

Ancient Technology

Honors Seminar IV, FIU Honors College
(IDH 2004-U01)
Spring Semester 2019

Instructor: Dr. Jill Baker
Office location: DM 233, (305) 348-4100
Office hours: By Appointment
or find me in the café over Borders Bookstore in GC before class.

Tuesdays and Thursdays, 11.00 a.m. to 12.15 p.m.
Classroom: GC 273A
email: jibaker@fiu.edu

Purpose of the Course: The purpose of this class is to explore ancient technology and engineering. Thanks to archaeological excavation, monumental buildings, gates, city walls, roads, and ships have been discovered. These sometimes-gigantic structures were constructed without the benefit of bull dozers, cranes, lifts, drills, or any of the modern tools with which we are familiar. So, how did the ancient people move materials and build these amazing things? This class seeks to elucidate the ingenuity of the ancient mind in order to understand their technology which in turn will help us to better understand our own and apply these, and new, ideas to the future. Questions that will be addressed include what the ancients knew, when and how did they know it; what machines and tools did they use and for what purposes; how does technology and engineering help society advance; how can we apply these principles to our world and to the future?

Spring Semester: The smaller things – machines, maritime transportation, terrestrial transportation, medicine, time-keeping, etc.

Grading:

Analytical Essays (three sets) – 16.66% each (50% total).

Research Project – 50%

Class attendance is required and will be considered when grading, unless prior arrangement is made.

Assignments submitted late, without prior arrangement, will be penalized – reduced by half of a letter grade if submitted after the stated deadline but on the same day and by one letter grade for every day it is late after the stated deadline.

Required Reading: (Available from Amazon, AbeBooks.com, or FIU Bookstore).

Books for Spring Semester:

- Jill L. Baker. *Technology of the Ancient Near East. From the Neolithic to the Early Roman Periods*. 2018. ISBN: 978-0-815-39369-6 (paperback).
- John W. Humphrey, John P. Oleson and Andrew W. Sherwood. 1998 *Greek and Roman Technology: A Sourcebook. Annotated Translations of Greek and Latin Texts and Documents*. ISBN: 978-0415061360.
- J. G. Landels. *Engineering in the Ancient World*. 2000 (revised edition). ISBN: 978-0520227828.
- John Peter Oleson. *The Oxford Handbook of Engineering and Technology in the Classical World*. Oxford University Press. 2008. ISBN: 978-0199734856.
- Vivian Nutton *Ancient Medicine*. 2013. ISBN: 978-0415520959.
- John F. Nunn. *Ancient Egyptian Medicine*. 2002. ISBN: 978-0-8061-3504-5.

Canvas: Note: articles, Lectures, essay questions, etc. posted to Canvas under “Files” on Homepage.

- A. B. Knapp and S. W. Manning, Crisis in Context: The End of the Late Bronze Age in the Eastern Mediterranean.
- E. Paszthory, “Electricity Generation or Magic? The Analysis of an Unusual Group of Finds from Mesopotamia.”
- Shortland et. al. Chapter 4. By I. Shaw. “Egyptians, Hyksos and Military Hardware: Causes, Effects or Catalyst?”
- Shortland et. al. Ch. 9. Gold Granulation: Exploring the Social Implications of a Prestige Technology in Bronze Age Mediterranean.
- A. K. Thomason, Her Share of the Profits: Women, Agency, and Textile Production at Kültepe/Kanesh in the Early Second Millennium BC.

Recommended:

- Lionel Casson. *Ships and Seamanhip in the Ancient World*. 1995 (updated from 1971). ISBN: 978-0801851308. Available in the library and online.
- Henry Hodges. *Technology in the Ancient World*. 1997 (reprinted from 1970). ISBN: 978-0880298933.

Mobile phones, tablets, computers must be silenced and put away during class.

Analytical Essays (three sets, 16.66% each, 50% total):

1. **31 January 2019** – questions handed out in class. Essays due **Tuesday, 5 February 2019** in class as printed copy.
2. **28 February 2019** – questions handed out in class. Essays due **Tuesday, 5 March 2019** in class as printed copy.
3. **4 April 2019** – questions handed out in class. Essays due **Tuesday, 9 April 2019** in class as printed copy.

