Topic 1 • Science Literacy Book Report (100,000 points)
PHYS-107 (17) • Fall 2004

Purpose

Science Classes
As a student, you have received science and science related information from your teachers. Whether you believe it or not is up to you. But a professional has taken the time to determine what sorts of things are important to know and with how much detail, both for the purposes of the courses you are taking and for the more general purpose of “Science Literacy”, to help make you a better citizen and better able to function in our science & technology driven 21st Century.

How Will I Get Science Information in the Future?
For some of you, your courses at Western Michigan University may be the last time you will have the benefit of someone directing what science you are exposed to. So, what happens when you get to the “real world”? Well, you may be bombarded with information from all sorts of sources: your job, newspapers, magazines, books, television, radio, movies, the Internet, friends, conversations overhead while standing in line somewhere – you name it. What these methods may lack, though, is the control and expertise of your teachers. You can find all sorts of amazing information on the Internet, but you would have to be very naïve to believe 100% of everything you read there. Much of our news is dominated by politics, but how much science do our politicians know? At the moment, we have exactly one professional engineer and one physicist in the House of Representatives (both of these men are from Michigan – you should know who they are, but probably don’t), none in the Senate. Most of Congress is made up of lawyers. While there is nothing wrong with studying the Law per se, legal arguments do not follow the same rules and purposes of scientific arguments. Therefore there is nothing that requires an environmental cleanup bill, for example, to have anything to do with either the environment or cleaning it up. Likewise, the thinking heads we get our news from on TV are not trained in science and technology for the most part. I don’t know what Dan Rather or Connie Chung majored in at college, but I can probably bet it wasn’t Physics. They may have, unlike you, been able to graduate from college without ever having had a Physics course. Even on the cable channels, one of the hosts of a computer show I used to watch is now doing a cable show on gardening – figure.

So how will you evaluate information on your own? This is possibly something that you have never thought about, but Dr. Phil and other professionals have. Dr. Phil’s approach is to have you read a book and examine what you read and how it affects you, as well as whether you believe it. (You don’t have to.)

Learning to “Parse” Information

Evaluating what you read in this context is very much in line with definition 3 of the verb parse:

parse (pars) verb
parsed, pars·ing, pars·es verb, transitive
1. To break (a sentence) down into its component parts of speech with an explanation of the form, function, and syntactical relationship of each part.
2. To describe (a word) by stating its part of speech, form, and syntactical relationships in a sentence.
3. To examine closely or subject to detailed analysis, especially by breaking up into components: “What are we missing by parsing the behavior of chimpanzees into the conventional categories recognized largely from our own behavior?” (Stephen Jay Gould).
4. Computer Science. To analyze or separate (input, for example) into more easily processed components. Used of software.

verb, intransitive
To admit of being parsed: sentences that do not parse easily.

[Probably from Middle English pars, part of speech, from Latin pars (part, share of speech).]
Source: Microsoft Bookshelf '95 (American Heritage Dictionary of the English Language (Third Edition))

Dr. Phil’s Definition of Science Literacy

science literacy n. An exposure to science in a historical context that serves to allow a person to observe the world around them with understanding, deal with technological applications at home and work, appreciate the distinction between fact and speculation in the media and politics, have a working knowledge of numbers and the scale of the universe, and be able to pursue more information if desired, as a function of everyday life.

Phil Edward Kaldon, Fall 1995

Books as a Source of Information

From all the sources listed in How Will I Get Science Information in the Future?, most are very difficult to evaluate. Dr. Phil can’t easily watch hours of VCR tapes or interview your friends along with every paper he reads to compare your impressions with the actual information being presented. So by narrowing the choices to one medium – books – we can have a little control and consistency between papers.

For more than ten years Dr. Phil has been building up a cookbook of suitable books. They are, as you shall see, not just Physics books, but cover all the Natural Sciences, Engineering, Computers, Technology, Medicine and the Morality and Ethics of using these. The total list is kept around a hundred titles. Books come on and off the list from time to time, sometimes because Dr. Phil gets sick of reading too many papers on Airframe or Jurassic Park, etc., and sometimes because some books work better with some classes (such as PHYS-309) than others.

Because this is not strictly a Physics paper but a Science Literacy paper, the range of books is considerable. There are fiction and non-fiction titles, biographies, science fiction, mysteries and technothrillers – books that straddle the line between science fiction and current reality – from some popular best selling authors as Tom Clancy and Michael Crichton, covering topics that include Physics, Biology, Chemistry, Engineering, Computers, Mathematics, Technology, Medicine, etc. The list is anything but boring.

It is easiest to pick a book you have not read before. And if you pick a title from the booklist, that’s it. However, you may decide that (a) you have read everything on the list, (b) read everything you think is interesting on the list or (c) waited too long to get the book(s) you were interested in from the library and are now stuck. You may read a book that isn’t on the booklist, but you must get Dr. Phil’s approval beforehand and be prepared to hand in a draft of your paper at least one week before it is due. If you go ahead and write a paper on a book that Dr. Phil has not approved anyway, there is a 100,000 point penalty.

Movies as a Source of Information

It turns out that many of the books on Dr. Phil’s booklist have some connection to a movie or a TV program. Many of these are mentioned in the booklist. If you are tempted to avoid reading a book by watching the movie version – don’t. For one thing, the movies are almost always different than the books. And not only has Dr. Phil read all the books, he has seen all the movies (and owns most of both). So if you just watch the movie, you are going to get caught (and it’s a 90,000 point deduction).

Secondly, in most cases, even jaded students like you will usually conclude that the book is usually better than the movie. While there is a lot to say about movies, there isn’t the time to contain all the information content of the book. Movies, at best, hold the flavor of the book.

Having said that, it can be worthwhile to compare what is in the book and movie of a particular combination. Currently Dr. Phil is using Book/Movie combinations for his second-semester Physics courses (PHYS-115 and PHYS-207 at WMU). You can, however, do this on your own IF you agree to a change in the rules. Having more to evaluate means you have to write a longer paper – it’s only fair. You also have to split your paper between the book and the movie.

Scope of the Paper

A booklist only about Physics topics is likely to be a very short and boring list. While it is true that “Everything is Physics”, there is nothing more pathetic that someone reading a really good medical story
and then writing a paper where you try to find the one or two things that seem like PHYS-205 Physics, and so end up talking about the “Physics of taking someone’s blood pressure”. While the use of a sphygmomanometer is rather fascinating, even Michael Crichton isn’t likely to spend much time to reveal any information about its use in the pages of one of his technothrillers.

