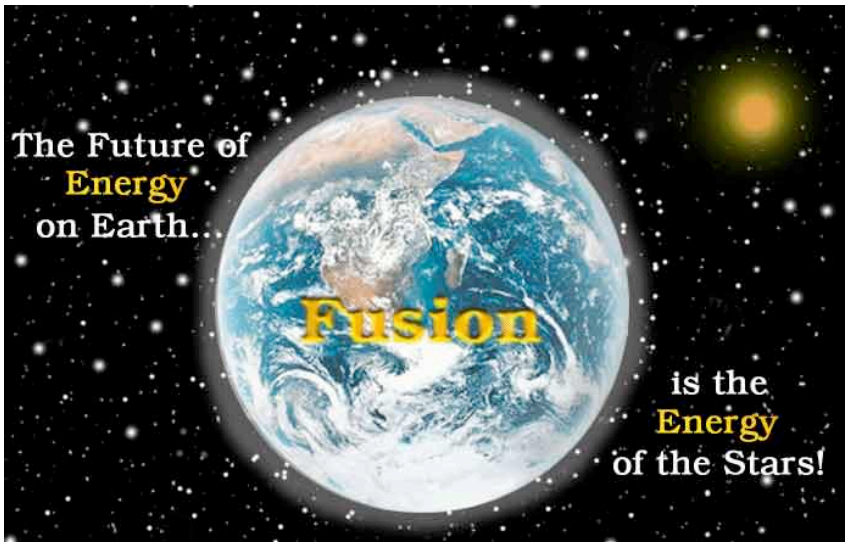
Student Notes

Fusion: The Unlikely Union of Physics and Composition



Instructors

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No Class: TBD
Portfolio Dates: TBD

Something to think about…

Defined in physics terms, energy is the ability to do work. It surrounds us in all aspects of life, but the ability to harness and access it as economically as possible is the challenge we face. With current oil prices skyrocketing, this issue is the hottest topic around.

Oil fuels the modern world. It brought great changes to economies and lifestyles in less than 200 years. Nothing else can equal the enormous impact which the use of oil has had on so many people, so rapidly, and in so many ways around the world.

The world now uses about 26 billion barrels of oil a year, but in new field discoveries we are finding less than 5.5 billion barrels annually. The world is going out of the oil business. With the many good things which oil now does for us, what will happen when we no longer have it? What are the possible alternatives to oil? Can any one of them or all combined really fill the gap left by the depletion of oil?

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Alternative energy refers to energy sources which are not based on the burning of fossil fuels (including oil and natural gas) or the splitting of atoms (nuclear power.) The renewed interest in this field of study comes from passing the peak in oil production and the undesirable effects of pollution, both from burning fossil fuels and from nuclear waste byproducts. Fortunately there are many means of harnessing energy which have less damaging impacts on our environment. Some possible alternatives include: solar, wind, hydroelectric and geothermal power sources.

Course Description

What made Copernicus such a rebel? What did Galileo do to prove Aristotle wrong? The answers to these questions and many more will be revealed as we embark on a remarkable journey. In this learning community, you will have the opportunity to study and write about the culture of physics—its history, principles, laws, recent developments, and most important, its impact on your daily life and in society. Newton's laws, waves, energy, work—everyday the principles of physics and the relationship they have with each other affect us in one way or another. The essays you produce in this class will help you understand the fundamentals of physics and the process of writing. The effective use of language in writing is, perhaps, one of the most important skills a college student can possess. If you can use this power of language in such a way as to convince your audience of your view, make a point clear, defend your claims, or describe your observations then your chances for successful writing and communicating improve in college and beyond.

SFCC Abilities and Learning Outcomes

- ☒ Analysis/Problem Solving and Information Literacy: Students will access, evaluate, and apply information from a variety of sources and in a variety of contexts.
- ☒ Communications: Students will make connections that create meaning between themselves and an audience.
- ☒ Responsibility: Students will develop the ability to recognize, understand, and accept ownership of their own actions.
- ☒ World View: Students will demonstrate an awareness and appreciation of the world: Its scientific complexity, its social diversity or its artistic variety.

