

SCIENCE, TECHNOLOGY & SOCIETY 2400 / 002 — RAILROADS (CRN 8275)

FALL SEMESTER, 2009

Wednesday, 3:00 – 4:50 (J-130)

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Office Hours: Monday 3:30 – 4:30; Tuesday, 12:30 – 1:30 and 2:45 – 3:45;

Wednesday, 2:00 – 3:00 and 5:00 – 6:00; and by appointment

Preface:

This course is designed to be taught by faculty from the various disciplines represented among the SPSU faculty. Each faculty member who proposes a course chooses a topic from his or her own interest and training, and ideally a number of sections on multiple topics will be offered each term. Each course, no matter what its topic, must be built around the following master syllabus.

Course Description:

An interdisciplinary course exploring the development and integration, both historical and contemporary, of science, technology, and society. The course seeks to help students better understand the world in which they live, the broader implications of their major course of study, and the complex social, ethical, and moral choices presented by modern science and technology.

The automobile is undoubtedly the most destructive technology ever developed in the United States, having killed far more people than all of America's wars combined – more than 41,000 in 2007 alone. Despite the fatalities, and the time wasted in traffic jams, we consider cars to be a necessary evil, essential to our lifestyle. Yet, less than a century ago, few Americans owned cars, and relied instead on trains for their long-distance and even intra-city transportation. This course will provide a brief overview of railway development in the United States, illustrating the ways in which cultural and, above all, political forces shaped the adaptation of British railway technologies and the development of the American railroad network and its attendant regulatory apparatus. This is a particularly appropriate subject for students in Atlanta, a city formerly known as "Terminus," and one that was largely created by the railroads.

Railroads are not merely history, however, and the core of the course will focus on the resurgence of rail transportation in the United States, and its implications for metro Atlanta residents. Cities from Portland, Oregon, to Los Angeles, Dallas – Ft. Worth, and Miami have joined such traditionally "rail intensive" cities as New York, Philadelphia, and Chicago in providing a variety of commuter rail alternatives to highway travel. Despite growing freeway congestion, Atlanta lags well behind cities with far lower

populations. This course will examine why this is the case, beginning with a discussion of the ways in which the politics of race influenced the development of the MARTA heavy rail network. Teams of students will examine the four passenger rail options that are currently being contemplated in Atlanta – the Atlanta – Lovejoy commuter line, the so-called “Brain Train” linking Atlanta and Athens, the Beltline route in central Atlanta, and the Peachtree Streetcars, in an attempt to determine the political and social forces that are contributing to each of these projects. The course will include a rudimentary cost-benefit analysis of each of the four proposals, illustrating that the projects with the most appropriate technology and the greatest economic benefits may not be the ones that actually get built.

Learning Outcomes:

After satisfactorily completing this course, students will be able to:

1. Identify and evaluate competing views and the information supporting them.
2. Formulate their own opinions on complex issues and to communicate their views clearly in both written and oral formats, and support their position with relevant evidence.
3. Recognize the ways in which science and technology have been shaped by, and have helped to shape, society and culture.
4. Apply STS concepts to the scientific disciplines and technologies relevant to their majors.
5. Participate effectively in multidisciplinary groups.

Readings:

All readings are available through GeorgiaVIEW Vista 8 (formerly known as WebCT Vista), at <<http://www.spsu.edu/vista/>>. If you are unable to log into Vista, please inform the system administrator and the course instructor as soon as possible. The syllabus does not list the readings for each week, and these are also grouped into self-explanatory “folders” within Vista. Please keep in mind that some of the readings are more challenging than others, so you may need to re-read these assignments, employ a dictionary, etc.

