

Topic 1 • Science Literacy Book & Movie Report (100,000 points)
PHYS-2050 (H15) • Spring 2006

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 overheard 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 talking 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 – go 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 (pārs) *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* (*ōrātiōnis*), part (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.

Philip 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 booklist 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. 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. Often Dr. Phil is using Book/Movie combinations for his second-semester Physics courses (PHYS-1150 and PHYS-2070 at WMU) as well as with the Honors PHYS-2050 students. 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. A movie list only about Physics would be *painfully* short. 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-2050 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 and movie combination from the “approved book and movie list” 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. It is less of a problem if you have seen the movie.
- Failure to read an approved combo 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* pick a different combo for this report. Failure to comply with this rule will result in an 80,000 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 and view the movie (any order), 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 combo in the list 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 book and movie list 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 **5 to 7** 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.
- 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 combos, *i.e.* the ones Dr. Phil has read the most papers on, have been written by Michael Crichton (*The Andromeda Strain*, *The Terminal Man*, *Jurassic Park* and *Timeline*). 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 combos are more serious in tone than others. 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 and movies 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 can hate the book. You can loathe the movie. You can hate the assignment. You can decide that you didn’t learn a thing from the combo. 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 Combo?

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 2006, 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 read a novel 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 5 to 7 page paper. You don’t have time to discuss every one of the topics/chapters in Tom Wolfe’s The Right Stuff – it isn’t all in the movie – 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, a page or two of comparisons and a page of conclusions. Provided you follow the assignment – you’ve got your five or seven 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/movie 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 draft with your final 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 combo, 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.

5 to 7 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 11 – 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 the standard is Courier New 12 point. However, Courier New is a little bit “thin” on a laser printer 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 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 in on 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 11 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 computers, like calculators, are basically stupid machines. A spell checker cannot tell the difference between *two, to, too* or *Thieu* – 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 encyclopaedia, 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.

Five to Seven Pages

Please make a note that "5 to 7 pages" does **NOT** mean that 4¾ pages is "sufficient". It is not. Dr. Phil interprets "5 to 7 pages" to mean FIVE FULL PAGES PLUS YOU MAY BE GOING ONTO THE SIXTH PAGE. You can write more than seven 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 five pages without writing five 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 4 1/2" by 5"; 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 Y2K6 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)
- Single, simple cover sheet
- Readable standard Courier font/typeface
- Good spelling
- Reasonably clean and proofread grammar
- Stapled in upper left-hand corner
- SINGLE-SIDED ONLY!

/ ← Staple in upper left-hand corner!

Title(s) of Book/Movie <centered>

Your Name
PHYS

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11am
Spring

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Date

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 in *two* places – those USB flash drives are handy, inexpensive and work with most PCs, laptops and Macs.

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 and seen the movie – he has*) and
- (2) Do *not* cheat and only rent the movie instead of reading the book (*assume Dr. Phil has seen all the movies – he has – 90,000 point penalty*),
- (3) You might want to explain how you chose this combo (sometimes it's because it was the only one the library or video store still had),
- (4) when you sit down to read a book, you always bring something to the table, even it is 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 ...
- (5) what you learned or did not learn from the book and movie. If fiction, you might tell why you believed the author – or did not. If non-fiction, whether the author was understandable.
- (6) Give a couple of examples to show me that you read the book, but you won't be able to talk about everything. *Again: DO NOT SUMMARIZE THE PLOT BEYOND 2 SENTENCES!*
- (7) Any kind of personal story or anecdote or current events that connects with your combo is *super*.

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

PHYS-2050H
Topic 1 – A Science Literacy Book Report
Due Thursday 13 April 2006 at 5pm
Grade Period Ends: Monday 17 Apr. at 5pm

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

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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 11-point font, printed on a Hewlett-Packard LaserJet 4ML printer. It is likely to be reduced to half-size in your actual handout.

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.

HERE'S SOME NEW COMBO TO ILLUSTRATE WHAT WE'RE TALKING ABOUT

New for Spring 2006!

***Airport* (1970)** Dean Martin, Jacqueline Bissett, Burt Lancaster, George Kennedy and academy award winning Helen Hayes show up in what I consider the first of the blockbuster movies, and the first of a series of Airport disaster movies (all of them increasingly stupider than the last) as well as the inspiration for the lampoon *Airplane!* Movies with Leslie Neilson. When *Airport* came out though, it was a big show with a big cast – and Americans weren't yet thinking about people putting bombs on airplanes, so it was exciting (and airlines refused to show it as an in-flight movie!), even if there's almost a soap opera feel to it. The special effects won't win any modern day awards, though they did pretty good for over 35 years ago. But I just saw the movie again in mid-January 2006 and it shows a world of aviation many Y2K6 students won't find very familiar. You can get some mileage (but not the whole paper) out of talking about how today's airline experience is different than "in the old days".

----- *Airport* / Arthur Hailey (1968?)

I, III, V, IX

In the late 1960s and early 1970s, Arthur Hailey was an industry of big thick, fast moving, complicated novels chock full of the operating details of an industry: *Airport* (commercial air travel), *Hotel*, *Wheels* (Big Three automakers), etc. *Airport* wasn't his first, but it was the first big bestseller. Both the book and movie really broke frontiers when they came out. In some ways, I consider *Airport* to be the first real technothriller book and the movie to be the first modern blockbuster. I've listed this book as a "IX" solely because it's a little thick, but it's not complicated or hard to read. In many respects, the technical descriptions in the book probably feel a lot more realistic and up-to-date than the movie, so it's still well worth it if you're interested in aviation to read the book for content.

