HIST 2EE3: Science & Technology in World History

Dr. Michael Egan
egan@mcmaster.ca
@EganHistory
http://eganhistory.com
phone: (905)-525-9140 x.24134
office: CNH 610
office hours: by appointment

Course Description:
We live in a world dominated by science and technology. Science has become an integral part of human cultures and the single most accepted authority of knowledge. Similarly, technology—tools and the practical application of scientific knowledge—has always been a critical feature of human history. We cannot escape science and technology's ubiquity or their importance to our everyday lives. As a result, it behooves us to better understand our historical relationship with these social structures. History 2EE3 serves as an introductory survey of the histories of science and technology. It will examine how science and technology have shaped human history and how society and culture have shaped the production and consumption of science and technology over time.

This course traces the major social and cultural themes in the history of science and technology using a global perspective, following the transfer of knowledge and machines over time and between cultures. Emphasis will be put on the social impact of science and technology, rather than on the evolution of specific or technical scientific knowledge. Put another way, students will not be expected to have (or, indeed, should not expect to acquire) scientific expertise beyond a rather basic level. Some background in science or engineering may, of course, prove valuable, but the focus of this course will concentrate on science and technology's influences on societies and social influences on science and technology through time and space. As a result, students will be challenged to think about the world in unorthodox patterns and to try to piece together comparative histories through themes and relationships that might serve as tools for evaluating the manner in which science and technology have played a critical role in shaping the human condition.

Course Objectives:
Science & Technology in World History contains a series of learning outcomes.

• **Introduction to the histories of science & technology** The course is primarily an introductory survey of science and technology's place in world history. Students will be explore a variety of themes pertaining to knowledge and machines over time and place.

• **Close reading of secondary sources** The main thrust of this course is content comprehension. Students will learn to read and analyze scholarly articles.

• **Development of writing & communication skills** Effective communications skills will be stressed and developed in HIST 2EE3, with emphasis on training effective university writing skills. Course writing assignments are designed to ensure regular practice of writing skills and timely feedback.
**Grade Breakdown:**
Lecture Quizzes: 20%
Collaborative Discussion Participation: 20%
Short Writing Assignments: 20%
Podcast Assignments: 20%
Final Exam: 20%

**Required Texts:**
Custom Courseware package

**Lecture Quizzes:**
Each substantive lecture will conclude with some multiple choice questions designed to demonstrate comprehension of course content. These must be completed by the end of the week that follows the week during which the lecture is released. See the course schedule below. For example, lecture quizzes for “The Greek Miracle” and “Roman Planning” must be submitted by 23:59 on 23 September. **Note the week’s lag between lecture viewing and quiz deadline.** MSAF protocols will not be accepted for this assignment.

**Collaborative Discussion Participation:**
In order to replicate the in-class tutorial experience, students will engage with each other over pre-arranged questions on Avenue discussion boards pertaining to Langdon Winner’s “Do Artifacts Have Politics?” and Thomas Misa’s “Science and Systems, 1870-1930” articles. The discussion and student participation will be evaluated on the Monday after the week’s discussion. Students will subsequently prepare a podcast review of the article, which can draw on their reading and the online conversation. **Since it is not possible to make up this work after the fact, MSAF protocols will not be accepted for this assignment.**

**Short Writing Assignments:**
Students will write short analysis papers (no more than 500 words each) on the articles so indicated in the course schedule below. No external research is required—or encouraged. See below for further instructions on writing review essays. Of the three review essay opportunities, the top two will count toward the final score. This means students need only write two, though they are encouraged to write all three to replace a weaker grade if necessary. **Note, too, that MSAF protocols will not be accepted for this assignment.**

**Podcast Assignments:**
The week following the two collaborative discussion readings, students will prepare and submit a podcast review of the article. The podcast should adhere to standard essay writing expectations, and contain an introduction, a thesis statement, a series of supporting arguments, and a conclusion. Podcasts should not be more than 5 minutes long. The exercise—podcasting rather than writing—aims to serve various purposes:
1. it challenges students to approach their work through a novel lens;
2. it means to help students work toward greater clarity and focus in their communication;
   and
3. it introduces students to new media and how to use them effectively.
For these reasons, I will not substitute this assignment for written work. Students are required to learn the technical skills necessary to produce the podcast. Technophobia is a poor excuse in a course on the history of science and technology.