There will be three sets of analytical essays in each semester, each occurring at the end of a major section. The purpose of these is to facilitate the process of review, critical thinking, and to synthesize the data a meaningful way. These are meant to be mini-research papers, so proper documentation from the readings, lectures, documentaries is a must.

On essay days, class will consist of an overall discussion regarding the topics covered up to that point. During class the topic(s) for analysis will be distributed. After class, you will have plenty of time to write your analysis and commentary in response to the distributed analytical queries. Your work will be due in the following class as a printed copy. If arrangements have been made for an alternate due date, essays can be sent to me via email as a PDF at my FIU address jibaker@fiu.edu.

Grading will focus on one's use of the material, one's ability to describe and analyze the material, and the manipulation of the data into the discussion and use of it to support your statements. It will also include the ability to synthesize the material into the broader aspects discussed in class and relate it to present-day contexts. Grading will also focus on proper and frequent documentation of abovementioned resources.

Use of class notes, readings, and videos are permitted and proper reference must be documented in your text. The internet may **NOT** be used for this portion of the class. This is **NOT** a group project. You may discuss the questions with classmates; however, the work you submit must be your own, not somebody else's and not the result of a group effort. This is your time to shine! Be creative and be thoughtful!

Research Project (50%): Project discussion and Guidelines handout on Tuesday, 5 February 2019.

- Topic proposals: an outline and annotated bibliography, due **Tuesday, 19 February 2019**. (10%).
- Presentation dates will be determined during class on **Tuesday, 5 March 2019**. (15%).
- Research Project due **Thursday, 25 April 2019**. (25%).

The research component of this course may be in the form of a paper **or** a constructed model and summary paper. The topic can be mechanical, or conceptual but not harmful. Discussion points will include the item's original purpose; building or manufacturing techniques; whether there is a modern equivalent; if it is lost technology discuss why it went out of use and whether it would be useful to reinstate its use today; its impact on society; the way(s), if any, modern society is affected by it and what can we learn from it today.

Scaled-down models could be of a machine, ship, battering ram, or a catapult, for example. Models must be functional and accompanied by a summary paper, at least 5 pages in length, discussing the abovementioned aspects (models must not cause damage or harm to people, property, or oneself). The class presentation will also demonstrate its use.

Project topics may be derived from one of the people-groups we discuss in class or from another people-group such as the Esquimaux (Inuit-Yupik) or the Aztec, Maya, or Moche. The time period: pre-Industrial Age.

Resources will include books, journal articles, and web sites with scholarly integrity. More about this aspect of the project will be discussed in class.

Guidelines for the research paper will be distributed in class and discussed on **Tuesday, 5 February 2019**.

Field Trip: Florida Renaissance Festival. (Subject to Change).

Date: Saturday, 23 February 2019. Weekend Theme: "Vikings and Barbarians."

Time: 10.00 a.m. Deerfield Beach, Quiet Waters Park.

Meeting Place: Meet at ticket booth.

Address: 401 South Powerline Road, Deerfield Beach, FL

Admission Fee: \$25.00. Plus, 1.50 Quiet Waters Park entry fee, per person. (Fee Subject to Change).

The Florida Renaissance Festival is an annual event that recreates various aspects of the Medieval and Renaissance periods in Europe. The Dark Ages, a.k.a. Middle Ages or Medieval period, lasted from ca. 5th to the 14th/15th centuries and was a period of population decline, urban decline, wars, movement of peoples, substantial political restructuring, and the strong grip of the Catholic Church.

The Renaissance was a period that bridged the Medieval period and the modern age. It was a period of intellectual, artistic, scientific, and technological reawakening. There was a rediscovery of Greek and Roman classical period writers, art, science, philosophy, mathematics and technology and a revival of intellectual curiosity, research, and innovation. It was a time of exploration, freedom from archaic religious ideals, and new trust of science and technology.

This vibrant and exciting time in history is re-enacted by actors, artists, and merchants at the Florida Renaissance Festival. Numerous aspects of the Medieval and Renaissance periods are brought to life through demonstrations, such as blacksmithing, trebuchet launching, a Viking trading post and an apothecary and more. Merchants attempt to recreate period costume, armor, and goods, remaining true to the original historic item as much as possible.

Although the Medieval and Renaissance periods occurred well after the periods we are discussing in class, the science and technology of these periods had not advanced much since the fall of the Roman Empire and can provide useful examples of topics discussed in class.