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

1. Pick a combo from the booklist. If you don't want to use a combo 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.
2. Read the book. Watch the movie. This is a Science Literacy assignment, not just Physics. So read the book with an eye toward what you find 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 did the combo – what you know, your experiences.
4. Consider what you learned. Is it new to you? Or is it something you already knew? This is an opinion paper, so what you know and what you think does matter. You do not have to like your combo.
5. Write the paper. Do not just retell the plot or story. Dr. Phil has read the book/seen the movie and so have you. Start from there. You might begin by telling why you selected this combo. 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 combo your paper is on. Dr. Phil has seen all the movies and read all the books.
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 5 to 7 pages typed (probably on a PC or Mac using a word processor in April 2006), double-spaced, with 1" margins all around, a single simple cover sheet, and numbered pages. The cover sheet cannot be page 1, and 5 to 7 pages means that there are at least 5 complete pages of text without extra blank lines at the beginning or end. You may write the page numbers 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: Courier/Courier New (12 point), Dark Courier (11 pt). 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 combo 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 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.

11. Papers are due on Thursday 13 April 2006 by 5pm. You have a Grace Period that extends until Monday 17 April 2006 at 5pm – that means you can turn in your paper on that 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 combo that was not approved or on the booklist—100,000 points. Previous Dr. Phil students reading the same book—80,000 points. Writing only about the Physics in a combo that isn't about Physics—or—Writing only about the plot with no analysis—the fraction of 100,000 points that 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.

This handout is also at: <http://homepages.wmich.edu/~kaldon/classes/ph205-h15-bm.htm>

PHYS-2050 (H15) (Kaldon)
Western Michigan University

Book-and-Movielist - Spring 2006

(KEY: H - Hope College; W - WMU Library ; K - KVCC Library ; L - KELLY Libraries ; V - GVSU Library ; R - GRCC Library <old data>)

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. 01/19/2006

"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. For my Spring Section of PHYS-2050H, we are going to continue to do something a little different, that we call "Book and a Movie".
IF YOU HAVE HAD DR. PHIL BEFORE – READ THIS ASSIGNMENT CAREFULLY!

Mary Shelley's Frankenstein (1994) Kenneth Branagh, Robert DeNiro -or- The Mummy (1999) No one you've ever heard of. • While mixing Frankenstein with the Mummy seems an odd mix, the fact is that the staple of bad B-movies from the 1930's include Frankenstein, Wolfman and the Mummy. So if you don't want to overdose on Frankenstein, you could consider the whole Power of Life issues in both the book and *The Mummy*.

----- **Frankenstein: A Modern Prometheus / Mary Shelley** I,III,VI
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.

Infinity (1996) • This is about the Los Alamos years, with Matthew Broderick and Patricia Arquette as Mr. & Mrs. Feynman, but no one has ever seen it. A beautiful portrayal of a genius just living – when life is very hard.

HWKLV - Surely You're Joking, Mr. Feynman I,II,IV,V
and **HWKL - What Do You Care What Other People Think?** both by Richard Feynman
Two 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, Tuva 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 once seen only a postage stamp from the place and being amazed that the country absorbed by the USSR had a capital with no vowels. One just has to want to visit a place like that, if you're Dick Feynman.

-or- **HWKL - Genius: The Life and Science of Richard Feynman / James S. Gleick** II,IV,V,IX
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!

Fat Man and Little Boy (1989) Paul Newman, Dwight Schultz • Not as perfect as PBS' *Oppenheimer* series, but gives a very human face to the Manhattan Project.

HWKLV R The Making of the Atomic Bomb / Richard Rhodes (886 pages) II,IV,V,IX
Probably too long for this class, I mention it because (a) Rhodes is not a scientist, but like Tracy Kidder mentioned below, he is simply just a very good writer, and (b) this is absolutely the most complete history of the Manhattan Project that you'll find in an unclassified library. No matter your feelings on the ethics of the result, the science and events that led up to the Bomb and the incredible grouping of scientific minds in one place that did it, is one of the

20th century's great stories. To me, the best part is that he not only explains what is going on, but weaves a story that lets you understand what the scientists did and did not know and the whole politics of the Manhattan Project.

-or- -W - L - - Stallion Gate / Martin Cruz Smith

III,IV,V,X

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 legitimate reasons for getting all these people to explain what is going on to the rest of us. Stallion Gate was the location of the first atomic bomb test and nearly all the characters in this historical novel are real.

The Right Stuff (1983) Sam Shepard, Scott Glenn, Ed Harris, Dennis Quaid • Long and corny, but somehow carries off feeling of the right stuff. Huge difference in feel from *Apollo 13* actually feels right, too.

H W K L V - *The Right Stuff* / Tom Wolfe

I,II,IV,V

This very popular book about the birth of the Astronaut corps and their transformation by the media into Heroes was made into a movie that was supposed to launch John Glenn into the White House in 1984. Didn't happen. Actually, there is a lot more in the book than is in the movie, but you might want to sneak a peak at the movie if you aren't familiar with some of the gadgets of aircraft flight testing and spaceflight - the movie is mostly pretty accurate. (But don't just review the movie!)

Apollo 13 (1995) Tom Hanks, Bill Paxton, Kevin Bacon, Gary Sinise, Ed Harris • In years to come you will see the scenes from this movie instead of the original NASA recordings because they look more real.

----- *Apollo 13 (original title: Lost Moon)* / James Lowell & Jeffery Kluger

I,II,IV,V,IX

Forget science fiction adventure billions of light years away: imagine being one of just three human beings, really and truly separated from the teeming billions on Earth by one-quarter of a million miles of the real hard vacuum of space... and having something go seriously wrong with your spacecraft. Lowell commanded the real *Apollo 13*, the mission that didn't make it to the Moon, wrote this compelling story. Tom Hanks always wanted to do something about this mission, and when Ron Howard ran across *Lost Moon*, their agents got together and...

The Andromeda Strain (1971) Arthur Hill, James Olson • Typical of early 1970's movies in sort of sterile view of high tech. At the time this was filmed, the stainless set for the dramatic climax was the most expensive single set ever (\$7 million). Those are real lasers, burning real make-up off James Olson. But forgive me, for many people even that doesn't make this movie very exciting for them, not like the book.