Class Policies:

- Class attendance is expected, since there is a strong correlation between low attendance and low grades. I will take attendance. Any student who misses more than **TWO** classes, for whatever reason, will have **FIVE PERCENTAGE POINTS** deducted from their overall course grade for **EACH** absence after the initial two. Each lateness of more than ten minutes will count as one third of an absence. Out of respect for your fellow students, any student who misses class, without an acceptable excuse, on one of the presentation days (November 11, November 18, December 2, and December 9), will have 5 points (one-half of a letter grade) deducted from their overall course grade for each missed presentation day, irrespective of the number of absences accumulated in the course thus far.
- Please refrain from private conversations in class—if you have a question, ask the instructor, not your neighbor.
- Turn off all cell phones, pagers, etc., before entering the classroom.
- **Any student using a cell phone or similar device during class (except to turn it off) will have his / her course grade reduced by one letter grade for each infraction.**
- Tape recorders and calculators are not permitted, except under extraordinary circumstances, and only with the prior permission of the instructor. **Laptop computers are not permitted under any circumstances.**
- Students may not, under any circumstances, work on material from any other course during class time.
- All exams, quizzes, etc., will be given at the beginning of class. Students who arrive late to class will NOT receive additional time in which to complete these assignments.
- Once an exam, quiz, etc., has begun, students may NOT leave the classroom for any reason before they complete that assignment.
- Pay attention to the withdrawal date – I will not authorize any withdrawals (with a “W”) after this date, except under extraordinary circumstances, that are clearly beyond the student’s control.
- Please do not request extra credit – each student is judged by the quality, and not the quantity, of their work.
- **If you do not agree with the policies listed above, then you should not take this course.**
- Any student who has a learning disability should see me as soon as possible.
- By taking this class, you agree to abide by all of the conditions listed above, as well as all relevant SPSU regulations.

Student Responsibilities:

- 1.) Attend class
- 2.) Listen actively
 - a.) Prioritize information
 - b.) Take notes
 - c.) Formulate questions
 - d.) Contribute to discussions
 - e.) Demonstrate interest and enthusiasm
- 3.) Invest 2-3 times outside of class (4-6 hours per week in addition to time spent in class)
 - a.) Read the assignments
 - i. Build your vocabulary – **use a dictionary**
 - ii. Reread, if necessary
 - iii. Take notes on the readings – mark up your books
 - b.) Recopy notes
 - c.) Outline notes
 - d.) Integrate notes covering lecture, discussion, text, and supplemental readings
 - e.) Study regularly

Grading:

Your final grade will consist of the following:

Class participation (10%) – Note that class *attendance* is NOT the same as class *participation!*

Quizzes (20%) – These quizzes, six in all, on the dates listed below, will cover assigned readings for that week, as well as the material presented in class the previous week.

Three papers: Each of the three papers must conform to the following basic guidelines (additional details provided in class):

- 1.) They must be typed or word-processed, double-spaced, in 12-point font.
- 2.) They must be based on at least six RELIABLE sources, and no more than half of your sources may be internet-based (although you should keep in mind that many “text” sources, such as newspaper and journal articles are available on-line, but are not considered specifically web sources – the key test is, is there a

- paper-based source, somewhere, that replicates and backs up what you are reading on the computer screen?)
- 3.) You must cite your sources, either parenthetically, or with endnotes, or with footnotes
 - 4.) You must provide a bibliography in a standard, consistent format (Turabian, APA, etc.).
 - 5.) You must avoid plagiarism at all costs. We will talk about this at greater length in class, but keep in mind that even inadvertent or unintentional plagiarism is unacceptable. The first time that I see any evidence of plagiarism in any student's paper, I will invite the student to rewrite the paper to fix the problems, with the understanding that the maximum grade that the student can receive on the rewritten paper is 50 percent (i.e., a rewritten "B" paper will earn a 42.5, rather than an 85). The penalty for a second offense is an automatic grade of "F" in the course.
 - 6.) All papers are due at the beginning of class on the day for which they are assigned. Any late paper will be penalized 10 points (one letter grade) for each day (or portion thereof) that it is late.

