CLASSICAL STUDIES 384
GREEK AND ROMAN SCIENCE AND TECHNOLOGY

Course: CLAS 384
Time: Fall 2017, M-W-F 12:30-1:20pm. Room ML 349.
Prof.: Dr. Craig Hardiman.
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Phone: 888-4567, ext. 37505 (secretary 32377).
Off. Hours: ML 229, M-W-F 2:00-3:00 (or by appointment).

Purpose:
This course presents topics ranging from the origins of scientific thought and method in Greek Ionia in the sixth century BCE to Roman agriculture and engineering. The early weeks of study will center on the Greeks' scientific achievements, especially in such fields as medicine and the natural sciences, while the later part of the course will concentrate on Roman technological methods in detail, including power-sources, manufacturing and distribution of consumer goods. Such varied aspects of ancient society as types of transport, labour problems, intensive mixed and cash-crop farming, building techniques, mining and metallurgy will also be examined.

Learning Outcomes and Course Objectives:
The main objective of this course is for students to gain a basic familiarity with the major trends in ancient Greek and Roman scientific thought and technological application. In addition to learning the basic facts, the student will learn to place the material studied in its appropriate cultural, historical and archaeological contexts. By the end of the course, the student should be able to recognize the basic facts and be able to synthesize these facts into a broad understanding of ancient scientific thought and application. The writing assignments (exams, essay) will help to develop the students’ research and analytical skills. By the end of this course, students should be able to understand the seminal position antiquity holds in the development of western pure and applied sciences.

Texts:

Classes will begin with Rihll 1999 and follow chapter sections in that text. You should then read Rihll 2013 as a general guide. We will then switch to Humphrey et al. [hereafter referred to as HOS] and follow selected readings in that text. There will be copies on reserve in the library.
Requirements:

Mid-term (Oct. 13): 25%
Essay/Project (Nov. 17): 35%
Final Exam (2 hour): 40%

The mid-term will cover material from the beginning of class until the exam (up to and including Oct. 6th). It will consist of both short answer (terms to identify) and short essay questions. The final will be held during the final exam period and will be scheduled by the Registrar’s office. It will cover material from the whole course and consist of short answer (terms to identify) and longer essay questions. Please make sure that you have no conflicts with these dates. No make-up exams will be given without valid medical documentation and I must be notified of such cases before the exam.

Essay:

* NO LATE ESSAYS WILL BE ACCEPTED – ANY PAPER NOT HANDED IN AT THE END OF CLASS ON NOV. 17TH WILL BE ASSIGNED A GRADE OF “0”.

The essay for this class should explore some aspect of Greek or Roman Science or Technology and rely as much as possible on the ancient sources (written and archaeological). The essays should be approximately ten pages (ca. 2500 words) and be appropriately researched. I strongly suggest that you take a look at the department’s web resource to help you with your essay writing and research (http://www.classics.uwaterloo.ca/essays.htm). If you plan to use web based resources in addition to library materials, you should be wary as many are unscholarly. Any material that you do use must be cited with its URL and I ask that you attach a copy of the site’s front page at the back of your essay. You may choose one of the following as your essay topic, but if you would like to write on something else, feel free but clear the topic with me first.

1. Discuss the types and effectiveness of clocks and time-keeping devices in antiquity.
2. Discuss the Pneumatics of Hero of Alexandria. How practical were his ideas?
3. Discuss the olive, from planting to harvesting through production, transport and sale.
4. Discuss the importance and benefits of concrete as a building material for the Romans.
5. Discuss the types and techniques of Roman domestic house construction.

You may also choose to build a model of some piece of ancient technology (catapult, Archimedian screw, ballista, etc.) instead of writing a research paper. This model must still be researched and be as faithful to the ancient prototype as possible (some modern materials like nails may be used). It should also be a working model and so be able to launch things, move water, etc. Your model should be accompanied by a three page paper describing the ancient and modern sources you used and describe your building process: how did you go about making it, what surprises or problems did you encounter? If we have enough projects, we will take a class to go out on the field and try these models in action.
Academic Integrity:

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

**Discipline:** A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline: http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4: http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm

**Appeals:** A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals: http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

**Academic Integrity website (Arts):** http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html

**Academic Integrity Office (UW):** http://uwaterloo.ca/academicintegrity/ 

**Note for students with disabilities:** The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

**Note:** students must be given a reasonable option if they do not want to have their assignment screened by Turnitin. For more information, see: http://uwaterloo.ca/academicintegrity/ Turnitin/index.html
Tentative Schedule:

Week 1 (Sept 8): Introduction
Week 2 (Sept 11-13-15): Introduction and Greek Science/Physics (Rihll, chpts. 1, 2).
Week 3 (Sept 18-20-22): Math, Astronomy and Geography (Rihll, chpts. 3, 4, 5)
Week 4 (Sept 25-27-29): Biology and Medicine (Rihll, chpt. 6).
Week 5 (Oct 2-4-6): Agriculture and Food Processing (HOS 75-171).
Week 6 (Oct. 9-11): *No Classes (Thanksgiving & Fall Study Break)*
Week 7 (Oct. 13): *Mid-Term.*
Week 8 (Oct. 16-18-20): Land and Sea Transport (HOS 409-421, 442-483)
Week 11 (Nov. 6-8-10): Construction and Hydraulic Engineering Continued.
Week 14 (Nov. 27-29 – Dec. 1): Gadgets (HOS 56-74)

*Note:* This lecture schedule will be revised as needed over the course of the term.