H W K L V - *The Andromeda Strain* / Michael Crichton

I,III,V,IX

The first major sci-fi book I ever read, Crichton's gift as a writer is to blend fact and fiction so that you cannot tell what is true and what is story. (There really is a Jeremy Stone and all those publications of his listed are real.) A secret satellite falls out of orbit and the entire population of the town of Piedmont, Arizona is mysteriously wiped out. Well, almost everyone. Will the scientists understand what is going on in time? You'll just have to read the book (don't just rent the movie). Sci-fi, sure, but it is often mentioned when real plagues like Ebola are mentioned.

The Bedford Incident (1965-B&W) Richard Widmark, Sidney Poitier • The movie version of *The Hunt for Red October* is all flash and no sizzle. Pretty, but dumb. I include this older movie so that you can appreciate more the tensions of the Cold War and why a new submarine is a big deal. Watch for serious roles by Wally Cox and Donald Sutherland. (This is actually a movie from a book, but they are quite similar.)

-W K L V R *The Hunt for Red October*

I,III,V,VIII,IX

Clancy is well-known as the writer of modern, fast paced, techno-thrillers that seem to know far too much about the workings of classified Defense Department equipment and the inner workers of the CIA and the intelligence committee. There is a lot of science and engineering detailed in these two books - a good read to take some of the mystery out of all 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. Some people like all the descriptions of the 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 stories.

Five Million Years to Earth (1968) • This UK film I only just saw recently, where it's been playing on AMC (American Movie Classics). Suffers a bit at the end because they didn't have a huge budget, but the beginning part is very reminiscent of the beginning part of *Inherit the Stars*. Makes one wonder what-if we ever found aliens...

--- L - - *Inherit The Stars* / James P. Hogan

III,V,AVII

When Prof. Strickland, former chair of the GVSU Physics Dept., first brought this S.F. book to my attention, my first thought was my usual evil thoughts to S.F. book cover artists who don't have a clue when it comes to science. A

mmm in a space suit on the Moon? Come on, it wouldn't happen. The dead astronaut would either be vacuum freeze-dried or an anaerobic slush of goo in a short time. Ah, but what if the guy in the space suit has been sitting dead on the Moon for 50,000 years before we had a space program? This forensic nightmare has a lot of neat things to think about (okay, so the ending is weak - that's true of a lot of books - read anything James Michener has written since about *Centennial*). There is a paperback version called *Giants* (?) which includes *Inherit the Stars* and two sequels. It is not excessively long.

Colossus: The Forbin Project (1970) • Sometimes just called *The Forbin Project*, this movie is about a computer that is given the job of controlling all of the West's nuclear weapons - and then figures out that the East has done the same thing. Two machine intelligences becoming self-aware and they're armed. Humanity "loses".

--- L - - *The Two Faces of Tomorrow* / James P. Hogan

III,V

If you watched any TV around New Year 1995, you probably ran into the networkMCI commercial with the strange English kid raving about digital information. The National Information Superhighway is coming. Internet is already here. WMU's computers are heavily networked. At what point does an information network have so many computers and connections that it no longer is "just a tool", but becomes self-aware? This is the problem faced in this SF story, where the government deliberately sets up a space station just in order to try to force the issue. The results don't quite match up with the expectations, which is pretty much what you'd expect. We tend to give all kinds of human emotions and attributes to computers, though any tendencies toward personality are strictly the result of programming. This story neatly discusses some of the stuff that computer science people have been battling around with Artificial Intelligence (A.I.) for years.

2001: A Space Odyssey (1968) • One of the great SF and Stanley Kubrick movies of all time, but long and very deliberate (i.e. slow). A good friend of mine loves the movie but has never managed to stay awake through the whole thing in one sitting. The special effects in this movie made *Star Trek*, *Star Wars* and Industrial Light and Magic all possible, to say nothing of having better apes than *Planet of the Apes*.

H - K L V - *2001: A Space Odyssey* / Arthur C. Clarke

I,III,V,IX

In 1968, the year 2001 seemed so very far away. We were about to send Men To The Moon and American companies like Pan Am seemed invincible in the world market. Clarke wrote and rewrote this story over time (other versions can be found in the rare paperback *The Lost Worlds of 2001* / Arthur C. Clarke) while Stanley Kubrick struggled to make this first super-realistic looking space movie. Douglas Trumbull and others, who eventually ended up forming Industrial Light and Magic to do special effects for *Star Wars* and every other big budget movie of the 70's, 80's and 90's, cut their teeth on this one. Still, the movie is no fast paced thriller - it is almost the first cerebral action movie. The book ended up being published before the movie was done, so the story is very different. But all the main characters are there: the early man-apes, the Monolith, our intrepid astronauts, and of course, HAL the computer. (Change each letter in HAL's name to the next one in the alphabet to get the joke.) People who fall asleep in the movie find the book exciting, which is a good thing considering that this is a book report not a movie review. A classic.

2010: Odyssey 2 (1984) Roy Scheider, Helen Mirren, John Lithgow • I would be curious to know what people think to see the movie before reading the book. My guess is that parts of the story are hard to follow. Those who have seen the movie second that I know tend to like the movie better. There are many great images in this movie, as well as some terrific quotable lines. You'd never know that Helen Mirren is a British actress with her wonderful Russian accent. Though Roy Scheider in no way resembles William Sylvester in the first film, the sixteen years between films is much more the story here - sterile NASA gives way to much more lively US/Soviet détente.

H W K L V - *2010: Odyssey 2* / Arthur C. Clarke

I,III,V,IX

Nothing worth doing once isn't worth doing twice, according to the popular culture gurus who have created Sequelmania. Years after Clarke had finished *2001*, he got the bug to go back and expand the story and to try to bring the science up to date. The result is *2010* and it's a pretty good story - almost a violation of "Dr. Phil's Rule of Sequels".