For our purposes, we will meet at the ticket booth at 10.00 a.m. Each person will pay for their own entrance fee. We will walk through the grounds as a group, visiting exhibits, demonstrations, and encampments that best relate to our class.

Once we have finished the field trip portion of the day, you are free to leave or stay to experience the rest of the festival. There are plenty of food options for lunch.

This field trip is optional; however, those who participate will receive extra credit. Field trips are worth three points and will be used to bump-up border-line grades.

Honors College Requirements

Registration in this course implies an acceptance of and compliance with the Honors College policies for students and the FIU Code of Academic Integrity.

Honors Engagement Requirements

Beginning in Fall 2014, Honors College students are required to accumulate at least **20 engagement points** each academic year (Fall and Spring) by attending Honors College activities. Students attending only one semester (Fall or Spring) are required to accumulate **10 engagement points**. See <http://honors.fiu.edu/current-students/citizenship/>.

Student Portfolios

The Honors College will be using a portfolio method to assess students' learning outcomes. The portfolio allows for maximum flexibility in gauging student learning. Students decide (with instructor consultation) what "artifacts" or assignments to include for consideration in their portfolios to demonstrate successful achievement of each of five key student learning outcomes over the 4-year Honors experience. See <http://honors.fiu.edu/current-students/citizenship/>.

Honors Education in the ARTS (HEARTS)

The HEARTS program is designed to give Honors College students opportunities to "explore and appreciate different artistic and cultural traditions and modes of artistic expression. HEARTS will also serve as a clearinghouse (and curatorial framework) for our students to experience the arts on campus and in the community by providing them with information about cultural activities and access to performances with free or discounted tickets. See <http://honors.fiu.edu/hearts/>.

Honors College Academic Misconduct Statement

In The Honors College, the term "honor" refers both to academic accomplishment and character. Students in Honors should therefore adhere to and be held to the highest standards of personal academic accountability. Academic dishonesty in any form, including plagiarism, is antithetical to the very definition of being an Honors student at FIU. Consequently, an Honors College student found responsible for academic misconduct will be dismissed from the College.

Procedures and Penalties

An Honors faculty member may bring charges of academic misconduct against an Honors student if the faculty member suspects plagiarism or other forms of academic misconduct. The faculty member will decide whether to pursue informal resolution, file formal resolution charges, or take no further action, and will follow the procedures outlined in the Honors College website (<http://honors.fiu.edu/honors-policies/>), and the Academic Misconduct Procedures, available at <http://integrity.fiu.edu/misconducts.html>.

Please refer to the following documents for additional information:

FIU Code of Academic Integrity – <http://integrity.fiu.edu/>.

FIU Student Handbook – <https://studentaffairs.fiu.edu/about/student-handbook/index.php>

FIU Honors College Plagiarism Policy – <http://honors.fiu.edu/honors-policies/> designated as Global Learning courses (IDH 2003-2004, IDH 3034-3035) must list specific Global Learning outcomes. Assignments must be able to assess the students' ability to demonstrate these outcomes. Questions on Global Learning should be addressed to Jose Rodriguez, rodrije@fiu.edu.

Religious Observances:

Every effort will be made, where feasible and practical, to accommodate students whose religious practices coincide with class requirements or scheduling. Please make sure to notify your instructor *at the beginning of the semester* of which dates you will be absent or any anticipated problems with completing course work.

Physical, Mental and Sensory Challenges:

Every effort will be made, where feasible and practical, to accommodate students who are so challenged. Should you require accommodations, contact the Disability Resource Center, if you have not done so already.

Code of Conduct:

Everybody in this class is expected to attend class regularly and observe FIU's Code of Academic Integrity! Failure to comply with these standards, plagiarism, copying fellow students' work, or cheating in any way may result in failure of an assignment or the class.

Academic Honesty and Plagiarism FIU Academic Misconduct Statement

Procedures:

An Honors faculty member may bring charges of Academic Misconduct against an Honors student. If the faculty member suspects plagiarism or other forms of academic misconduct, within one week of the discovery of the suspected act the faculty member will hold an informal meeting with the student in order to inform him/her of the allegation(s), provide any evidence available, and allow the student to respond. The faculty member will decide whether to pursue informal resolution, file formal resolution charges, or take no further action, and will follow the procedures outlined in the Academic Misconduct Procedures, available at <http://integrity.fiu.edu/misconducts.html>.