The Assignment

- Select a book from the “approved booklist” or get approval for a different title from Dr. Phil.
- You should not read a book that you have already read, it only makes the assignment harder. You may find that a book you are already reading for another class may be acceptable.
- Failure to read an approved book is a 100,000 point penalty.
- If you have ever had Dr. Phil before and you read any of the best-seller type books (Crichton, Clancy), you must read a “serious” book for this book report. Failure to comply with this rule will result in an 80,000 point penalty. If you try to submit a report on the same book that you have read for Dr. Phil before, there will be a 100,000 point penalty. This is a science literacy assignment after all, so we want you to learn something new.
- Book titles can be reported in a space provided on the first and second exams. If you don’t have a book title in mind, or you don’t remember it, you can leave the space blank. This is partly so Dr. Phil can see what people are doing and partly to remind you of this assignment. But it is not required.
- Read the book, especially with an eye as to how science is portrayed, what you may have learned that was new to you, whether you believe it to be accurate or whether you feel that the science issues were well explained. Remember that this is an assignment on science and technical literacy, so what you already know (or don’t know) is important.
- Each book in the booklist has a brief description of some points that Dr. Phil came up with. You do not have to agree with Dr. Phil. This is an opinion paper and your opinion matters. Personal anecdotes that tie in with what you have read are appreciated.
- This assignment is not just about Physics. This booklist is about science, engineering, technology, computers and the history, application, ethics, morality, and understanding of it all. So the paper is about this, too. To simply rate the book based on the “Physics” may be to miss the entire point – or in this case, a good chunk of the 100,000 points.
- Write a 4 to 5 page report, typed, double-spaced and a single simple cover sheet, on what you read, paying attention to the assignment. You can write more if you feel you need to, but more will not translate automatically into a higher grade. Good grammar and spelling are expected. Standard Format.
- OR If you want to write a paper comparing and contrasting a book with the movie version of the book, in the context of the assignment, you can expand the page count to 7 to 8 pages. (There is no extra credit for doing this, but sometimes it can be fun to really tear into both movie and book.)
- Dr. Phil is expecting that a “B” paper will satisfy the above requirements. Exceptional papers will be rewarded; problems will be deducted.
- Late papers will drop an additional letter grade (10,000 points) per calendar day, starting after 5pm at the end of the Grace Period.
- Papers are due at the start of class, or can be dropped off in Dr. Phil’s mailbox at the Physics Dept. office by 5pm on the due dates listed below.

NOTE: The most popular books, i.e. the ones Dr. Phil has read the most papers on, have been written by Michael Crichton (The Andromeda Strain, Five Patients, The Terminal Man, Congo, Jurassic Park, Airframe and Timeline) and Tom Clancy (The Hunt for Red October and The Sum of All Fears). They wouldn’t be popular (and rich) authors or have their stories turned into hit movies unless their writings were a lot of fun. Now not all of these nine books may be authorized for this particular semester, and no other Crichton or Clancy books will be approved, so don’t bother asking. But despite the fact that they show up in a lot of papers, there is no problem with many people writing their papers on the same book.

Content

This is an Opinion Paper

For many of the papers you may have written in high school or college, they have not wanted you to have or express your own opinions. But this is exactly what we want here – Dr. Phil wants to know what you think, whether you liked the book, etc.

It is All Right to use “I”

Unlike some college papers, it is not necessary to write in a formal style. Since this is an opinion paper, it is okay – even encouraged – to say that “I think that….”

This is Not a Fourth Grade Book Report

Back when you were a kid, most book reports consisted of “I read Book X. This happened and then this happened and then this happened.” What such a report really ends up being is just a discussion of the plot. The problem with this is three-fold: (1) Dr. Phil has already read your book, so he knows how the plot goes. (2) Writers like Michael Crichton and Stephen Hawking are best-selling authors because they get paid more than you do to write – they’re better at it. Why would Dr. Phil want to read your version of The Andromeda Strain when he can read the book? (3) Just replaying the plot of a novel or a list of topics covered in a non-fiction book or the events in a scientist’s life in a biography does not involve any analyzing of the subject. It is this analysis – thinking about what you just read, thinking about what you already knew and what you have learned – that is the heart and soul of this science literacy assignment.

You Can be as Serious or as Light as You Choose

Some of the books are more serious in tone than others. Several of the books regard rather controversial topics. You are free to avoid them. One semester a student asked if they could write their paper as if they were writing a letter to someone and talking about their experience. Sure – as a writing technique it’s sort of a crutch, but it got the job done. Others have taken a more humorous tone, or have gotten hostile or offended. Just remember that you should be able to justify your comments. What is Dr. Phil supposed to make of a paper that says the book didn’t do anything for them and it was boring and too technical after Chapter Four, and then in conclusion they said it was a great book and they’d recommend it to anyone?

You Do Not Have to Agree With Dr. Phil

Most of these books are on the list because Dr. Phil likes them and they cover some subject areas that should make for good papers. However, everyone’s experiences and preferences are different. Very few people in the world are Physicists or Physics teachers, and there are certainly very few Dr. Phil’s in this world. So it would be surprising if you responded to every book the same way as Dr. Phil did – especially since a good chunk of the book list was read a long time ago when he was a kid and not a Ph.D. Physicist.

Since Dr. Phil asks for your opinion, you are free to give it. You hate the book. You can hate the assignment. You can decide that you didn’t learn a thing from the book. Fine. Great. Wonderful. Now just write it up. Give examples, be specific. Some of the very best papers in a particular semester have come from the same book where the students reach completely opposite conclusions.

Suggestions

The following are suggestions for ways to start your paper (or start thinking about your paper) if you are stuck.

- Why Did I Choose This Book?
  For some, the reason might be as simple as “it was the only book I could find”. If you were a college student in 1903, you would have read a lot of books. In 2004, you can go to college and avoid reading books. So everyone’s experience is different. Just be honest.

- What Did I Know (Or Not Know) Before I Read This Book?
When you sit down to read a book, there is a lot of stuff that you bring to the table with you – this includes what you have learned in school, your life experiences, all the other books you have read in your life, many hours of watching TV & movies and what you are interested in. Doing these are some of the things that will affect how you react to a book and these are some of the things that Dr. Phil would like to know about you, in order to understand your responses.

**What Did I Learn (Or Not Learn) From Reading This Book?**

Remember, although you might need to discuss a plot point to explain something, your paper is not about what happened in the book, it is how you reacted to what happened. When we watch a play or a movie or play a video game, we often engage in “a willing suspension of disbelief” in order to be entertained. Most people don’t really believe in wizards casting magic spells or the plots in James Bond movies or think that there really is a Darth Vader in a black helmet and cape that can use The Dark Side of the Force, or that terrorists set off a nuclear bomb at a Super Bowl game in Denver. But going along with the author is something we do to be entertained. Now, if you don’t buy it, you aren’t going to like it – we need to know this. If you don’t think that we really sent astronauts to the Moon (and some people don’t), then that will affect how you view any book about space travel. See how this ties in with the previous topic?

**Pick 2 or 3 Good Examples**

This is a 4 to 5 page paper. You don’t have time to discuss every one of the topics/chapters in Stephen Hawking’s A Brief History of Time – so you can’t. A rule of thumb might be about a page for your introductions, a page each for two or three good examples and a page of conclusions. Provided you follow the assignment – you’ve got your four or five pages.

**Conclusion**

You really do have to wrap up your paper. After all, the premise is that books are one way that you might learn something about or improve your science literacy, so did you learn anything? Or did you read something that supported what you already knew? How does this assignment or this book affect your “world view”? Would you recommend this book to your friends? … to other students?

**Draft Review (Optional = NOT Required)**

If you wish, you may submit a typed, draft copy of your paper at least one week before it is due. Dr. Phil will take a quick read and look for (1) basic mechanical flaws and structural problems in your paper and (2) how your paper fits in with the concept of science literacy and the purpose of the actual assignment. In return, the clock stops while Dr. Phil has your paper – if Dr. Phil has your paper for two days, then you add two days to your due dates, etc. The draft will not be graded and the submission of a draft is **not required**. If you choose to use this option, you **must** turn in your final paper with your draft paper – if you don’t then your final paper won’t be graded. This is to keep Dr. Phil from going nuts “as I experience major deja vu from thinking that I already had made a comment about some aspect”. (Please note that the phrase “rough draft” is never used, which should suggest that the draft be fairly complete as a paper. This is just a free shot before it counts. What could be fairer?)