NOTE: The Following Version is Recommended for the Book-and-Movie combination

Frank Herbert's Dune (2001) • Seventeen years after David Lynch's disastrous attempt to tell *Dune*, Sci-Fi Channel gave it a shot with this mini-series. Although it too suffers from some problems, the heart of the story survives intact, I think, and it flows much coherently. William Hurt is somewhat wasted as Duke Leto. Not bad.

NOTE: The Following Version is NOT Recommended (Unless you KNOW the book and wish to attempt the more dangerous Movie-Movie combination)

Dune (1984) • Incredible cast includes Kyle MacLaughlin, Patrick Stewart, Sting and many more - nearly wasted in a movie that both Malin and Ebert describe as "incomprehensible". Suffice to say, you gotta read the book first, or you'll never understand what's going on. After that, you realize that this is just a taste of the story, not the whole

thing. There are two versions: 140 minute version is original release, 190 minutes version was made for network TV and David Lynch took his name off the movie, but the extra explanations are a real help at times.

----- Dune / Frank Herbert I,III,VI,VII,VIII,X
This is a classic science fiction novel of an alien desert ecology, combined with all the galactic drama and interstellar politics you could ever want. A generation of science fiction readers grew up blown away by the scope and grandeur of this novel, which has achieved a stature almost like J.R.R. Tolkien's Lord of the Rings trilogy, especially since Dune was followed by numerous sequels. (The sequels are best enjoyed by those fascinated by the politics; otherwise, they suffer from the usual sequel problem of a loss of innocence from the first, wonderful book.)

The 13th Warrior (1999) Antonio Banderas • The connection here is the visualization of the Viking culture, use of technology, etc. This combo requires MORE thought that the average student thinks it does, and the papers are battling about .500 for quality (as opposed to .850 in general).

----- The Hammer and the Cross / Harry Harrison (1993) III,IV,VI,VII,VIII
Despite what you read about King Arthur, modern England really was established in 1066. But what if the Battle of Hastings had happened in 866? And the Vikings had won? This is the beginning of a series of books (One King's Way and King and Emperor continue the story) that put a very different view of history, the Renaissance and the use of science and technology. Although the book suffers from a "I can't believe that they could do all this in two years" problem common to many SF stories, it is interesting conjecture to collapse the history of metallurgy into a short time, going from iron works, to steel, to case hardened steel, and the consequences of having such advances. If you saw the Summer 1999 movie The 13th Warrior, you might be interested in this book as a way of learning more about the early technologies of steel and what was going on in 922 A.D.

The Terminal Man (1974) George Segal • If anything, the movie version is even more Crichton's statement on the inhumanity of the medical profession he had trained for and then abandoned because he couldn't be the uncaring tyrant that he felt they were trying to make him. Of course, it doesn't hurt to be able to write best-sellers and wildly successful movie screenplays and demands of Hollywood regarding creative controls. His TV show ER may not portray medicine in the best of lights, but at least the show is populated with human beings.

H----- The Terminal Man / Michael Crichton (1970) I,III,V
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.

Outbreak (1995) Dustin Hoffman, Rene Russo, Morgan Freeman, Kevin Spacey, Cuba Gooding, Jr. • Take The Hot Zone and wonder what it would be like if Ebola were an airborne bug. Okay, so the helicopter chase scenes are a bit over-the-top and there is an X-Files like conspiracy going on in the background, but lots of fun.

-W-L-- The Hot Zone / Richard Preston I,II,IV,V,X
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 have an exciting story of the spreading of a plague and the attempts to top it. Michael Crichton's Andromeda Strain also 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 those fictional works. But what's the real scoop about how well we are 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 of 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 you believe. NOTE: The graphic (sensationalized?) descriptions of what hemorrhagic fevers do to the living are not for the squeamish.

The Road to Wellsville (1994) Anthony Hopkins, Matthew Broderick, Bridget Fonda • Who would have thought that you could have tried to recreate this odd world, but they did. Watch for Dana Carvey and Colm Meaney (Miles O'Brien on ST:TNG and ST:DS9).

H----- The Road to Wellsville / T. Coraghessan Boyle (1993) III,IV,V,II,X
This is one odd book. It is hard to decide whether it is comedy or history, real or fiction. In the end, it is a fascinating look into a piece of Michigan's past, at the great Dr. Kellogg, the Battle Creek Sanitarium, breakfast cereal, and the whole Victorian upper class' obsession with excess. There is a movie, but there 's so much more to the show in the book. You'll never look at another diet plan or special food in the same way again. Science? My dear sir or madam, this is all in the name of Science!

October Sky (1999) Laura Dern • As is typical, compressed from the book rather than a docudrama, but very good.

----- October Sky: A Memoir (original title: Rocket Boys) / Homer H. Hickam, Jr. (1998) I,III,IV,V
One of the real sleeper movies of early 1999 was October Sky, based on this real-life story of a kid who goes from a dead-end future in the West Virginia coal mines to building model rockets with some friends – to getting serious about rocketry and eventually working with the Big Toys that NASA operates. For most of us, the era of Sputnik is as foreign as living in a company town in the middle of nowhere.

Timecop (1993) Jean-Claude Van Damme • In some ways this is a very important film on time travel, because they cover all or nearly all of the (seven) major time travel paradoxes. The connection here is about messing around with time.

----- Timeline / Michael Crichton (1999) I,III,V,II
Time travel stories are always problematic – there is no good scientific basis for supposing that time travel will ever be achievable, but it makes for good stories. Crichton has once again turned his talent at technological misdirection to quantum physics and time travel. And also to the technologies of 14th century France. You'll probably learn more about the past than the future in this novel, but then you never know.