The student will have the right to appeal the outcome of the meeting with the instructor within one week of the faculty member's decision, when the decision is to pursue informal resolution or file formal resolution charges. The appeal will take the form of a letter to the Dean outlining the circumstances of the case and the reason for the objection to the professor's recommendation. The Dean or his designee will examine the case and make a final determination about the pursuit of Informal Resolution or the filing of formal resolution charges.

Penalties

An Honors College student found responsible for plagiarism or other academic misconduct by informal resolution or formal resolution will receive an F in the relevant Honors course, and will be dismissed from the Honors College by the Dean, effective from the end of the semester in which the infraction occurs. Dismissal will be in writing and will entail the loss of all privileges and benefits of being in The Honors College, and the student will not be readmitted to The Honors College. The decision of the Dean will be final. This decision relates solely to the student's status in The Honors College and does not affect the student's right to appeal the original faculty decision. The penalty of dismissal from The Honors College may apply to academic misconduct in any course within Florida International University and not only to courses offered by The Honors College. In the case of courses outside The Honors College, the Dean of The Honors College will rely on the Office of the Provost for notification about the infraction(s). More stringent penalties, such as dismissal from the university, may be pursued through the university's established academic misconduct process.

Emergency Management

The [FIU Department of Emergency Management](#) guides the university's all hazard preparedness, response, recovery and mitigation needs, by coordinating information and resources to protect our students, faculty, staff and visitors, and restoring operations as soon as possible following a disaster.

Some of the valuable safety resources you'll find on our website are:

- Information on [FIU Criminal Threats](#) to guide faculty, staff, and students who may be caught in an active shooting, bomb threat, or suspicious packages situation.
 - The FIU Police Department recommends downloading the app called "Stop the Bleed", which provides instructions on how to efficiently stop excessive bleeding when someone has been shot or has an open wound.
- The [FIU Safety Equipment Map](#) to identify all exits in your classrooms as well as all FIU safety equipment on-campus.
- Make note of the nearest Automated External Defibrillators (AED), Evacuation Chairs and Emergency Call boxes to your classroom.
- Information on the [FIU Emergency Alert System](#) and sign up for FIU Alerts.
- Information on how to prepare and deal with different [types of emergencies](#).

Exits closest to our classroom:

1. Through the Borders Café, down the steps, exit left through doors to outside.
2. Turn left, follow exit signs to steps, use exit doors near GC food pavilion.

Lecture and Reading Schedule: Spring Semester

(Schedule may be subject to change)

Week 1: Review and Energy in the Ancient World

1. 1/8: Review (briefly) last term and Power and Energy: attitudes toward technology; devices and mechanisms.
2. 1/10: Power and Energy (continued).

Reading:

Oleson, Chapters 1-3, 6, 31-32.

Landels, Chapters 1 and 2 (review).

Nunn, Chapters 1-5

Humphrey et. al., Chapters 2, 3 (review) and 13.

Baker, Chapter 7

E. Pászthory, "Electricity Generation or Magic? The Analysis of an Unusual Group of Finds from Mesopotamia."

Week 2: Medicine

1. 1/15: Ancient medicine: historical background.
2. 1/17: Ancient medicine, continued: pharmaceuticals, medicine (herbs, spices), surgical tools etc.

Reading:

Nutton, Chapters 1, 3-, 7, 9-11, 16, 18, 20.

Baker, Chapter 13

Nunn, Chapters 6-10

Week 3: Time, Distance, and Other Machines

1. 1/22: Counting mechanisms: calendars, astronomy, time keeping, distance measuring, etc.
2. 1/24: Counting mechanisms continued: "Antikythera Mechanism" and discussion.

Reading:

Hodges, Chapters 6, 7.

Baker, Chapter 16

Humphrey et. al. Chapter 11.

Video: "The Antikythera Mechanism World's Oldest Computer"

Oleson, Chapter 29.

Ancient Discoveries. (YouTube).

Week 4: Communication and Analytical Essay

1. 1/29: Communication, Finance, Market, Theater, literature, etc.
2. 1/31: **Analytical Essay – DUE: Tuesday, 5 February 2019 in class as a printed copy.**
And **Field Trip Sign-Up.**

Reading:

Humphrey, et. al., Chapters 11 (review) and 13.