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Required Materials

The following materials are required for the course:

- ☒ Text Books:

  Conceptual Physics – 10th edition by Paul G. Hewitt
  ISBN 0-8053-9190-8
  Practicing Physics: Conceptual Physics – 10th edition
  by Paul G. Hewitt ISBN 0805391983
  The LB Brief, a writer's handbook
  ISBN

You can purchase the textbooks from the SFCC bookstore or any online book provider. A good place on the web to compare different book prices is http://www.bestbookdeal.com/.

If for any reason there is a delay in getting your text book, you can check out a copy from the circulation desk in the library. You may not take the book out of the library, but can use it for up to 2 hrs at a time to study.

- ☒ A simple calculator
- ☒ A few sheets of graph paper with grid divisible by 10 (or use graph paper available on online syllabus)
- ☒ Computer access and a memory stick (flash drive)

The Basics

Evaluation: Your grade is based on your performance and product. Our goal is to give you instruction, practice, and feedback throughout the quarter, so you can produce quality work. This learning community is a workshop. There will be lectures, labs, and individual and group activities. You will conduct research and experiments as you investigate physics and learn that writing is a process. There will be homework, required readings and writing. Our expectations are high. Course materials and activities will enable you to have effective, insightful and intelligent class discussions. Your classmates, our learning community, will be better served if you plan your study time wisely, prepare all work completely, and have a basic knowledge of the upcoming concepts to be discussed. This is an academic community of adult learners and you are responsible for your education. Finally, as the quarter progresses, you should be able to apply strategies learned in class to show you've mastered the course objectives. Since the primary form of evaluation essay writing, make sure that required drafts are complete and ready for workshops on the specified due dates. For each essay, you will need to provide copies of your draft for each member of your peer group. These drafts should be saved for future references and to verify your writing process.

We will be using the Online Syllabus, an virtual classroom that houses most of the course material, announcements, due dates, etc. If you must miss a class, be sure to check the Fusion site for whatever you missed.

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Fusion Assignments

The following assignments will determine your grade in this class:

☒ 3-5 Major typed and revised essays (100 pts each)

☒ Group science project (200 pts, to be presented to the class during finals week)

☒ Daily writing assignments (5-15 pts each)

☒ Learning logs (total 100 pts)

☒ Reading and researching activities (5-15 pts each)

☒ Drafting process activities (10 pts per draft)

☒ Linear motion and force group project (50 pts)

☒ Group homework assignments from physics text book (20 pts each)

☒ Labs (25 pts each)

Note: If you miss more than 2 labs, you will not pass the physics part of this class.

☒ Interactive Learning Demonstrations (5-10 pts each)

☒ In class physics activities (5-10 pts each)

Evaluation and Grading

In order to receive a C or 2.0 in this class, you must:

☒ Attend and participate. Much class time is spent learning new skills, working on assignments, or working in groups. This quality time for collaboration, lecture, and learning is impossible to "make-up." Note: If you miss more than two labs, you will not get a passing grade in the physics part of this class.

☒ Receive evaluations on all assignments, and incorporate any suggested revisions by the deadline specified.

☒ Be an active and responsible group member. You will offer and receive suggestions for better writing.

Writer's Workshops: During workshops, you will discover how to make your writing more effective. English 101 prepares you for all the different kinds of thinking, writing, and communicating you must do in college level courses. Peer editing allows you to participate as writer and reader.

☒ Meet all due dates. No Late assignments will be accepted. If you fall behind in your work, you will be asked to withdraw from the course.

This class is based on performance. The goals are to give you instruction, practice, and feedback throughout the quarter, so you can use all of your skills by the end when your writing and physics knowledge will be graded. Your final portfolio will contain two formal essays and one impromptu essay, those that best reflect your ability as a writer. The portfolio culminates the quarter's work and, in this respect, resembles a comprehensive final examination. Final letter grades in this class depend on the quality of the portfolio you submit at the end of the course. Finally, points for writing assignments, class activities, and exercises will be announced as they occur, and factored in after successful completion of Portfolio.