-or- ----- Pastwatch: The Redemption of Christopher Columbus / Orson Scott Card (1996) III,IV,VI,VII,VIII
As has been noted earlier, time travel is definitely an odd sub-genre of science fiction. We can imagine traveling to other stars, even if it really might take extraordinary time and measures, but how... is it, will it, could it be possible that we might travel in time. The SF author doesn't worry about such little details. The fun in time travel stories is the potential for the unusual juxtaposition of events or the paradox of interfering with the past. In Card's story, Columbus is identified as being a nexus in history – because of his success in crossing the Atlantic, he brought untold misery to millions of people, native peoples wiped out or conquered and displaced, slaves brought in as a cheap labor source. (This is sort of the modern revisionist view, which showed up in the movie 1492: The Conquest of Paradise, among other places.) So... what if you could change what happened? Would you do it? Would you do it even though you know that it would change everything in your own time? That the era and the peoples that live everywhere would suddenly cease to exist and a whole new history would unfold from the time of your meddling. And you thought that it was tough deciding where our garbage should be disposed of!

Jurassic Park (1993) Sam Neill, Laura Dern, Jeff Goldblum, Richard Attenborough • Do not select this book & movie unless you have NOT read the book yet. You'll be pleasantly surprised. Wayne Knight and Samuel L. Jackson have minor roles.

W-K--- Jurassic Park / Michael Crichton I,III,V
This story is about an amusement park with real dinosaurs, not Disney-type animated models. People who don't know computers and biochemistry like I do, think that this is utterly improbable. Au contraire! As usual, Crichton doesn't have to invent much science. You could really do this, if you had the money, maybe...

Fail-Safe (1964) Henry Fonda, Walter Mathau, Larry Hagman • Almost sterile environment makes the whole idea of accidentally starting World War III seem rather terrifyingly real. CBS is going to be doing a live TV teleplay version of this story with George Clooney's production company sometime this spring, but let's stick with the 1964 version of the movie for this assignment.

----- Fail Safe / Eugene Burdick and Harvey Wheeler (1962?) I,III,V
-or- (**Mix and Match the Books and Movies – one of each or both the same, your choice**)

On the Beach (1959) Gregory Peck, Ava Gardner, Fred Astaire, Anthony Perkins • An End of the World story, where the world ends with a whimper and not a bang, at least for the last of the human race on Australia.

----- On the Beach / Nevil Shute (1957) I,III,V
During the Cold War, the threat of nuclear extermination was something tangible and real. And books like Fail Safe and On the Beach were both terrifying nightmares and warnings that made people stop and think about what they were doing. It would be another twenty years before Nuclear Free Zones started showing up, during which NORAD would tunnel into Cheyenne Mountain in Colorado and the numbers of nuclear missiles and weapons would increase probably by a factor of ten.

Contact (1997) Jodie Foster, Tom Skeritt, Matthew McConaughey • Terrific view of how radio astronomers work, and the excitement of discovery. And how we know what we know. (Also some of the worst simulated zero-gee floating ever filmed.) But for me, this movie is a fave. On a big screen with Dolby™ sound, you really believe that you are standing over that mammoth rotating machine.

----- **Contact** / Carl Sagan (198x) I,III,V
Carl Sagan ended up writing a couple of very thoughtful science-fiction books. This was widely thought to be unfilmable as written. SETI – the Search for Extra-Terrestrial Intelligence has gone in and out of favor and funding over the years, but the idea is easy enough. If there are other nearby civilizations advanced at least up to our level, then we might either detect their radio emissions, or perhaps they might send us a message. We've sent some messages (radio and physical) in the past, but it would be a long time before they'd reach anyone. For scientists and non-scientists, the whole issue of "faith" is one that is worth exploring.

Gattacca (1997) Ethan Hawke, Uma Thurman • This movie is about Style versus Substance, and on many levels. Genetic enhancements might be swell for some, but it might divide human society into the Haves and Have-Nots. So a bright young lad might not be able to get a job, unless he can fake being a genetically enhanced person. Beautiful and bleak at the same time, they have picked a cast that looks the parts. Definitely raises a lot of ethical questions.

--or--
Logan's Run (1976) Michael York, Jenny Agutter • Although this movie is getting a little dated, it pairs nicely with *Brave New World* as sort of an endgame to their culture. One way to make sure everyone stays young and beautiful is to kill you when you reach thirty. I rather object to that! I've gotten much more interesting since thirty, thank you very much.

--or--
THX-1138 (1971) Robert Duvall, Donald Pleasance • If you have already seen the first two, then you're a real Sci-Fi head anyway, you might want to look at the film that George Lucas developed from his University of Southern California film school project. Makes *Logan's Run* look like paradise. The problem of treating people like interchangeable parts is that after a while they act like parts, and not like humans. Watch for people not taking responsibilities, because they've never had to before. Hard to believe that they got so many real actors to shave their heads for this low budget (\$50,000) movie. The very best visual joke in the movie is missing in the VHS version, because they don't pan over far enough to show the counter change for number of cops on duty. ("THX-1138" is also heard in one of the background radio calls on one of the Death Stars in the Star Wars Trilogy.)

W - K - - - **Brave New World** / Aldous Huxley (1932) I,III,V
An awful lot of high school and college students have had to read this book one time or another. If you've missed out, then this is your opportunity to read this SF classic. Set in a future where genetic engineering has progressed to where people are grown and assigned to work castes based on their mental abilities. Since this was written before the discovery of DNA as the basis of genetics, this is quite visionary, but morality and ethics of using such a technology are clearly the forefront here. Often paired with 1984 on the political side to showcase our bleak future.

The Abyss (1989) Ed Harris, Mary Elizabeth Mastrantonio, Chris Elliot • There are two versions of this James Cameron movie. The theatrical release is fine up until the wimpy ending – the last 15 minutes stink. The Special Edition available on DVD and VHS includes an additional 23 minutes which actually explains what happens. Incredibly most of the underwater scenes were shot in a set submerged under two million gallons of water. And you thought filming *Titanic* was tough. This movie came out just about the same time as other underwater pics *Darkstar Six* and *Leviathan*, but its the best of the three by far. Fluorocil is a real synthetic oxygen carrying fluid and the mouse scene is real. Doesn't scale up to people yet, they faked that. And *drowning in love* takes on a whole new meaning in one striking scene. If you design electronics, remember to do more than just color code your wires.