Baker, Chapter 18

Oleson, Chapter 30.

Richard Chapters. 4-8.

Week 5: Warfare: Ancient Near East; Greece

1. 2/5: Warfare: ancient Near East – Mesopotamia, Canaan, Egypt, Sea Peoples, Phoenicians. **Essays Due in Class.**
Discuss research project proposals, guidelines – Topic Proposal due Tuesday, 19 February 2018 at the beginning of class.
2. 2/7: Greek warfare.

Reading:

Humphrey, et. al., Chapter 12.

Casson, Chapters 5-7.

Oleson, Chapter 26.

Baker, Chapter 9

Nutton, Chapter 12.

Shortland, Chapter 4. (Blackboard).

Lecture and Reading Schedule: Spring Semester

(Schedule may be subject to change)

Week 6: Warfare: Greece, Rome

- 2/12: Greek warfare, continued: "Greece in the Age of Alexander – Engineering an Empire" and discussion.
- 2/14: Roman warfare.

Reading:

Landels, Chapter 5.

Casson, Chapters 5-7.

Oleson, Chapter 27.

Nutton, Chapter 12 (review).

Week 7: Roman Warfare and Maritime Technology

- 2/19: Roman warfare continued: "The Roman War Machine" and discussion.
Research Project topic proposal due at the beginning of class.
- 2/21: Ships – manufacture of and transportation.

Reading:

Oleson, Chapters 24, 25.

Landels, Chapter 6, Appendix.

Hodges, Chapter 4 (review).

Humphrey et. al., Chapter 10B.

Casson, Chapters 8-12. (Recommended).

Video: "The Roman War Machine: Roman Siege Warfare"
(YouTube). Episode 3.**Week 8: Land Transportation and Analytical Essay**

- 2/26: Land Transportation.
- 2/28: **Analytical Essay – DUE: Tuesday, 5 March 2019 in class as a printed copy.**

Reading:

Humphrey, et. al. Chapter 10A.

Hodges, Chapter 6 (review).

Landels, Chapter 7.

Oleson, Chapters 22, 23.

Baker, Chapter 15

Week 9: Metallurgy; Textile Industry.

- 3/5: Metallurgy. **Essays Due in class.**
In-class sign-up for project presentation dates.
- 3/7: Textile Industry.

Reading:

Shortland Chapter 9. (Blackboard).

Humphrey et. al. Chapters 6 (review), 9.

Baker, Chapters 5, 10

A. K. Thomason, Her Share of the Profits: Women, Agency, and Textile Production at Kültepe/Kanesh in the Early Second Millennium BC. (Canvas).

Oleson, Chapters 16, 18, 19.

SPRING BREAK!!! 11-15 March 2018 Be Safe and Have fun!**Week 10: Personal Maintenance; Food**

- 3/19: Personal Maintenance.
- 3/21: Food: use, preparation, types, etc.

Reading:

Baker, Chapters 6, 11, 14, 17;

Oleson, Chapter 14;

Humphrey et. al. Chapter 3 (review), 4.

Lecture and Reading Schedule: Spring Semester

(Schedule may be subject to change)

Week 11: Environment and Analytical Essay

1. 3/26: Agriculture.
2. 3/28: Environment: human manipulation of, conservation (or not), the future.

Reading:

Landels, Chapter 6 and 7 (review).

Baker Chapter 19

Hodges, Chapters 4-6 (review).

A. B. Knapp and S. W. Manning, Crisis in Context: The End of the Late Bronze Age in the Eastern Mediterranean. (Canvas).

Week 12: Analytical Essay and Presentations

1. 4/2: Aliens?
2. 4/4: **Analytical Essay – DUE: Tuesday, 9 April 2019 in class as a printed copy.**

Weeks 13 through 14: Student Presentations

Each person will have 15 minutes to present their research project to the class. There will be 3/4 presentations per class period, leaving room for discussion.

NOTE: Class is not over. Attendance remains required. Be respectful of your classmates' work.

4/9 **Essays Due in class as printed copy.**

4/11

4/16

4/18– Class Summary.

Final Project Due: Thursday, 25 April 2019, GC 273A at 9.45-10.30 a.m.