For the sake of organization, podcasts should probably be read. While style and elocution will not form part of the grading rubric, students are encouraged to think about being lively in their presentation. Creative and ambitious students are invited to play with the medium and use to their benefit.

**On Effective Writing & Communication:**
Succinct writing is a difficult skill to master, but students are required to identify the key questions and arguments in each essay under examination and to engage with its content in a manner that demonstrates careful reading and understanding. These short assignments should be written in formal essay format, with an introduction and thesis statement, a body that seeks to support and demonstrate your argument, and a conclusion that brings closure to your essay. Brevity and efficiency are key. Students should avoid summarizing the articles and concentrate instead on engaging in analysis that links the essays to the themes of this course. Stress analysis over summary. For an effective distinction between the two, see:


Avoid tackling themes that are too big to cover within the confines of these short papers. Papers that try to do too much tend to be vague and lack substance and/or supporting evidence. These tendencies will be reflected in students receiving a lower grade. Be sure to ground analysis in the articles and their relationship to science and technology in world history. Since effective writing and communication skills are essential in history and most all jobs you may have after graduation, the short writing assignments will require careful attention to style and clarity, as well as the quality of your analytical work. Though short, I expect all written assignments to be typewritten in coherent English. Spelling, grammar, and originality all “count.” Formal academic style and conventions should be used (no point form; contractions; colloquialisms; slang, etc.). For students who are concerned about writing mechanics or are unclear on how to present an effective thesis statement, I can recommend Leslie E. Casson’s *A Writer’s Handbook*, which is concise, accessible, inexpensive, and widely available. When citing authorities—ie. the essay under review—a parenthetical page number will suffice. Students should refrain from using outside sources in these short assignments; the primary aim is to engage with the essay in question.

All assignments must be submitted on Avenue by 23.59 on the date they are due (refer to the class & reading schedule below) in .doc or .docx formats.

If you have difficulty with any of the assignments, speak with your tutorial instructor **before** the assignment is due.
Late Assignment Policy:
Deadlines are firm. Because computers and printers invariably tend to crash at exactly the point when assignments are due, students are strongly encouraged to avoid waiting until the last minute. Technology glitches do not constitute a satisfactory excuse for late submission in a course on the history of science and technology. The same applies for the collaborative discussions. Since the syllabus and course schedule is available to students in advance, I recommend that you begin readings early in order to avoid any untimely illnesses or other misadventures.

Final Exam:
A week-long, take-home final examination will take place during the end-of-semester exam period. The exam will consist of a single essay question that treats course content (from lectures and readings). Students will write a 2000 word response by 23.59 on the deadline indicated in the exam instructions.

E-mail Communication:
It is the policy of the Faculty of Humanities that all e-mail communication between students and instructors (including TAs), and from students to staff, must originate from their official McMaster University e-mail accounts. This policy protects the confidentiality and sensitivity of information and confirms the identities of both the student and instructor. History Department instructors will delete messages that do not originate from McMaster e-mail accounts.

Please do not contact me using the Avenue Mail. I will occasionally send a message to the entire class through that medium, but I do not check my Avenue mail frequently. Instead, send me an e-mail to my regular McMaster address (egan@mcmaster.ca) from yours.

Note, too, that I mean to keep fairly strict e-mail hours. Do not expect a reply to your e-mail between 20.00 and 9.00. And do not expect to receive an e-mail reply on weekends. Which is to say: if you have a pressing question or concern, do not leave it until 21.00 on Friday evening to send me a message. I endeavour to reply to e-mails promptly—especially those that are time sensitive—but I apologize in advance if it takes more than a couple of days to reply.