W - K - - - **Sphere** / Michael Crichton (19xx) I,III,V
I have resisted putting this title on my book-only booklist for years, because as Crichton himself explains, this is more of a psychological crisis story, than say a biological crisis a la *Andromeda Strain*, and as such, never lent itself to the assignment. But... in combination with *The Abyss*, we have an opportunity to discuss what is reality and how would we deal with running across a very unreal situation. Do not imagine for a moment that you want to review the 1998 movie which wasted a killer all-star cast.

Titanic (1997) Kate Winslet, "that Leo guy", Billy Zane, and hundreds of extras! • Anyone who knows Dr. Phil since January 1998 knows he is a huge fan of this movie – that should be enough to scare some people away from doing this one! But *Titanic* is quite a physics movie, as well as a window to the steamship era. The sinking of the great ship was a major shock to both sides of the Atlantic, and along with the *Hindenberg* and *Challenger*, had a profound effect on history and technology, to say nothing of the creation of the U.S. Coast Guard after 1912.

----- **Titanic and the Making of James Cameron: The Inside Story of the Three-Year Adventure That Rewrote Motion Picture History** / Paula Parisi (1998) II,IV,V,VI
It was after I had watched the DVD of *The Abyss* and then watched the documentaries that came on Disk 2, that I began to realize that James Cameron's filmmaking, whether of *Titanic* or *The Abyss* or *Terminator/T2* or *True Lies*, is quite the event of science, engineering, technology, computers and the morality and ethics of using same. What makes *Titanic* a little bit special though is that it is not a science fiction film, even if a whole lot of technology was needed to make 1912 come to life.

Starship Troopers (1997) Caspen Van Diem, Dina Meyer • Robert Heinlein was one of the deans of 1950s and 1960s SF. His early stuff is classic, his later stuff is epic – and very strange. *Starship Troopers* is classic Heinlein, but I was real surprised when they decided to turn it into a movie. Amazingly, Heinlein's odd concept of a future of citizen soldiers, with a rather fascist central government, survives partially intact. And the "bugs" that are out to destroy humanity – they are tough and hard to kill. Oh sure, there are some plot flaws you could drive a battle fleet through and science is sometimes tossed out the window, but as a real gung-ho war movie it is visually stunning, fast paced and exciting. And there's plenty of fodder to praise and shred for your paper, especially with Armor as the book part of the assignment. Oh, and don't ask about using Heinlein's original book for your comparison.

----- **Armor** / John Steakley (1984) III,IV
A friend of mine in graduate school was sitting there reading this book from cover to cover, swearing the whole time. What inspired such love/hate? Well this book is divided into two halves. Just when the first half really gets interesting, the story takes such a sudden left turn that it takes a long time before you discover how the halves are related – by then, like the characters in the second half, you are addicted, desperate to find out the truth about Felix. There have been lots of SF books about men in armored fighting suits taking on buglike aliens, but none better. And when you find out Felix's secret and why he goes on patrol after patrol...

War of the Worlds (1953) Gene Barry • Despite its age, George Pal's movie still holds up pretty well. For 1953 it was amazing, winning the Oscar for special effects.

--or--
Mars Attacks (1996) Jack Nicholson • Sure, Tim Burton's movie is a spoof on every space alien invasion movie, including some homage to George Pal's movie the *War of the Worlds*, but despite the silliness, there's some room for thinking about the problems of a first contact with an alien race, the question of whether it makes sense for aliens to be invaders, and our smugness at thinking that we're pretty special and have a powerful military.

----- **War of the Worlds** / H.G. Wells (xxxx) I,III,VI
This classic Sci-fi novel is also well known for Orson Well's Halloween radio play that scared America half to death on the eve of World War II. But the story still plays out well, where you learn information a little bit at a time, much as you would under real conditions. Humanity is doomed and it is the end of the world, until a little surprise happens.

Somewhere in Time (1980) Christopher Reeves, Jane Seymour • A romantic movie set in 1912, and it isn't *Titanic*. But it was filmed at The Grand Hotel on Mackinac Island. *Somewhere in Time* was not a hit originally, but has obtained cult status among romantics. Based on a novel *Bid Time Return* by Richard Matheson, who wrote the screenplay, the central concept – time travel by hypnosis – is similar to *Time and Again*. This has prompted a war of sorts between fans of the two works, each accusing the other side of stealing the idea. Questions for a paper on this book/movie combo might be: how are we cemented into this time period by all the things that surround us? could we survive in an earlier era? and what would be the consequences if this theory of time travel were true?

H - - - - **Time and Again** / Jack Finney III,V,VI,VIII
Time travel has fascinated science fiction writers for a long time. Imagine going back and see 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 little details of modern life that surround us. Live and breathe the details of another era, and you might find yourself back in New York City in the 1880's. Definitely one of the "Gee, I wish this was true" stories, I've included this on the list because it really highlights the technology of a century ago, which in turn puts a real perspective on where we are today. (There is a sequel, *From Time to Time*, that was written some twenty years later. As is typical of sequels, it doesn't have quite the innocence of the first book, but it is really enjoyable and has some really excellent twists in its plotline. I wouldn't recommend that you read the second without reading the first, though.) Rumor has it that

Time and Again may be made into a movie; something that couldn't have been done well with movie making technology even just a few years ago.

For those of you well-versed in many of the books and movies included here, a challenging assignment on the nature of the End of the World As We Know It. Two very odd movies and two classic SF books – pick one of each.