**Please note:** If you choose a non-booklist but approved book, you **MUST** submit a Draft.

**Structure – Standard Format**

Most of You Will Use Word Processing Software Rather Than Typing

The assignment describes a “typed” paper, but very few of you will actually use a real typewriter. In fact, most of you will use some version of Microsoft Word, on either a Windows PC or a Macintosh.

**4 to 5 Pages, Double-Spaced, 1” Margins All Around**

The goal here is uniformity of papers for everyone, as well as ease of reading for Dr. Phil.

**Left Justified, Ragged Right Margins, Standard Indent for Each New Paragraph**

This produces a clean left side of the page and is the easiest to read. Turning on “Justify” also lines up the right side of the page, but does so by inserting extra spaces in each line to pad them. This is fine for magazine and book publishing, where they have more control and different rules than you do, but in a paper it makes each line jerky to read and incredibly annoying. Each paragraph should be indented with either a Tab or alternately five spaces. Do not put blank lines between paragraphs – that’s padding.

**Readable Font (Courier 12, Courier New 12, Dark Courier 12 – ONLY ALLOWED Fonts)**

One thing Dr. Phil learned at the 2004 Clarion workshop was how much easier it is to read 115 papers when they are all in Standard Format. Now the standard will vary from professor to professor, industry to industry, but it is important to follow the rules. Since papers used to be “typed”, a typical standard font in college is COURIER – a non-proportional font that resembles typewriter print. Courier 12 point is large and easy to read, and it is readily available in some form for all printers using Windows, MacOS, Linux. Most Windows computers use TrueType fonts (TTF), and there is the standard Courier New point 12. However, Courier New is a little bit “thin” and isn’t nearly as dark as the Courier font on the original HP LaserJet printer from over twenty years ago. Turns out there is a “fix”. Hewlett-Packard has a free TTF font called Dark Courier which is, well, darker. Unfortunately it isn’t quite as clean on your screen, but it does print nicely on inkjet and laser printers. (And if you ever have to make copies, Dark Courier photocopies much more clearly than Courier New.) You can use any of the regular Courier “family” of fonts for your paper. Using Arial, Times New Roman, Old Dreadful Number 7, etc., will be penalized.

Dark Courier is available from a lot of places, but if you get it from HP’s Tech Support, then you know it will be “clean.” Unfortunately the URL is really long and nasty – I’ll put it on in the website when I get a chance. The fastest way to find it is to Google: hp dark courier ttf. The first hit should be HP’s Business Tech Support. Sorry, I don’t know if you can install these fonts under MacOS.

**NOTE:** There is no requirement that you “write” your paper in Courier/Courier New/Dark Courier – only that you PRINT it out this way. Dr. Phil usually writes his fiction in “prettier” fonts like Garamond 14, Book Antiqua 12, Bookman Old Style 12 and Century Schoolbook – then converts to Dark Courier for printing.

**Courier 12 point font is a very readable font. Dark Courier 12 point is slightly more readable.**

**NOTE:** Handout may be reduced in size. Fonts may not display on the web page.

**Spelling**

Nearly all word processors contain some sort of Spell Checker. Use it. But you must know that dictionaries, like calculators, are basically useless. A spell checker can’t distinguish between two, to, too or There – all of which are pronounced the same. Word choice in English is very specific. Misspellings, especially of the author’s name (or Dr. Phil’s name), looks sloppy, as if the paper was written at the last minute and/or without any care.

**Grammar**

Reasonable grammar is expected in a college paper. This requirement is loosened slightly in some papers, because some students are not native English speakers and some papers may be written in a casual, often first-person style. However, your paper is supposed to be read – if your meaning isn’t clear or your sentences don’t make sense, your paper’s grade will suffer. Microsoft Word and other modern word processors may have a Grammar Checker feature, but unlike a spell checker, Grammar Checkers do not work very well and only find some sorts of errors. They work best with certain types of documents, such as company memos, in order to give all company documents that same “feel”. Your best bet is to proofread your paper for readability. But even among good writers, it can be very hard to proofread your own work. So you can (1) get a friend to read over your paper and see if they understand it or (2) go to the Academic Skills Center and have someone there go over your paper with you.

**Additional Information**

Sometimes students go beyond the book, by looking up topics in the dictionary or encyclopedia, or going to the Web and searching the Internet. This is **NOT** required. But some students get enthusiastic about what they have read and want to know more. So you may use additional sources, but don’t use
them as ways to pad your page count and cut down on how much you have to write. Additional sources and additional information go on additional pages.

No Need For Footnotes

Again, this is not a formal paper in the sense of many other college papers. It is not required that you footnote, or even give page numbers, for every point that you make or quote (or phrase) you use from the book.

Four to Five Pages

Please make a note that “4 to 5 pages” does NOT mean that 3¾ pages is “sufficient”. It is not. Dr. Phil interprets “4 to 5 pages” to mean FOUR FULL PAGES PLUS YOU MAY BE GOING ONTO THE FIFTH PAGE. You can write more than five pages, but there is no automatic reward for doing so. Some people, like Dr. Phil, just write “long”.

Padding Stunts

There are all kinds of “tricks” you could employ to try to make those four pages without writing four pages. But since Dr. Phil has specified the margins, line spacing, fonts, and further suggests that you do not indent new paragraphs by thirty spaces or put one or more blank lines between paragraphs, or start the first page halfway down because you are repeating as a header the information that is already on your cover sheet – these “tricks” to pad your paper won’t work. And endlessly repeating the same phrases or thoughts will be noticed because your paper will be read. And if you want to include a long quote from your book, the proper way to include a long quote of more than two lines on a page is to single-space the quote, so that it is (a) set off, (b) easily showing that it is a quote and not your writing and (c) so that it does not take up an excessive amount of space. Sorry.

Dr. Phil has in the past received papers with 3” top and bottom margins and 2” side margins. This leaves a typing area of only 4½” by 5½”; coupled with a 14 point or 16 point font, and even a four page paper under these printing conditions contains almost no text. Hardly seems fair to everyone else.

It’s the worst phrase in the world for the Y2K4 student, already struggling to get to work and maintain a home life: “And there will be a paper due…”

So Just What Do You Mean By A “College Paper”?

A college paper is a reflection on you as a student, both in appearance and the quality of the work. It is expected that the writing assignments will be handled in a competent, serious and professional manner. To that end, a college-level paper by Dr. Phil's definition contains the following non-negotiable elements:

- Typed (word processed), double-spaced
- Margins: 1” all around
- Page numbers (by hand is acceptable)
- Title of Book (centered)
- Year Name
- PHYS 107
- Fall 2004
- Date

![Staple in upper left-hand corner!]

- Single, simple cover sheet
- Readable standard Courier font/typface
- Reasonably clean and proofread grammar
- Studded in upper left-hand corner
- SINGLE-SIDED ONLY!

The Cover Sheet CANNOT Possibly Be Considered To Be Page 1

(If you can’t figure out how to do this, either number your pages by hand, or put the cover sheet at the end of the computer file.)

MANDATORY DEDUCTIONS FOR FAILURE TO COMPLY WITH THESE PERFECTLY REASONABLE RULES.