First paper: *Wednesday, September 30* (10%) – Describe the now-vanished rail-based public transit that existed in the Los Angeles area, paying particular attention to the Pacific Electric interurban network and the Los Angeles Railway (LARY) streetcar system. When were these built, and why? Who financed (i.e., paid for) the construction and operation of these lines? Who rode these lines? What happened to them? In your paper, be certain to discuss and assess the "truthiness" of the theory that General Motors killed the Pacific Electric. If GM didn't kill the Pacific Electric and LARY, then who or what did? The paper must be approximately 2,500 words in length (about eight pages), but no fewer than 2,000 words, nor more than 3,500 words. **This is a group project, and each of the members of your project team must be prepared to discuss the team's findings in class. Each team member will collaboratively grade the other members of his / her team.**

Second Paper: *Wednesday, October 21* (15%) – Describe the reincarnation of rail-based public transit in the Los Angeles area. Why were these lines built (i.e., what positive externality or "social good" are they supposed to achieve)? Have they been successful or unsuccessful in attaining these goals? Does an estimate of "success" or "failure" depend on the way in which that question is defined, and the criteria that are being used? What alternatives were there, if any, to the construction of new heavy rail lines in the region? Who is financing (i.e., paying for) the construction and operation of these rail lines? Has this been a good use of stakeholder resources? Who rides these lines? How similar is L.A. to Atlanta, and might something similar to the new LA rail system work here? The paper must be approximately 2,500 words in length (about eight pages), but no fewer than 2,000 words, nor more than 3,500 words. **This is a group**

project, and each of the members of your project team must be prepared to discuss the team's findings in class. Each team member will collaboratively grade the other members of his / her team.

Third Paper: *Wednesday November 11, with in-class presentations scheduled for Thursday, October 30 and Thursday, November 6* (20%, half for the paper, half for the in-class presentation) – Each student will be assigned a city in North America or Europe. Briefly describe the history of that city's rail transit system. Why was this particular system built (i.e., were there any alternatives to a rail-based mass-transit system)? The bulk of the paper should focus on the present day operations of that city's rail transit infrastructure. How many people does the system carry, in absolute numbers, as a percentage of SMSA (Standard Metropolitan Statistical Area) population, and relative to other modes of transport? How expensive is the system to operate, both in absolute dollar / euro / pound terms, in terms of cost per rider, and relative to the overall SMSA population? How much of the cost of operation is funded by farebox receipts? Does this system make money? Who provides funding for the system? What types of positive externalities, if any result from the operation of the mass transit system? Does this system provide any lessons for the people of Atlanta? The paper must be approximately 1,000 words in length (a little over three pages), but no fewer than 750 words, nor more than 1,500 words. **This is an individual assignment. In addition to writing the paper, each student will present his / her findings to the rest of the class in a presentation, approximately five minutes in length, on one of the two dates listed below.**

Final Project, in-class presentations scheduled for *Wednesday, December 2 and Wednesday, December 9* (25%) – The final project includes three assessment components. **FIRST**, I will assess your oral presentation (one-half of the project grade, or 15% of the course grade). **SECOND**, each member of each presentation team will assess every other member of that presentation team, using a questionnaire that I will provide (one-fourth of the project grade, or 7.5% of the course grade). **THIRD**, each audience member will assess each presenter, using a questionnaire that I will provide (one-fourth of the project grade, or 7.5% of the course grade). I will divide the class into four teams of 6-7 students apiece. Each team will analyze one of the four passenger rail options that are currently being contemplated in Atlanta – the Atlanta-Lovejoy commuter line, the so-called “Brain Train” linking Atlanta and Athens, the Beltline route in central Atlanta, and the Peachtree Streetcars. Each team will deliver a 45-minute (approximately) presentation on one of the dates listed above, with each student speaking for approximately five minutes. Students in each team will be responsible for developing and organizing their presentation. Each team will elect a leader, who will be responsible for coordinating that team's activities, introducing the topic and the presenters to the rest

of the class (i.e., the audience), and coordinating whatever multimedia technology that the team might wish to employ. It is also the leader's responsibility to determine the majors (or intended majors) of each team member, in order to ensure that each team member is able to explore a sub-topic that pertains to that major. In other words, an architecture major might explore the ways in which the Beltline would affect residential patterns in central Atlanta, while a Computer Science major might discuss the development of automated control and signaling systems that could regulate LRV (light-rail vehicle) traffic along the Beltline corridor. Additional details on the course project will be provided later in the semester.