The Quiet Earth (1985) • This New Zealand film is about waking up in a world where you appear to be the last human being on earth. Well, at least until you discover that there are two other people. But everyone else is gone, you are going crazy and it turns out that maybe you are responsible for killing everybody. Talk about the morality and ethics of using technology!

--or--

Until the End of the World (1991) William Hurt, Solveig Dommartin, Sam Neill • This is one of Dr. Phil's all-time favorite movies. It is, as they say in the movie, a "dance around the planet" and what a dance it is. It is a long movie, and if you were to stop every 10 minutes and ask "who are the good guys and who are the bad guys" and "what is going to happen next", you will be wrong every time all the way through the movie. It's another movie where there is a HUGE left turn in the middle (it would be a really classic depressing movie if it just ended at the pivotal point), and in a real twist you will discover that the left turn in the middle means that the beginning is the end, but it really makes you wonder about technology and your reliance on it. This was supposed to be a huge hit in 1991 and has one killer soundtrack CD, but it was the first movie managed by Sony after they got involved in the movie business and Hollywood decided that the Japanese "interfered" with the making of the movie, and so in protest there were efforts to keep this movie from being promoted or seen. There are lots of Sony HDTV (High Definition Television) technology on display here, and despite it being ten years old, it is still a vision of what life with HDTV and whatever comes after Microsoft Windows will look like. Very stylish, very complicated – and everything is important.

----- Alas Babylon / xxxxxxxxxxxxxxx

This classic Sci-fi novel was recently re-issued. At the time, this end of the world story was greatly discussed, but not as well known as some of the others, including Canticle, Fail-Safe or On the Beach.

--or--

----- A Canticle for Leibowitz / xxxxxxxxxxxxxxx

So we had the war and civilization fell. Amazing, not everyone is dead. So we start a new civilization and it happens all over again. You will never think of archaeology in the same way again...

--or--

----- Level 7 / xxxxxxxxxxxxxxx

Stylized, sterile end of the world story of a future that seemed all too possible in the 1960s and 1970s.

New for Summer 2002!

A Beautiful Mind (2001) Russell Crowe, Mister Action Gladiator, led this movie to a pile of Oscars – playing a schizophrenic mathematician? If that doesn't get you, then the fact that is based on a real story might. Ron Howard crafts a fine movie here, with lots of tension, great score and a real attempt to show you what being a schizophrenic is about. Not so hot about what being a high level mathematician entails. But...

----- A Beautiful Mind: The Life of Mathematical Genius and Nobel Laureate John Nash / Sylvia Nasar (1998)

II,IV,IX

John Forbes Nash, Jr. came out of West Virginia and ended up winning the 1994 Nobel Prize in Economics. What happens in between is both amazing and tragic. Now, are we going to be surprised that the book covers a LOT more territory than the movie? That one wonders exactly how one gets from Nasar's book to Howard's movie? I don't think you're supposed to ask those questions – except that is EXACTLY what this assignment is about.

New Combos for Fall 2001!

Cast Away (2000) Tom Hanks, Helen Hunt • Talk about product placement, FedEx gets the bargain of the century, and for free. Dr. Phil has had several books

-W K L - - The Mysterious Island / Jules Verne

III, V, VI, VIII, IX

The 1980's saw us watching the ever-resourceful McGuyver and his trusty Swiss Army Knife, think and work his way out of any scrape. But a hundred years earlier, fiction adventure books abounded where the hero(es) managed to survive and bring civilization on whatever deserted isle that happened to be 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 remote volcanic island, who knows where. The "mysteries" of The Mysterious Island abound: where are they? How will they ever get home?

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And what unseen force is helping them survive? I first read this 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 as these hearty 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.

Until the End of the World (1991) William Hurt, Solveig Dommartin, Sam Neill • See listing above...

--- L - - The Difference Engine / William Gibson and Bruce Sterling III, V, VI, VII, VIII, IX, X

I debated about putting this book on the booklist for two years, and on the new book-movie list for a year.. 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 it didn't really work at the time. -- But what if it had? 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. 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. 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.

Bladerunner (19xx) Harrison Ford, Rutger Hauer, Edward James Olmos • Hollywood thought we were too stupid to understand this movie, based on Phillip K. Dick's novella Do Androids Dream of Electric Sheep?, so they included this narration by Harrison Ford and tried to make a film noir movie have a happy ending. There was finally a Director's Cut released a few years ago, restoring lots of dialogue and scenes that had been replaced by voice-overs. Ford is a special type of cop, pursuing "replicants", manufactured people designed to work and fight in the off-world colonies and preprogrammed to die after a few years of service. They are given a lifetime of memories, though, and some escape their harsh work environment and try to blend in with real humans on Earth. Though why anyone wants to come to the dreary version of L.A. in this movie is anyone's guess – does it ever stop raining? If you think advertising is obnoxious now, wait til you see how they jazz things up "in the future". Very dark, very strange and very compelling film. By the way, the Bradbury Building's front facade figures prominently in several shots, and it has shown up in several other movies, including D.O.A. (I think in both the original and the remake.)

--- L - - Neuromancer / William Gibson III, V, VI, VII, VIII, X -or-

--- L - - Islands in the Net / Bruce Sterling III, V, VI, VII, VIII, X

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 with the promise and fall apart with some of the weight of all that high technology. If you ever saw the Harrison Ford movie Bladerunner, then 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 Crvstal Express and others), is kind of about hacker "cowboys" riding the wild range of cyberspace and generally poking their noses into places those big, evil, impersonal corporations would rather one didn't poke. Very much run like an action adventure movie and great fun; it's hard to keep score as to who the good/bad guys are. The recent movie Johnny Mnemonic is from a Gibson short story of the same name (included in a collection titled Burning Chrome), and is from the same series as Neuromancer. Islands in the Net, on the other hand, rings much closer to a possible 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 Age/healthy lifestyle slash global corporations slash Amway/entrepreneur slash liberal/socialist/good neighbor business system of our self-righteous heroine of the novel. If you read some of the history of computer 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 or whether he's making fun of it.)

