

HISTORY 4830 (DHA)
THE STRUCTURE OF ENGINEERING REVOLUTIONS
Spring Semester 2009

Professor Tim Wolters (t.w@usu.edu)

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Class: Tuesday/Thursday, 1:30 PM - 2:45 PM, Eng Lab 248

Office hours: Mondays, 12:30 - 3:00 PM, Old Main 323F (or by appointment)

Course Description and Objectives:

This course takes an integrated approach to science and engineering, broadly defined, and is geared toward those who recognize that technical proficiency is only one of many skills necessary to succeed in the working world. It revolves around students' efforts to research and write the history of a major engineering project, new technology, technically oriented company, or scientific concept from multiple perspectives: technical, political, economic, and socio-cultural. Research will involve finding and using original sources, conducting written and/or oral interviews, and "looking over the shoulders" of inventors, engineers, and scientists. Students work in teams and make formal presentations of their research at the end of the semester.

The prerequisites for this course are: CIL - Spreadsheets, CIL - Electronic Presentations, ENGL 2010, and MATH 1050 or a higher-level course requiring MATH 1050 as a prerequisite. This course is intended primarily for juniors and seniors in the colleges of agriculture, engineering, natural resources, and science. If neither your major nor your minor gives you a significant level of technical proficiency, you likely will find this course very difficult and should think seriously about your decision to take it.

All students should be aware that this course requires a considerable amount of self-study and a willingness to work with others (60% of your final grade is based on collaborative work). If you desire a more traditional lecture-style class, then this course is not for you. On the other hand, if you want to employ an historical methodology to the types of projects you may encounter in the working world, this course should meet your expectations. Please note that HIST 4830 utilizes Rhetoric Associates (RAs) to help students improve their writing skills. With the exception of the first response paper, use of RAs for paper assignments is MANDATORY.

Required Reading:

Theresa M. Collins and Lisa Gitelman, *Thomas Edison and Modern America: A Brief History with Documents*, Boston: Bedford/St. Martins, 2002.

Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd edition. Chicago: University of Chicago Press, 1996.

David A. Mindell, *Digital Apollo: Human and Machine in Space Flight*. Cambridge, Mass.: MIT Press, 2008.

Edward R. Tufte, et al., *Visual Explanations: Images and Quantities, Evidence and Narrative*. Cheshire, Conn.: Graphics Press, 1997.

Requirements and Grading:

Three Response Papers (2-3 pages per paper) – 30% (i.e., each paper counts 10%)

Research Report – 10%

Final Presentation – 20%

Peer Evaluation – 10%

Class Participation – 10%

Final Research Report (apx. 20 pages) – 20%

The response papers are based on assigned readings, and must be written for three of the four books listed above. No extensions will be granted because I use your papers as part of class discussion, and a late paper obviously cannot be incorporated into the applicable class discussion.

Your preliminary research report, final presentation, and final research report will all be prepared collaboratively. In nearly all cases one grade will be given to all members of a group; however, I reserve the right to assign individual grades if it becomes obvious that a group member is not “carrying his or her weight.”

Disability Resource Center:

If accommodations for the course are needed, students should contact the Disability Resource Center, located in the University Inn, Room # 101 (797-2444).

Miscellaneous:

If you have not already done so, you should familiarize yourself with the university’s rules concerning academic honesty, available in the current catalogue (available on-line at <http://www.usu.edu/ats/generalcatalog/>). Any cheating, falsification, or presentation of another’s work as your own without proper credit being given (i.e., plagiarism) will result in an “F” and may lead to suspension or expulsion. If you are uncertain about what constitutes plagiarism, see me BEFORE turning in a given assignment.

University policy states that a student may receive an “I” only for extenuating circumstances, such as serious illness or a death in the family. An incomplete cannot be used to avoid a poor grade or to retain financial aid.

Course Schedule:

TUE, JAN 6 to TUE, JAN 20	No Classes – Independent Study	
THU, JAN 22:	First Paper Assignment Due Submit electronically to t.w@usu.edu	Kuhn, <i>Scientific Revolutions</i>
TUE, JAN 27:	Class Discussion of <i>Scientific Revolutions</i>	
THU, JAN 29:	The Project Selection Process	
TUE, FEB 3: THU, FEB 5:	Using Library Resources for Research Group Writing & Collaborative Work Second Paper Assignment Due	MC Library, Room #122 <i>Edison</i> , 1-62; 80-127
TUE, FEB 10: THU, FEB 12:	Case Study: Electric Light and Power Project Proposals/Research Plans	
TUE, FEB 17: THU, FEB 19:	Attend Monday classes In-Class Group Work	
TUE, FEB 24: THU, FEB 26:	In-Class Group Work Third Paper Assignment Due Class Discussion of <i>Digital Apollo</i>	Mindell, <i>Digital Apollo</i>
TUE, MAR 3: THU, MAR 5:	Research Report Overviews Due Progress Reports to the Class	<i>Teams A/B/C/D/E/F</i>
TUE, MAR 17: THU, MAR 19:	In-Class Group Work Fourth Paper Assignment Due Visual Materials & Argumentation	Tufte, <i>Visual Explanations</i>
TUE, MAR 24: THU, MAR 26:	In-Class Group Work Research Reports Due	
TUE, MAR 31: THU, APR 2:	Research Report Feedback In-Class Group Work	<i>All Teams</i>
TUE, APR 7: THU, APR 9:	Presentation Rehearsals Presentation Rehearsals Rehearsals to be held in AGSC 302	<i>Teams A/D/F</i> <i>Teams B/C/E</i>

TUE, APR 14: Individual meetings with RAs
THU, APR 16: Individual meetings with RAs

TUE, APR 21: Final Presentations *Teams A/D/F*
THU, APR 23: Final Presentations *Teams B/C/E*
Presentations to be done in AGSC 302

THU, APR 30: **Final Research Report Due**
Submit hard-copy no later than 3:30 PM (Old Main #323)

Team Personnel & Topics

Team A: Jensen, Lasslo, Mullen
Team B: Becenti, Griggs, Wise
Team C: Keller, Long
Team D: Dabb, Gardner, Roth
Team E: Bankhead, Koyle, Sharp
Team F: Anderson, Wheeler, Morgan

Team A: Space Dynamics Lab
Team B: Aeronautics & Aerospace Education at USU
Team C: Aggie Ice Cream
Team D: Idaho National Lab
Team E: Technologies of Old Main
Team F: Innovation Campus