NOTE: Given that printing and typing are not always carefree processes, if you find that the printer does not line up properly or is otherwise giving you trouble at the last minute, write “Printer Trouble” on the back of the last page and very briefly describe your troubles; this lets Dr. Phil know that you were under duress and wouldn’t normally turn in a bad looking paper. You can then drop off a cleanly printed copy of the paper after the deadline, if one is required. PLEASE! Keep copies of your paper on two floppies.

IF YOU USE A REAL TYPEWRITER, then spell checking and corrections are not automatic. Make sure, however, that you go over typed papers and make minor corrections with a pencil.

IF YOU DON'T CARE ABOUT YOUR PAPER, WHY SHOULD DR. PHIL?

The Seven Statements

If you ask Dr. Phil what he wants in a paper or how to start, this is what he will tell you:

1. Do not spend the whole paper summarizing the plot (assume Dr. Phil has read the book – he has) and
2. Do not cheat and just rent the movie instead of reading the book (assume Dr. Phil has seen all the movies – he has – 90,000 point penalty) (see the assignment for restrictions on movie comments),
3. You might want to explain how you chose this book (sometimes it’s because it was the only one the library still had),
4. (If you can’t figure out how to do this, either number your pages by hand, or put the cover sheet at the end of the computer file.)
5. When you sit down to read a book, you always bring something to the table, even it that you know nothing about the subject, or have never read any science fiction or whatever – it is this stuff, what you already knew, that is part of what Dr. Phil would like to know about, plus
6. If you ask Dr. Phil what he wants in a paper or how to start, this is what he will tell you:

This paper is not about PHYSICS, but about SCIENCE LITERACY (Sciences – including Physics, Engineering, Technology, Computers, and the Morality and Ethics Involved in using same).

Due Dates

The Grace Period Means You Can Turn In Your Paper on Thursday, Friday or Monday, as You Choose. If you submitted a Draft Paper to Dr. Phil, you must include the Draft with your Final Paper. NOTE: Watch Out For Exam 3
A Writing Sample

U-571 is about an American submarine that is sent out on a mission to infiltrate a wounded German U-boat and take its Enigma machine and codebook. The Enigma is the coding machine that the Germans used to keep their messages secret from the Allies. To not get one was to guarantee failure. Anyway, soon after the boarding crew grabs the machine, the American sub sinks and the Americans are stuck on a wounded U-boat. The movie is about what happens to them as they try to get back to America alive with the machine.

I really liked the movie and even though I don’t know how submarines work, the subs in U-571 definitely appeared realistic. The actors looked as though they had been trained in the Navy. It had excitement, adventure and tension. My one gripe is that you never get to know the characters. I mean, you how they act and how they feel at any particular moment, but you never really know them. Even though I didn’t like that, I think that wasn’t as important to the plot when the screenwriters wrote it. I think that what they did want to convey is what makes a captain a captain, because a lot of the movie is the lieutenant’s conflict over whether he would sacrifice a crew member or save the rest of them. Overall, this is an exceptionally good movie.

Chris Molnar, age 12
Sylvan Christian School
The Grand Rapids Press
Friday, 28 April 2000
The Weekend p. 31

This Example Typed in Microsoft Word 95/7.0c, with 1” margins, double-spaced and with the Dark Courier 12-point font, printed on a Hewlett-Packard LaserJet 4ML printer.

So what does a paper for Dr. Phil look like? I’ve avoided simply copying what an “A” paper looks like, because then I’ll just get 25 to 100 papers just like that. But to some extent, it looks a lot like what this young movie reviewer has done regarding the Spring 2000 movie U-571. Now obviously this is a lot shorter than your assignment and Mr. Molnar’s agenda was very different than yours – he was a kid reviewing a movie for a newspaper. But in a little over half a page, Mr. Molnar has given a brief description of the plot of the story, identified that he doesn’t know a lot about submarines but that he felt that what was presented was believable, and that the characters, while not well-rounded, behaved in a believable manner. Now explain how you picked this particular book to read, add a few pages talking about what you know or don’t know about the science, engineering or computer technology (or the morality and ethics of using same) in the book you are reading, and then you’ll have a Dr. Phil book report. More or less.

THIS IS WHAT THE BOOKLIST (PAGES 12-26) LOOKS LIKE:

First Up

- Frankenstein: A Modern Prometheus / Mary Shelley
- Surely You’re Joking, Mr. Feynman / Richard Feynman
- What Do You Care What Other People Think? / Richard Feynman

• Science People

- The Double Helix / James D. Watson
- What Mad Pursuit / Francis Crick
- What Mad Pursuit

• Science Fiction

- Frankenstein: A Modern Prometheus / Mary Shelley
- The Man from the Other Side / Philip K. Dick
- The Clockwork Orange / Anthony Burgess

• Humor

- What Do You Care What Other People Think? / Richard Feynman
- Surely You’re Joking, Mr. Feynman / Richard Feynman
- The Best of Class / 英格兰疾风

• Feynman

- What Do You Care What Other People Think? / Richard Feynman
- Surely You’re Joking, Mr. Feynman / Richard Feynman

• Biography

- The Man from the Other Side / Philip K. Dick
- The Clockwork Orange / Anthony Burgess

• Modern

- What Mad Pursuit / Francis Crick
- The Double Helix / James D. Watson

You should read them both for this assignment.

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Topic 1: The One Page Version (100,000 points)

1. Pick a book from the booklist. If you don’t want to use a book from the booklist, you must get approval from Dr. Phil and turn in a Draft Paper at least a week before the due date. If you had Dr. Phil before, you can’t use the same book and you can’t read a second best-seller, if you read a best-seller the first time.

2. Read the book. This is a Science Literacy assignment, not just Physics. So read the book with an eye toward what you finding about all the sciences, engineering, technology, computers, medicine, and the morality and ethics of using them. Is the author believable? Understandable?

3. Think about what you brought to the table before you read the book – what you know, your experiences. You may write the paper. Do not just retell the plot or story. Dr. Phil has read the book and so have you. Start from there. You might begin by telling why you selected this book. Then pick 2 or 3 things and talk about them in the context of (3) and (4) above.

6. Be careful to make sure you are talking about the book your paper is on. Many of these books have movie versions – Dr. Phil has seen them and knows the differences. He has also read all the books. (You may choose to write a paper about both book and movie, adding in a section about the differences between the two, as well as the assignment, but the page count goes up to 7 to 8 pages.)

7. The paper should be written in English with correct spelling and reasonable grammar. Because it is an opinion paper, you may use the word “I” as in “I think that…” (first-person is acceptable).

8. The paper should be 4 to 5 pages typed (probably on a PC or Mac using a word processor in Fall 2004), double-spaced, with 1” margins all around, a single simple cover sheet, and numbered pages. The cover sheet cannot be page 1, and a 4 to 5 pages means that there are at least 4 complete pages of text without extra blank lines at the beginning or end. You may write the paper by hand if you wish.

9. Most computer printers and word processors allow you to control the font (lettering) size and style. Acceptable fonts are: Times New Roman (10, 11 or 12 point), Courier (10 point), Arial/Helvetica (10 or 11 point) or Century Schoolbook (10 point). These produce text all within ±10% of each other. If you have printer problems, contact Dr. Phil. If you typing on a real typewriter, see Dr. Phil.