Grading Scale:

89.5%-100%	A
79.5%-89.4%	B
69.5%-79.4%	C
59.5%-69.4%	D
Below 59.5%	F

Make-up Policy:

Make-up assignments are inherently unfair to all concerned, and I try to avoid them whenever possible. However, students with a legitimate excuse (serious illness, death in the family, etc.) may certainly make up a missed assignment. If you anticipate missing ANY assignment, you *must* contact me *prior* to the scheduled date and time of this assignment (e-mail is preferable in this case). Failure to do so will result in an automatic grade of zero for that assignment. Make-up assignments will only be given to those students who can *document* a serious medical emergency or personal crisis.

Academic Misconduct:

Academic misconduct (i.e., cheating) is not just unfair to your fellow students; it also deprives you of the opportunity to learn the information and, more importantly, the knowledge skills that will serve you long after you have left college. At its most basic level, all exams are closed book, and no books, notes, or other study aides will be allowed during exams. If you are unsure as to the precise meaning of academic misconduct, then you should discuss the issue with me. All students should be aware that I might use plagiarism detection and prevention services (such as turnitin.com) that may archive examples of student work. Any student who considers such practices to be a violation of fair use doctrine should not take this course.

Schedule of Readings and Assignments:

- August 26 Class introduction – no readings or other assignments
- September 2 *Railroads: Past, Present, or Future Tense?*
QUIZ
Readings:
- Thomas T. Taber and Mark Reutter, “Century Gone”
 - Robert C. Post, “Images of the Pacific Electric: Why Memories Matter”
 - Jay Palmer, “Ticket to Riches”
 - Dan Chapman, “Big Time for Trains”
 - Gregory L. Thompson, Jeffrey R. Brown, Rupa Sharma, and Samuel Scheib, “Where Transit Use is Growing: Surprising Results”
 - John Semmens, “Are Benefits of Light Rail Worth Sacrifices of Forgone Bus Service?”
- September 9 *Industrial Statesmen or Robber Barons?*
QUIZ
Readings:
- Frank Norris, *The Octopus: A Story of California*
 - Richard Orsi, *Sunset Limited*
 - Alfred D. Chandler, Jr., “The Railroads: Pioneers in Modern Corporate Management”
- September 16 *Working on the Railroad*
QUIZ
Readings:
- Steven G. Collins, “Progress and Slavery on the South’s Railroads”
 - Mark McGarvie, “A Comparative Case Study of Immigrant Contract Labor on the Milwaukee Road”
 - Linda Niemann, “Railroad Women”
 - Linda Niemann, “The Hospital Yard”
- September 23 *What did Diesels do?*
QUIZ
Readings:
- Albert J. Churella, “Business Strategies and Diesel Development”

- Lucy Taksa, “About as Popular as a Dose of Clap’: Steam, Diesel and Masculinity at the New South Wales Eveleigh Railway Workshops”
- Mark Aldrich, “The Contribution of the Diesel Locomotive to Trainmen’s Safety on U.S. Railroads, 1927-1954”

September 30 First Paper due

October 7 Discussion of First Paper

October 13 (Tuesday) Last day to drop a course without a grade of WF

October 14 Out-of-class assignment preparation day

October 21 Second Paper due

October 28 *Welcome to Atlanta*

QUIZ

Readings:

- Robert D. Bullard, Glenn S. Johnson, and Angel O. Torres, eds., *Sprawl City*
- Larry Keating, *Race, Class, and Urban Expansion*
- Clarence N. Stone, *Partnership New South Style: Central Atlanta Progress*
- Kevin M. Kruse, *White Flight: Atlanta and the Making of Modern Conservatism*

November 4 *The Japanese [Railway] Miracle*

QUIZ

Readings:

- W. Dean Kinzley, “Merging Lines: Organising Japan’s National Railroad, 1906-1914”
- Roderick A. Smith, “The Japanese Shinkansen: Catalyst for the Renaissance of Rail”

November 11 Third Paper due from ALL students

First round of student presentations for Third Paper

November 18 Second round of student presentations for Third Paper

November 25 Thanksgiving Holiday – no class

December 2 Final Project presentations, teams 1 and 2

December 9

Final Project presentations, teams 3 and 4