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Community Colleges of Spokane Grading Scale

As instructors, we reserve the right to consider factors such as attendance, exceptional participation, extraordinary work, cheating, etc. to determine the final grade. Depending on these factors, your grade may be different than the distribution described in the table above.

Tentative Schedule

The below schedule is subject to change at any time.

Week	Physics Activities	English Activities	Lab	Seminars (1 hr on Fri)
1	About Science: History and Scientific Principle (Ch 1) Units and Conversions	Diagnostic & Review	No Lab	No Seminar
2	Graphing: How and Why	**Paper #1 Due at end of 3d week.**	Units & Conversion	#1
3	Linear Motion (Ch 3)		Graphing	#2
4	Newton's 2nd Law: F=ma (Ch 4)	Focus, Development Support & Organization	Linear Motion	#3
5	Gravity (Ch 9)		Air Track	#4
6	Mechanical Energy, Efficiency, Power (Ch 7)	**Paper #2 Due at end of 5th week** **Mid term portfolio at end of 6th week** (1 typed and revised paper that meets exit standards, 2nd paper in progress)	Behr Free Fall	#5
7	Vibrations & Waves (Ch 19, a little from Ch 26)	Learning to write with sources and MLA	Work on Incline Plane	#6
8 Fri.-Veterans Day	Heat Transfer: Heat as Energy (Ch 15, 16, 17)	Conferences	Pendulum	No Seminar
9	Light Quanta (Ch 31) The Atomic & The Quantum (Ch 32)		Heat Current Lab	#7
10 Wed, Thur, Fri	The Atomic Nucleus & Radioactivity	**Paper # 3 due at end of 10th week**	No Lab	No Seminar

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Week	Physics Activities	English Activities	Lab	Seminars (1 hr on Fri)
Thanksgiving	(Ch 33)			
11	Nuclear Fission & Fusion: Nuclear Energy (Ch 34)	**Final portfolio due at end of 11th week**	No Lab	No Seminar
12 Class on Mon. only	Science Projects Class Presentation During Finals Week (Work done in Seminars)		No Lab	No Seminar

Academic Integrity and Conduct

You are expected to behave with integrity during lecture, lab, and any other activities involved in this class. Please respect everyone in the class room. Turn off your mobile phone or keep it on vibrating during lecture and lab. If you absolutely have to take a call, please step outside the room before starting your conversation.

Dishonesty and cheating will not be tolerated during this course. It is unfair to your fellow classmates and the college community at large. While cooperative efforts on homework and lab are encouraged, it is not tolerated during exams. You may want to read the student Conduct Code and Rules of Enforcement. Depending on the magnitude of the offence, expulsion from SFCC, expulsion from class, or loss of grade are likely consequences. It is often hard to tell the person that is cheating from the person enabling the cheating. If you allow someone to copy your exam answers, it is very likely that you yourself will also be included in any resulting disciplinary action.

Student Notes

Emergency and Safety Procedures

Should an emergency occur, stay calm and collected during the evacuation process. I know this is easier said than done. Nevertheless, try to judge the severity of the emergency and decide whether to bring your belongings with you. You may not be allowed back into the classroom for some time. In good weather, evacuate to parking lot 9C, west of building 18. During bad weather, evacuate to building 3/14 (social sciences.)

Laboratory safety procedures will be discussed in more detail while in lab. As a general rule, never play with the equipment or turn the equipment on until instructed to do so. If you wear a pacemaker or have other health issues, please see me before the labs. Some of the experiments use very high voltages.

If you have a health condition or disability, which may require accommodations in order to effectively participate in this class, please contact me after class or contact Disability Support Services in Building 17-201, phone 533-4166.
Information about disability will be regarded as confidential.