10. You may, if you want to, turn in a Draft Paper at least one week before it is due, for a free evaluation by Dr. Phil. If you are reading a book not on the booklist and Dr. Phil approved it, you must submit a Draft Paper. In either case, if you turned in a Draft Paper and Dr. Phil marked it up, you must turn in that marked up Draft Paper with your Final Paper, or your Final Paper will not be graded. The number of days that Dr. Phil has your Draft are added to your Due Date, so there is no penalty for writing a Draft Paper.

11. Papers are due on Thursday 18 November 2004 by 5pm. You have a Grace Period that extends until Monday 22 November 2004 at 5pm – that means you can turn in your paper on that Thursday, Friday or Monday with no penalty. After that, there is a 10,000 point/day penalty.

12. Major penalties: Writing about the movie and not the book—90,000 points. Writing about a book that was approved or on the booklist—100,000 points. Previous Dr. Phil students reading the wrong book—80,000 or same book—100,000 points. Writing only about the Physics in a book that isn’t about Physics—or—Writing only about the plot of a book with no analysis—the fraction of 100,000 points the offending section covers. Other minor penalties assessed based on severity/frequency (2000 points ea.)

13. Papers that meet the minimum qualifications are worth at least a “B”. Exceptional papers will be rewarded; problems will be deducted.

Dr. Phil likes most of the papers he gets, but it takes some effort to get everyone to take this assignment seriously.

Full Book Descriptions at: http://homepages.wmich.edu/~kaldon/classes/ph107-17-bl.htm

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PHYS-107 (17) (Kaldon) - Fall 2004 - 12

This list stays in constant flux, with additions suggested by faculty, students and friends. Your comments are always welcome. Some of the entries are out of date and new works added since I last checked a particular library. Some popular titles may be available in Paperback. Some older titles are included even though I haven’t seen them listed anywhere. Public libraries and libraries at other colleges have not been checked. Many titles should be available through area bookstores, or the main WMU Bookstore.

“Science, Engineering, Technology, Computers, Math, and the Morality and Ethics of Using Same” – Dr. Phil

Over the last few years I have been working on a booklist for reading assignments in all my classes. Since this class lasts for 14 weeks, there is time for some “recreational” reading – my small contribution is to perhaps pique your interest into reading something that is “good” for you. My office is always open for science literacy discussions of books, movies and bad television.

First Up
Frankenstein: A Modern Prometheus / Mary Shelley

When I first started thinking about a booklist, it was because I had heard of an engineering school that required all of its freshmen to read Frankenstein. Not the 1930s movies, but the original early 19th century ghost story. Although there are other contenders, I personally date Science Fiction from the writing of this book. This is a story in ethics, of taking responsibility for your science and your creative genius. So even though I don’t have a good citation for this, surely you can find a copy of this work somewhere. If you’ve only ever seen the old black & white movies, you’ll be very much surprised.

Science People

H W K L V - Surely You’re Joking, Mr. Feynman / James S. Gleick

This very funny accounts of The Manhattan Project, a life as a physicist, being on the California school textbook board, the space shuttle Challenger commission, painting and playing the bongo drums. These are short books - you should read them both for this assignment. For those of you who might get caught up in the fun, there is another (non-science and therefore not eligible) book, Toya or Bust! by Richard Leighton, that documents Feynman’s last great adventure to try to visit legendary Tannu Tuva in the heart of Central Asia, having only been seen once, no more than 30 people have ever seen it – it showed up in Holland at the Knickerbocker Theatre in the summer of 1997.

H W K L V - Genius: The Life and Science of Richard Feynman / James S. Gleick

Feynman’s own books at the beginning of the list are a lot of fun, but they are his stories, the way he remembers them. This is a very complete, and often poignant, story of a very complex and unconventional scientist (who never seems to do ordinary science) and professor (who never seems to do ordinary teaching). Well written, but I warn you that physicists seem to like it!
A look into both the people and astrophysics in the search for the origins of the universe, and also a very human tale of how grad students and researchers get treated by each other. Is the Hubble constant for the expansion of the Universe equal to 50 or 100? It’s a forty year old feud that takes place in public meetings and in scathing attacks in print.

The backdrop to this story is the Manhattan Project, as we follow the main character, a Native American Army sergeant, who is also J. Robert Oppenheimer’s driver. Not only does this place us in the middle of the action, but he has a friendship with a miniature coelacanth, which is a lifelike model of a coelacanth in the first floor geology/fossil exhibit in Rood Hall on the WMU Campus.

1) - The Making of the Atomic Bomb / Richard Rhodes (888 pages)

2) - Apollo 13 (original title: Lost Moon) / James Lovell & Jeffery Kluger

3) - The Right Stuff / Tom Wolfe

4) - Gone the Day / Michael Crichton

5) - Infinite In All Directions / Freeman J. Dyson

6) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.


8) - Rendezvous with Rama / Arthur C. Clarke

9) - Infinite In All Directions / Freeman J. Dyson

10) - Apollo 13 (original title: Lost Moon) / James Lovell & Jeffery Kluger

11) - The Andromeda Strain / Michael Crichton

12) - Space, The Final Frontier: From the Big Bang to Black Holes / Stephen W. Hawking.


14) - The Andromeda Strain / Michael Crichton

15) - The Right Stuff / Tom Wolfe

16) - Apollo 13 (original title: Lost Moon) / James Lovell & Jeffery Kluger

17) - Infinite In All Directions / Freeman J. Dyson

18) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.

19) - Infinite In All Directions / Freeman J. Dyson

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23) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.


25) - Infinite In All Directions / Freeman J. Dyson

26) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.

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29) - Infinite In All Directions / Freeman J. Dyson

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31) - Infinite In All Directions / Freeman J. Dyson


33) - Infinite In All Directions / Freeman J. Dyson

34) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.

35) - Infinite In All Directions / Freeman J. Dyson


37) - Infinite In All Directions / Freeman J. Dyson

38) - A Brief History of Time: From the Big Bang to Black Holes / Stephen W. Hawking.

39) - Infinite In All Directions / Freeman J. Dyson

Phys 107 (Kaldon) - Fall 2004 - 16

There is a lot of science and engineering detailed in these two books - a good read to take some of the mystery out of that secret stuff. The Hunt for Red October involves the attempted defection of a brand new Soviet super sub; the United States is trying to help them defect while the USSR is trying to sink them. The movie, although entertaining, is much shallower than the novel, as is typical. The Sum of All Fears brings terrorist bombing to a new level, with the bad guys trying to nuke the Super Bowl. Somehow people act like there is a description of the kind of technology, but a certain amount of it can be skimmed or skipped if you want to get back to the story. Jack Ryan, who has been played in the movies by Alec Baldwin and Harrison Ford, is the main character in both of these. I think that the movies are lame, read the books.

...The 1980s saw us catch the ever-resourceful McGuyver and his trusty Swiss Army Knife, think and work his way out of any scrap. But a hundred years earlier, fiction adventure books abounded where the hero/es managed to survive and bring civilization on whatever deserted island that he was shipwrecked on. In this tale, our intrepid heroes are Union supporters who manage to escape certain death at the hands of the Confederates by use of a stolen balloon, only to be swept away in a violent storm and balloon-wrecked on a volcanic island, who knows where. The "mysteries" of The Mysterious Island abound: where are they? How will they ever get home? And what unseen force is helping them survive? I read this first when I was 9, and I think that it strongly influenced my interests in dabbling in all manners of science, engineering and technology. I doubt that I would do as well with these hefty souls, but then they really did have a lot of help and a 19th century upbringing and no dependence on computer technology. The big difference between abridged and unabridged versions of the book, as noted in From the Earth to the Moon, is much longer inventories and descriptions of things in the latter.