New Combos for Fall 2002!

Enigma (2001) Dougray Scott, Kate Winslet • Watch carefully so you're not confused, there's a little of time shifting in the middle of scenes, but this is a swell movie about the code-breaking the British did at Bletchley Park during World War II. The Germans were so confident in the security of the Enigma coding machine, that throughout the war they were careless, and brilliant minds, including Alan Turing, devised clever ways to shorten the odds, including a semi-mechanical computer called "the bomb" – you can see and hear it ticking in several scenes. There are multiple story lines going on here, including some serious "going off the reservation" on some private missions, with plenty of danger of people getting caught where they shouldn't be, and some fine chases – but this is also a cerebral movie with a really good logical flow to how one breaks a code. And it is refreshing to see (in an non-American made film, naturally) a wonderfully quirky collection of geeks – these are my people! Mick Jagger (The Rolling Stones) helped produced this movie, and that's his own personal Enigma machine they're using. On a surreal level,

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if you've seen the movie *U-571*, you've seen the story of how they got the four rotor Enigma coding machine, except that Hollywood turned the Brits into Americans – which infuriated the Brits!

----- [Cryptonomicon](#) / Neal Stephenson (1999)
I,III,IV,V,VIII,IX
Oh, yeah, here's a real Dr. Phil book – 910 pages and includes zeta functions, equations with infinite sums, Perl scripts and an appendix with a coding scheme. It's technofiction, coupled with World War II code decryption, deceit and a mad pursuit of missing gold. It's modern, talking about computer networks, infrastructure, bandwidth, data havens and security issues. And Finns, MLA (Modern Language Association), Alan Turing, Bletchley Park, U-boats. Having read this book in July 2001, I found myself fully prepared to understand the collapse of Global Crossings. Mucho fun, but you've got to be a reader. (Dr. Phil devoured it in three days, in between other work.)

You could also combine *Enigma* with the movie of *A Beautiful Mind* to compare the reality of codebreaking with the schizophrenic delusion, plus there is another connection between the two movies.

A Futurist's Comparison: Pick two of these movies and talk about their vision of the future in terms of society and/or technology. Which of these technologies would you find irresistible? Which could you do without? How does this compare with the gadgets and toys of Spring 2006?

Minority Report (2002) Tom Cruise • Steven Spielberg's adaptation of this Philip K. Dick story is, I think, heavily influenced by his work on Stanley Kubrick's *A.I.* A previous Philip K. Dick story turned into film is the classic *Bladerunner* – both involve cops and interesting twists on crime. Both movies are visionary in their view of the future (and advertising technology!). Basic story involves the concept of "pre-crime", being able to see, through the "dreams" of three modified humans, crimes before they happen. The police then zip in and prevent the crime from happening, but also get the potential murderer off the streets. It raises some very hard questions about Rights in the U.S., and there are some uncomfortable comparisons with some of the investigative detentions that have occurred in the year since 9/11/2001 – which would not have been there when the film was being made...

A.I. (Artificial Intelligence) (2001) Haley Joel Osmont, Jude Law • Stanley Kubrick had this film in development for more than ten years, really waiting for technology to catch up so that he could film it seamlessly and make it look believable. Eventually he realized that he wouldn't live long enough to finish it and brought in Steven Spielberg to make the movie. The result is an odd amalgam. It is a Kubrick film, but with a Spielberg feel-good happier second ending. Basic story involves an artificial little boy brought into a family whose own boy is in suspended animation, awaiting a future cure, but the real question is one of what makes an intelligence a life? Kubrick's heavy hand can be seen in the ways that he makes the artificials real and the humans fake. A nice morality tale.

Bladerunner (19xx) Harrison Ford, Rutger Hauer, Edward James Olmos • See listing above...

Until the End of the World (1991) William Hurt, Solveig Dommartin, Sam Neill • See listing above...

A U-Boat Comparison: Pick two of these movies and talk about submarine technology – what you know and what you can learn from the movies.

Das Boot (The Boat) (2002) Jurgen Prochnow • There are multiple versions of this movie, which was originally a German TV mini-series. It is available long or longer, in English (a really BAD dubbing job) or in German with English subtitles. You really get a feel for the crew, nearly all of whom are Germans, but not Nazis. Still, you may catch yourself rooting for the "wrong" side from time to time. The only U-boat that exists in Chicago in the Museum of Science and Industry. The U-boat in *Das Boot* is based on careful analysis of the U-505 in Chicago.

U-571 (2000) xxxxxxx • The Allies need to get their hands on a German Navy four rotor Enigma coding machine and this sub crew goes out to steal one from a German U-boat. Then things get exciting... If you see this movie after *Das Boot*, it may seem eerily familiar. Hollywood also had to go to the U-505 in Chicago. But they chose to use wide-angle camera lenses, which gives the film a different look.

K-19: The Widowmaker (2002) Harrison Ford, Liam Neeson • Based on a true Cold War incident on a Soviet sub.

The combo list is not yet as extensive as Dr. Phil would like, so I am very interested in hearing about anyone's suggestions, especially for non-SF or non-military titles.

Don't bother asking to read other Clancy, Crichton or The Lost World (Jurassic Park 2). A: "No".

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!

This Version of the List Contains 42 (or so) Book Titles and About an Equal Number of Movies. Many of the Books 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 Titles Have Been Carefully Chosen. So If You Don't See Any Science In A Particular Title Rather Than Saying "I Don't See Any Science" Why Not Ask Yourself:

"Why Do You Think That Dr. Phil Put the Title On The List?"

Be Sure You Read The Assignment Sheet Carefully Before You Write Your Paper See This Handout for More Information About the Format for Papers!

In ALL the following pages, the term "booklist" refers to this "Book and Movie List", but that's too many words to use everywhere. Also, some combos are Book-Book or Movie-Movie, so adjust the words to suit.