Modifications to Course Outline:
The instructor and university reserve the right to modify elements of the course during term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster e-mail and course websites weekly during the term and to note any changes.
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Video Lectures</th>
<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>6-9 Sept</td>
<td>• Course Introduction</td>
<td>• McClellan &amp; Dorn, 1-46</td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>12-16 Sept</td>
<td>• The Greek Miracle • Roman Planning</td>
<td>• McClellan &amp; Dorn, 46-114</td>
<td>Discuss Winner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Science in Islam • Technological Transmissions in Asia • Measuring Time in the Americas</td>
<td>• Winner, “Do Artifacts Have Politics?”</td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>19-23 Sept</td>
<td>• Science in Islam • Technological Transmissions in Asia • Measuring Time in the Americas</td>
<td>• McClellan &amp; Dorn, 115-194</td>
<td>Winner podcast due 23 September</td>
</tr>
<tr>
<td>Week 4</td>
<td>25-30 Sept</td>
<td>• The Myth of the Dark Ages I • The Myth of the Dark Ages II</td>
<td>• McClellan &amp; Dorn, 195-222 • White, “Stirrup, Mounted Shock Combat, Feudalism, and Chivalry”</td>
<td>White review due 30 September</td>
</tr>
<tr>
<td>Week 5</td>
<td>3-7 Oct</td>
<td>• The System of the World: Alchemy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>17-21 Oct</td>
<td>• Empire &amp; Exploration • Leonardo Da Vinci</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 7</td>
<td>24-28 Oct</td>
<td>• Early Modern Astronomy • Galileo &amp; the Heavens</td>
<td>• McClellan &amp; Dorn, 223-267</td>
<td>B. R. Cohen’s Annals of Science, Volume XII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• B. R. Cohen’s Annals of Science, Volume XII</td>
<td></td>
</tr>
<tr>
<td>Week 8</td>
<td>31 Oct-4 Nov</td>
<td>• The Scientific Revolution I • The Scientific Revolution II</td>
<td>• McClellan &amp; Dorn, 268-296 • Shapin, “Pump and Circumstance: Robert Boyle’s Literary Technology”</td>
<td>Shapin review due 4 November</td>
</tr>
<tr>
<td>Week 9</td>
<td>7-11 Nov</td>
<td>• The Chemical Revolution • Steam &amp; Technology</td>
<td>• McClellan &amp; Dorn, 297-348</td>
<td>B. R. Cohen’s Annals of Science, Volume I</td>
</tr>
<tr>
<td>Week 10</td>
<td>14-18 Nov</td>
<td>• Gender, Race, &amp; Science</td>
<td>• Schiebinger, &quot;Why Mammals Are Called Mammals: Gender Politics in Eighteenth-Century Natural History&quot;</td>
<td>Schiebinger review due 18 November</td>
</tr>
<tr>
<td>Week 11</td>
<td>21-25 Nov</td>
<td>• The Age of the Earth &amp; Evolution • The Rise of the Automobile</td>
<td>• McClellan &amp; Dorn, 349-400 • Misa, “Science &amp; Systems, 1870-1930” • B. R. Cohen’s Annals of Science, Volume VIII</td>
<td>Discuss Misa</td>
</tr>
<tr>
<td>Week 12</td>
<td>28 Nov-2 Dec</td>
<td>• The Bomb &amp; the Helix • The Complex</td>
<td>• McClellan &amp; Dorn, 401-453</td>
<td>Misa podcast due 2 December</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• B. R. Cohen’s Annals of Science, Volume IX • B. R. Cohen’s Annals of Science, Volume II</td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td>5-7 Dec</td>
<td>• The New Age of Computing • The Science of Survival</td>
<td>• McClellan &amp; Dorn, 454-484</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• B. R. Cohen’s Annals of Science, Volume V</td>
<td></td>
</tr>
</tbody>
</table>
Statement of Academic Integrity and Dishonesty:
McMaster University and the Department of History states unequivocally that it demands scholarly integrity from all its members. Academic dishonesty, in whatever form, is ultimately destructive of the values of higher learning; furthermore, it is unfair and discouraging to those students who pursue their studies honestly.
Academic dishonesty consists of misrepresenting by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.
It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at: http://www.mcmaster.ca/academicintegrity/

The following illustrate only three of the various forms of academic dishonesty:
1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

Plagiarism and any other form of academic dishonesty will not be accepted in this course. If you are at all unsure what constitutes plagiarism, please consult with your tutorial instructor.