...Dune / Frank Herbert (1965)

Ender's Game / Orson Scott Card

...Footfall / Larry Niven and Jerry Pournelle

...A giant epic saga of the NASA and the American space effort to send Men to the Moon, told as only James Michener can do. Actually, like so many Michener books, it starts off so well and covers so much, that the storyline and the ending seem so, well, anemic. I maintain that Michener can't deal with today, only yesterday, and that therefore he can't write endings to his books.

...The Mysterious Island / Jules Verne

The 1980s saw us catch the ever-resourceful McGuyver and his trusty Swiss Army Knife, think and work his way out of any scrap. But a hundred years earlier, fiction adventure books abounded where the hero/es managed to survive and bring civilization on whatever deserted island that he was shipwrecked on. In this tale, our intrepid heroes are Union supporters who manage to escape certain death at the hands of the Confederates by use of a stolen balloon, only to be swept away in a violent storm and balloon-wrecked on a volcanic island, who knows where. The "mysteries" of The Mysterious Island abound: where are they? How will they ever get home? And what unseen force is helping them survive? I read this first when I was 9, and I think that it strongly influenced my interests in dabbling in all manners of science, engineering and technology. I doubt that I would do as well with these hefty souls, but then they really did have a lot of help and a 19th century upbringing and no dependence on computer technology. The big difference between abridged and unabridged versions of the book, as noted in From the Earth to the Moon, is much longer inventories and descriptions of things in the latter.

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Jack Finney’s What-If story uses an ingenious concept for time travel: that we are trapped in our own time by all the strange facts of our era that are not the result of our actions. As with Antimatter Ship, Disclosure and other Crichton stories, he has artificially collapsed the timeline so that there are unusual pressures on the protagonists, but that tends to help move the story along. For WMU PHYS-102 students, this is a nice example of systems interactions at work, for WMU PHYS-107 students, you’ll see a lot of the physics principles that we’ve worked on all semester come into play here. A fast read, and maybe educational, too.

Alternative Realities (Science Fiction and Fantasy) - # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #### Harry Potter (I, II and III) / J.K. Rowling (1997, 1998, 1999) Time and Again / Jack Finney

Harry Potter has captured the minds of kids to suddenly start reading books, a lot of adults are reading Harry Potter, too. So, is there anything scientific about Harry Potter? There’s magic, and how magic is used, the rules it follows, the morality and ethics of using them. Sounds like an analogy to me! Just so you don’t get off “easy”, you will be required to read the first three Harry Potter books. Read just one, and you’ll face a 70,000 point deduction. Page count is 7 pages, two pages per book, plus one for intro/sursummon. If you’ve already read the first three Harry Potters, read Harry Potter IV and discuss the whole series in 8-9 pages. Used that you have to read or write so much? Pick a book for grown-ups off the list!

The Difference Engine / William Gibson and Bruce Sterling

I debated about putting this book on the list for two years. This is sort of reverse engineered science fiction. Charles Babbage worked on making mechanical computing devices. His greatest effort, the Difference Engine, was never finished, and although he is often credited with creating the first computer, in fact he really didn’t get it built. -- But what if he did? What if Victorian English engineers had not just the power of iron, steel and steam, but of the Difference Engine? Victorian engineers have always intrigued me; they seriously believed that they could build anything, but they were also so arrogant to assume Man’s superiority in all things in this world, so they didn’t give a damn about the consequences of their actions. (You want the complete Dr. Phil Existential Gestalt Experience? Compare and contrast the social impact of computer technology in this book and in the movie Until The End Of The World.) Gibson and Sterling’s creations do all that and more. This book is very accurately Victorian, which means that it is written in a crowded gingerbread style that seems somewhat alien until you get used to it, and it is in no way politically correct. Reader discretion is advised.

Neuromancer / William Gibson

I spent the summer of 1994 reading maybe eight or nine "cyberpunk" novels, a genre of science fiction that deals with computers, hackers, information and how society will hold together in the coming years. It was an interesting subject with some of the weight of all that high technology. If you ever saw the Harrison Ford movie Blade Runner, you’ve seen some of the dark film noir quality that the cyberpunk movement has introduced into SF. These two guys wrote The Difference Engine, listed earlier. Neuromancer, which has several sequels and (some short story prequels in Crystal Express and others), is kind of like hacker "cortezyn" tying the wild range of cyberpunk and generally fluffy writing together. There were, however, a lot of corporations and governments interested in making a neat action adventure movie and great fun; it’s hard to keep score as to who the goodbad guy are. The recent movie kick-off is the pilot from a Gibson short story of the same name (included in a collection titled, Burning Chrome). This is one of the few books that I would recommend to the New Net, on the other hand, I think it’s not available future. While there is a sort of adventure mystery to justify having a story, part of the interest in this book is the kind of New Net gets to be more and more like a real life corporate environment. There are some interesting creations of a neighbor business system of our self-righteous heroine of the novel. If you read some of the history of computer companies books about Apple, Microsoft and the California and Seattle high tech business climate, Sterling’s vision clearly springs from the same ideals. (What I can’t figure out is whether Sterling believes in what he’s making fun of it.)

Grass / Shen S. Tepper

Grass is a planet whose ecology is based on, well, grass. Hundreds of different kinds, colors, textures, flavors, etc. And the human colony also deals with the native animals in memory of an old style English fox hunt – this is where the mystery begins. I put it in this section, rather than under regular Science Fiction, because, well, it’s a strange book and while I liked it, I know some people have had some weird reactions to it. (We own a copy because a friend of ours was too weirded out by it to keep it in her house!)

Time and Again / Jack Finney

Time travel has fascinated science fiction writers for a long time. Imagine going back and seeing what really happened. Jack Finney’s What if story uses an ingenious concept for time travel: that we are trapped in our own time by all the strange facts of our era that are not the result of our actions. As with Antimatter Ship, Disclosure and other Crichton stories, he has artificially collapsed the timeline so that there are unusual pressures on the protagonists, but that tends to help move the story along. For WMU PHYS-102 students, this is a nice example of systems interactions at work, for WMU PHYS-107 students, you’ll see a lot of the physics principles that we’ve worked on all semester come into play here. A fast read, and maybe educational, too.

H W K L V R The Soul of a New Machine / Tracy Kidder

Another New York Times best-seller, Kidder is just a good writer who tags along with a crowd of computer designers at Data General in the early 80’s and watches them create a new minicomputer. The tension is palpable and the company’s future is riding on the success (or failure) of their efforts. In the face of the slumping competition from Digital Equipment Corporation and their new computer, the first VAX. (The VAX’s that WMU uses for student computing accounts have come a long way from the VAX 11/780 of 1976 which was covered up, with that might be best described as looking like a high tech washer and dryer with its associated disk drives.)

