

## **Sci-202 Course Handout**

Sci-202 Science of Everyday Things  
Fall 2010  
Classroom: Beveridge 232

Instructor: Brent Royuk  
Office: SC 113  
Office Phone: 402.643.7496

*Course Website:* Go to [royuk.com](http://royuk.com) and click on the [Sci-202 Omaha Link](#).

*Course Description:* Lecture 1, Lab. 2- Study of the science of everyday things with special use of particle and wave models. Understanding and explaining a wide variety of common phenomena in our lives; weather, household items, color effects, radio, TV, electricity, athletics, heating and cooling, etc. Prerequisite: H.S. biology, chemistry, and physics or equivalent.

*Required Materials:* None

*Grading Policy:* Grading will be done on a percentage basis, with letter grade cutoffs at 90%, 80%, 70% and 60%. The top and bottom 2% in a division will be a + or -.

Final percentage = Web Assignments (20%) + Homework (30%) + Group Questions (15%) + Final Project (20%)+ Final Exam (15%).

*Late Work Policy:* Late assignments will be penalized 25% per day late. Excused late work will not be penalized.

### *Conduct of the Class:*

- Our main goal for this course is to gain experience answering and explaining natural questions. The questions we will consider are mostly intended to be of the *everyday* variety, like you would expect a child to ask.
- Class will be discussion-oriented with demos.
- A more apt title for this course may be "The *Physical* Science of Everyday Things".
- There will be a homework assignment due each day.
- There will be one web project due each day:
  - Find and format relevant websites to share with the class (see guidelines below)
  - Be prepared to share at least one of the sites with the class each day during web surfing time.

*Students with a documented disability, who need reasonable accommodations, should contact ADA & Academic Support located in Link Library to arrange an appointment to discuss their individual needs. Students are also encouraged to notify their instructors immediately about any disability-related academic needs they may have. To contact the ADA & Academic Support Director, Tanya Jarchow, please call 402.643.7377 or 800.535.5494 ext. 7377 or email [Tanya.Jarchow@cune.edu](mailto:Tanya.Jarchow@cune.edu).*

## ***Assignment Information***

### ***Homework***

A downloadable .pdf worksheet will be provided online for every day. These worksheets will contain several essay questions about the material we have covered. Each essay will be worth ten points. Worksheets will be graded and returned, and if you earn less than ten points you can resubmit a new answer for a better grade. Each resubmission needs to be a fresh copy attached to the previous copy. There is no minimum length requirement for a homework answer, but completeness will be a grading criterion. Please turn in hardcopy only and do not submit handwritten essays. Homework for Day 6 will be turned in via email.

### ***Web Links***

For each day, you will surf the WWW and find **four** weblinks that relate to material covered in class and post them on your google doc homepage. Give some comments for each link, telling me a little about what the link contains, or calling attention to particularly relevant material.

Try to provide links to specific webpages, not just to front doors of large sites.

Post your links on your website by class time on the next day. Your classmates will be able to browse your links and we may sometimes surf them during class.

Each completed link assignment will be worth four points, and if it is not acceptable you will receive less than four points and can resubmit.

Sample Links:

- [HowStuffWorks](#): A deep and rich site that takes a scientific approach to explaining how all kinds of things work, from electricity to roller coasters to cloning. Very useful in this course.
- [The Urban Legends Reference Pages](#): If you ever wonder whether that email your Dad sent you is real, check here first. Exhaustive resource on all kinds of urban legends, evaluating their credibility.
- [Google](#): The best search engine on the web. To comprehensively search for content that may appear in funny places, search the web page-by-page with a search engine. The hard part is wading through the high volume of hits and making your results relevant...

## ***Final Project***

For your final project, you need to prepare a 10 minute presentation on an everyday science topic. Possibilities include, but are not limited to the following:

- 1) You could go further with one of the topics we covered in the course, collecting information that can be presented to the class.
- 2) You could research a scientific issue that inspires political and social debate, like ozone depletion, nuclear energy, etc.
- 3) You can assemble a demonstration gadget or scientifically oriented toy. Ideas include model rockets, a bed of nails, model bridges, etc. These topics might follow content ideas from commonly used science competitions.

We will compile an online list of final project topics as they are chosen, to avoid duplication.

Please feel free to speak with me to help choose a topic or get suggestions on your presentation.

The final projects will be graded with the following criteria:

- \_\_\_\_\_ Topic (5)  
*Clear*  
*Concise*  
*Interesting*
  
- \_\_\_\_\_ Content (10)  
*Understandable*  
*Good Science*  
*Thorough*
  
- \_\_\_\_\_ Presentation (10)  
*Enthusiastic/Interested*  
*Proper prep*  
*Good oral presentation*  
*Informative graphics*

You do not need to write a report with your final project. But please prepare some sort of visual aid for the class. This can take the form of a handout, an overhead, a poster, a PowerPoint file, etc. Turn in this visual aid on the day of your presentation to receive a grade.

### **Daily Schedule**

<b>Time</b>	<b>Activity</b>
4:30	Homework Review
4:40	Lectures/Demos for the First Unit
5:10	Break
5:15	Lectures/Demos
6:00	Dinner Break
6:10	Web Surfing
6:45	Lectures/Demos for the Second Unit
7:30	Break
7:35	Lectures/Demos
8:30	Break
8:40	Finish Up
9:00	Group Questions

### **Course Schedule**

#### **Day Topic**

August 31	Introduction The Nature of Science Color Phenomena
September 7	Kinetic Theory, Gas Laws Phases of Matter, Phase Changes, Heat Transfer
September 14	Sound Electricity
September 21	Pressure, Scuba Diving Gravity, Mass, Density & Weight, Buoyancy, Bernoulli's Principle, Scaling
September 28	Science & Religion: Creation, Evolution & The Paranormal Matter Classification, Types of Crystals, Solutions and Suspensions
October 5	Everyday Chemistry: Rusting, Burning, Cooking & Explosions Final Projects Final Exam

### **Course Goals**

- • To become familiar with scientific processes through their application to a variety of physical science areas.
- • To recognize science as a process of model-building by constructing and exploring several powerful scientific theories.
- • To develop skill and sensitivity for the use of scientific models as an explanatory tool.
- • To broaden your knowledge of science.
- • To explore issues at the science/religion interface by examining the peculiar metaphysical characteristics of these two ways of knowing.
- • To nurture a scientifically curious attitude and develop the habit of regularly using the awesome power of the WWW to slake your thirst for knowledge by exploring and sharing websites that facilitate our learning in this course.