Notice that some usernames include a number. This is a result of two or more users sharing the same first initial and last name. Do not try and guess the number listed with your name. Instead, use the "Username Lookup" link found on the menu bar of the UT Tyler Patriot Email home page. Simply enter your student ID number and this link will provide you with your username. Additional information at:

**<http://wiki.uttyler.edu/display/B8H/Home>**

## Disability Statement

In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. If you have a disability, in-

cluding a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office in UC 282, or call (903) 566-7079.

## Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students

have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

## Grade Replacement Policy

If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to do so will result in both the original and repeated

grade being used to calculate your overall grade point average. Undergraduates will receive grade forgiveness (grade replacement) for only three course repeats; graduates, for two course repeats during his/her career at UT Tyler.

## Attendance

Classes are conducted as a mixture of lecture and discussion. Accordingly, attendance and participation are important, as you can see from the grading distributions, below. Attendance will be taken daily, and will be used in evaluating your overall grade for class participation. You are encouraged ask questions at any time during lectures, as well as to speak up and offer thoughts, ideas, and opinions during class discussions.

Class preparation and participation is critical to success in a course in which discussion is such a large portion of class time. It enriches the student's experience and it is one of the best methods for the student to assess informally how well he or she is mastering the course materials. Allowances will be made for extended illnesses or other excused absences, with proper documentation.

**Classes are conducted as a mixture of lecture and discussion.**

## Assignments and Grading



***No, not that kind of exam!***

The grading breakdown is as follows:

Participation and Attendance (Includes Lesson Plan Feedback)	5%
Reading Quizzes	15%
Midterm Exam	20%
Lesson Plan & Presentation	20%
Final Exam	20%
Research Paper	20%

### Participation and Attendance

Class Participation and Attendance will be graded using the following methods

- Attendance
- Substantive participation in class discussion and activities.
- Substantive and constructive comments and critiques on your classmate's 5E lesson plans.
- Substantive participation in online discussions.

### Reading Quizzes

It is important that students keep up with daily reading assignments rather than simply skim through the material prior to the exams. To that end, a reading confirmation quiz for each reading assignment will be given.

### Midterm and Final Exams

Comprehensive midterm and final exams will be given. These exams will focus on reading, lectures, and discussion

### 5E Lesson Plan and Presentation

In teams you will write and demonstrate one 5E Lesson Plan that incorporates significant history of science and/or mathematics content to:

- integrate a historical perspective into a science, math, or technology lesson and/or
- Be a history of science or history of math lesson that will either motivate science or math students to understand their subject better, or help to clarify the context or framework of a technique or theory.

Due dates vary based upon when your team is demonstrating your lesson.

### Research Paper

One historical and analytical paper (approx. 2000 words) on some aspect of the history of science or mathematics (topic to be determined in consultation) will be due at the end of the semester. Details will be provided in class.

### A Note on Quizzes and Exams

The quizzes and exams are not intended to test dates or minutiae but to test significant historical interconnections, such as why scientists believed what they did, how and why they disagreed with one another, and how evidence bears on the acceptance of theories.



## Regrading Policy

Even though I will be very fair and careful in the grading of your exams and quizzes, errors in grading are possible. Questions concerning the grading of an exam or quiz should be submitted to me in writing along with the suspect exam within 2 class days after the exam

was returned to you. Alternatively you can see me during my office hours (or any other time you find me available) with the suspect exam or quiz in hand. All exam scores will be considered final one week after the exam is returned to you.

## LAST DAY TO DROP ANY OR ALL CLASSES

**March 30, 2011**

Courses may be dropped online through Campus Connect until 4 p.m. on the last day of online (early) registration. After that time, all drops and/or withdrawals must be completed through the Registrar's Office, either in person, by fax or by mail. Faxed or mailed drop/withdrawal requests must include the students name, student ID number, course(s) to be dropped, date, student's signature, contact phone number and copy of

a photo ID (driver's license, student ID, etc.). Requests should be mailed to UT Tyler Registrar's Office, 3900 University Blvd, Tyler, TX 75799 or faxed to (903)565-5705. Students are advised to meet with their instructor(s) and/or academic advisor prior to dropping any classes. Dropping or withdrawing from classes may affect financial aid eligibility, veteran's benefits, athletic eligibility, or international student status. Students should consult with those departments prior to dropping or withdrawing.

## Reading and Other Assignments

All assignments will be posted on the course website, so check there regularly. Such assignments will include readings from primary and secondary sources, including handouts I will provide to you. It

is very important that you complete such assignments in a timely manner. The worst thing you could possibly do is get behind. This is a reading intensive course.

*LAST DAY TO DROP  
ANY OR ALL CLASSES*

**March 30, 2011**

## **Other Important Information**

### **Students Rights and Responsibilities**

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/StudentRightsandResponsibilities.html>

### **12th Class Day**

Deadline for all registrations, schedule changes, and section changes is 1/31/2011.

### **State-Mandated Course Drop Policy**

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the 12th day of class (See Schedule of Classes for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Registrar's Office and must be accompanied by documentation of the extenuating circumstance. Please contact the Registrar's Office if you have any questions.

### **Student Absence due to Religious Observance**

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

### **Student Absence for University-Sponsored Events and Activities**

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

### **Emergency Exits and Evacuation:**

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do Not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

## **Tentative Topic List**

1. Course Orientation
2. What is Science and Mathematics?
3. History of Mathematics and Physical Science
4. Natural History
5. Analysis
6. Experiment
7. Technoscience
8. World Readings or Hermeneutics