You might want to check out the December 2000 issue of Wired magazine – they have an article about where Tom West, the Hardys Boys and the Microkist (the people in this SDS) are today.
When a school shows Stoll the fancy new technology classroom they've installed, his first question is not how many megarahz, but what was the room used for before?}

**W K L V - Field Artillery: How the Boys of Silicon Valley Make Their Millions, Battle Foreign Competition, and Still Can't Get a Date / Robert X. Cringely**

This book is about Bill Gates, the young, multi-billionaire chairman of software megafirm Microsoft. It is both a biography of the man and a history of the microcomputer revolution. Sometimes it is hard to remember that the Macintosh came out in 1984, the IBM Personal Computer debuted in 1981 and even the venerable Apple II computer only dates back to about 1977 or '78. Lots of firms have come and gone, to say nothing of countless leading edge computers and programs, but Microsoft has been there from the beginning and despite the thousands of employees, Bill Gates' vision is still the law in Redmond, WA. But this is no glassy-eyed corporate P.R. piece; I think that it deals very fairly with the brilliant and infamous reputations of both Chairman Bill and his company. As a result, metaphors that Bill Gates will hate this book. By the way, Gates is now writing a column that the Detroit Free Press is running and you can send e-mail to him (or his minions) on computer issues at: askbill@microsoft.com.

**W K L V - Innumeracy: Mathematical Illiteracy and Its Consequences / John Allen Paulos**

Sometimes estimates are more useful (or a better use of time) than calculating things exactly. This book is about the “back of the envelope” calculation, like figuring out how many rabbits live in the desert based solely on the number of roadkills you pass. You may feel that there is more math in here than Harte lets on, but again, you should be able to skim the tough bits and still follow the threads of the arguments.
skewer Gould's book and its unfailing portrayal of general intelligence testing as inaccurate, which of course is what you would expect them to say.

- Darwin's Black Box: The Biochemical Challenge to Evolution / Michael J. Behe (1996)
- Why We Love Them and Why We Leave Them / Margaret Visser
- To Engineer is Human: The Role of Failure in Successful Design / Henry Petroski
- Why Buildings Stand Up / Charles Perrow
- Star Warriors: A Penetrating Look Into The Lives of The Young Scientists Behind Our Space Age / Martin Rees
- Just Six Numbers: The Deep Forces That Shape The Universe / Martin Rees
- Wonderful Life: the Burgess Shale and Nature of History / Stephen Jay Gould
- The Beaches Are Moving: The Drowning of America's Shoreline / Wallace Kaufman
- The Colour of Life: The Biology of Sexual Attraction / Thomas Lovejoy

This book serves as a useful reminder that we are what we eat. Forty years ago, most of what we buy in the stores today as packaged or prepared foods did not exist, and most people had at least a good idea of where food came from, even if they didn’t know the history of it. This has been a surprisingly popular book for this assignment.

- Rubbish! The Archaeology of Garbage / William Rathje and Cullan Murphy
- The Future of the Future / Alvin Toffler
- The Beaches Are Moving: The Drowning of America's Shoreline / Wallace Kaufman
- Dragon’s Breath / Colin Wilson
- The End of the Future / Alvin Toffler

A real stretch here, but there’s still a lot of science in both food preparation, and the technological changes which weren’t around. Good design involves many skills and quite a few mistakes along the way. Brittle fracture, the cooking of steel (the recipe for austenitic stainless steel is included; serves 4000), bridge collapses, etc.

- Cadet Dessert / Marc Peter Reitner (1986)
- Wonderful Life: the Burgess Shale and Nature of History / Stephen Jay Gould
- Modern Physics / A. P. French

Science fact and science fiction have been intertwined for a long time. Lots of SF stories start out as one-trick exercises to showcase some new technology or show-off some new quirk revealed by science and technology. Physicists often use SF as a way of seeing how the future might be put together. Forward has looked into many new technologies over the years and has tried to put together a reasonable way to implement it. Not that some of these ideas are new, but “as long as we’re going to have starships, numbers, etc., etc., we might as well speculate how one might actually do such a thing. And that’s Dr. Forward, physical, you to, his a member of the American Physical Society, Sigma Xi, etc. The title, by the way, is from a line by Arthur C. Clarke, himself a famed SF author and futurist. “Clarke’s Third Law: Any sufficiently advanced technology is indistinguishable from magic” – from his Profiles of the Future.

- The Beaches Are Moving: The Drowning of America's Shoreline / Wallace Kaufman
- The Future of the Future / Alvin Toffler
- The End of the Future / Alvin Toffler
- Why Buildings Stand Up / Charles Perrow

You can find some new books in the $1.95 sale racks. Disasters are such an instructive way to talk about technology and how our society and media react to it. I sometimes have library assignments and papers on the topic. No science is particularly good or evil. Furthermore, no matter how hard we try, accidents can will and happen. And when we become complacent, as humans are wont to do as long as things are working just fine, we don’t try as hard to fix things. I think that the experts are the ones who talk about why Three Mile Island was likely to happen before, but why they might become more common. Government, industry and insurance people are always like to quote statistics and probabilities about dam failures, the Exxon Valdez, storms through the goa grant numbers. And someone in the field has to be putting those numbers together (and presumably going home happily and getting a good night’s sleep after a day of defining what are to be considered “acceptable losses”). There’s a certain amount of jargon, acronyms, and numbers, yes, even in a case of the Pebble and the Parrow is a story about the perks of luxury and comfortable: consider that as I write this, teams of investigators are still investigating the crash of the TWA 747 off of Long Island, doing their jobs and slowly putting all the pieces together in order to try to determine what happened. It’s not a lot of comfort to the souls lost on that flight, but we will learn. Until the next time, of course.

- Flying Bulletproofs, Entropy and Orings: The World of an Engineer / James L. Adams
- Engineering is a very broad and misunderstood field, and engineers are a very misunderstood breed of people. So it’s nice to see a mechanical engineer who can write take the time to tell some stories and give the readers some insight into what engineering being and an engineer is all about. I mention that Adams is an M.E., because although you don’t need a big science/engineering background to read this book, you may find that many of his topics are familiar stuff from your introductory physics course.

- Star Warriors: A Penetrating Look Into The Lives of The Young Scientists Behind Our Space Age / William Broad
- The Colour of Life: The Biology of Sexual Attraction / Thomas Lovejoy

A look at the pro-SDF culture at the Lawrence Livermore National Laboratory. Edward Teller, their fearless leader and father of the American H-Bomb, personally sold President Reagan on the merits of the Strategic Defense Initiative, even as the American Physical Society and other scientific organizations said it couldn’t work.

- Why Buildings Fall Down: How Structures Fail / Matthis Levy and Mario Salvadori
- The End of the Future / Alvin Toffler
- Rubbish! The Archaeology of Garbage / William Rathje and Cullan Murphy

There are thousand year old structures that are still standing today while some pretty expensive modern real estate falls right down. Forget the lawyers and the lawsuits, these books look at the “why” of structural engineering, past and present. There is, by the way, another book entitled Why Buildings Stand Up (I.W.K.L.S. -).

- To Engineer is Human: The Role of Failure in Successful Design / Henry Petroski
- Modern Physics / A. P. French

Technological is not a new invention of the 1990’s; a great deal of engineering design work was done long before computers were around. Good design involves many skills and quite a few mistakes along the way. Brittle fracture, the cooking of steel (the recipe for austenitic stainless steel is included; serves 4000), bridge collapses, etc.
not to be inflammatory (the story involves the death of a young woman and a pre- Roe v Wade illegal abortion), but now), which has made Crichton very angry. I put this book here, and

This is one of the books that Michael Crichton wrote while he was in Harvard Medical School, to help pay the bills. - A Case of Need / Jeffrey Hudson (Michael Crichton)

I,III,X

The company that had the paperback rights to Hudson's book, has since plastered Crichton's name all over it and has made a great deal of money since Crichton's last 3 movies have come out (Jurassic Park, Rising Sun - W - L -)

- The Hot Zone / Richard Preston

Robin Cook's novel Outbreak and a blockbuster movie of the same name (not by Robin Cook) were big news in the summer of 1995, both having an exciting story of the spreading of a plague and the attempts to stop it. Michael Crichton's The Andromeda Strain who spins a yarn about scientists rushing to prevent the spread of a deadly organism.

Great stuff, both of them, and very entertaining. Part of the entertainment value comes from the very believable portrayal of science and government in the fictional works. But what's the real scoop about how well we prepared to face a super plague? Well, The Hot Zone is not fiction. It's about a real outbreak of a real disease in the United States (the actual Library Congress subject headings: Ebola virus disease--Africa and Ebola virus disease--Virginia--Reston) and the efforts to identify and stop the spread. Although The Hot Zone apparently provided the inspiration for Outbreak, Preston claims that we are not nearly as well prepared as the fictional accounts would have us believe. (Note: The genetic (sensationalized?) descriptions of what hemorrhagic fevers do to the living are not for the squeamish.

H - - - - - -

- The Coming Plague / Laurie Garrett

No sooner had I put the Ebola book The Hot Zone on the Spring/Summer 1995 booklist, gone to see the Ebola movie Outbreak and read Robin Cook's unrelated Ebola novel Outbreak, when Ebola was suddenly front page news again in Zaire. The Coming Plague is "The Making of the Atomic Bomb" for Man's attempt to control the horrible and mysterious tropical diseases of the world, including Ebola Zaire. Why just all these disease books on the list? Because the West tends to have this attitude that we are invincible and invulnerable with our high technology. And Garrett is someone who knows what she is talking about, not just a writer. (As with The Making of the Atomic Bomb, you need this book to understand this book."

I,II,IV,V,IX

You've probably noticed that this book lists has themes. No, this book isn't about naval air technology. It's a novel about a really bad disease. If you've read any of the real Ebola books, The Hot Zone or Ebola: A Documentary Novel of Its First Explosion, you might wonder why one needs to include a science fiction work about "a bug one hundred times more contagious than Ebola", as USA Today says. After all, isn't The Andromeda Strain the ultimate SF disease book? Well, the science literacy point of all these books is get people to think. In a world with ready access to very advanced medical technology, we need people to think about what we can do to prevent diseases, not only from foreign and corporate responsibilities and control measures, and laid out in a rapid can't-put-it-down style.

- Ebola: A Documentary Novel of Its First Explosion / William T. Close, M.D.

Because the West tends to have this attitude that we are invincible and invulnerable with our high technology, and Garrett is someone who knows what she is talking about, not just a writer. (As with The Making of the Atomic Bomb, you need this book to understand this book."

II,IV,V

H - - - - - -

- The Terminal Man / Michael Crichton

After the triumph of The Andromeda Strain and the publishing of the non-fiction Five Patients, Crichton produced this cynical fictional story of uncaring doctors forging ahead with a research project to help epileptic patients control their seizures with electrodes in their brains (or plugged in like a computer terminal, hence the title). Sci-fi for twenty five years ago, but not today. This story is as much about ethics as it is about the leading edge of science. If anything, the movie version is even more Crichtonian than the story of the medical professor he had trained for and then abandoned because he couldn't be the uncaring inte...
A strong personal interest in science — and the will to put his money where his mouth was. This book makes a case that it was the support from Tuxedo Park that helped science win World War II, not just the big money government efforts like the Manhattan Project. Wonder if anyone has sent this book to Chairman BVID (pnp)
Don't bother asking to read other Tom Clancy's or Michael Crichton's Disclosure, Sphere, Jurassic Park or Lost World (Jurassic Park 2). Dr. Phil will say "No."

This Version of the List Contains 107 (or so) Titles Many of Which Are Listed In The Computer Catalogs At Area College and University Libraries (The Library Codes are Out-of-Date). Maybe, Just Maybe, You Might Want to Keep This Handy Book List for Future Reference?

All Books Have Been Carefully Chosen So If You Don't See Any Science In A Particular Book Rather Than Saying "I Don't See Any Science" Why Not Ask Yourself: "Why Do You Think That Dr. Phil Put the Book On The List?" Be Sure You Read The Assignment Sheet Carefully Before You Write Your Paper

See the Following Pages for More Information About the Format for Papers!

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PLEASE! I Know That This Takes Time - I Know That Fitting In A Paper Is Hard Work
I Know That Printers Don't and Word Processors Mangle, So Store Your Work on TWO Floppy Disks, If You Use a Computer and If You Use A "Real Typewriter" Rather Than a Computer, I Understand Your Problems

So Don't Use Your Paper As An Excuse To Cut Class
That's What the Grace Period is For – To Have Time to Fix The Glitch

We Want You HERE To Participate (And Get Your Work Done On Time, Too.)

NEW – An attempt to code the titles as an aid to keep you from making a bad mistake.

| I. – Best-Seller | Many books are popular in their field, but a best-seller is defined as one that appeals to a much wider audience. Should be readable. |
| II. – Fact | This book is based on Fact. |
| III. – Fiction | Fiction is made-up. All Novels are fiction. Occasionally a book is based so much on a real incident, that I've coded at least one book as both Fact & Fiction. |
| IV. – History/Biography/Reminisce | The material in this book is based on actual events, which you could look up elsewhere, or use as a reference to some extent. |
| V. – Technology | The technology of 1999 is the technology of the 20th Century. This includes more than just the latest Intel Pentium III, chips at 650 MHz, but all sorts of stuff invented since the 20's and 30's. Understanding our technology is a major cornerstone in what Dr. Phil calls Science Literacy. |
| VI. – Non-1999 Technology | Most of us would not survive very well outside the 20th Century technological base. Studying the technologies of the Victorian or Edwardian engineers (19th & earliest 20th Century), or of metal work in the year 1000, or how one gets food to the table in a world without Saran Wrap™, microwaves or McNuggets™ is one window on today. A few books that study possible future technologies are also labeled with this code. |
| VII. – Fantasy/Alternate Worlds | Some people argue that all Science Fiction is just somebody's fantasy, but technically Fantasy applies to stories that exist outside the realm of science – nearly anything with Magic, for example. Magic is often written in such a way that it becomes a science or a technology to its users in fantasy, and this is a good way to learn to study how and why we know science. I've also included in this code, some books which have chosen to rewrite what history we know, again as a way to evaluate where we are today. These are What if…? books. |
| VIII. – Difficult to Evaluate | These books are minefields in some way. You can write a really lousy paper by not getting the point of the book and many people have. Most book reports on The Diamond Throne, a fantasy book, or Dune, an SF book, concentrate on the politics. Now if you are going to talk about the politics in relation to Science Literacy, you're going to have to be really good. Otherwise, its best to stick the mantra for this paper: Science, Engineering, Technology, Computers, Math and the Morality and Ethics of Using Same. |
| IX. – "Nutrient Dense" | Fancy way of saying long, hard book. |
| X. – Advisory for the Faint of Heart | Contains one or more of the following: adult situations, controversial materials or descriptions that are hard to handle. You have been warned! |